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Evaluation of the Activities of Health Promotion and Communicable Disease Staff for the Control of Cholera Epidemic in Al-Hilla City

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Abstract : Background: Cholera is one of intestinal disease conceded life-threatening can spread rapidly from place to another and cause epidemic, affecting the population and the causative agent of cholera is gram-negative bacterium called Vibrio cholerae. In 2015 Iraq is facing an outbreak of cholera .There are many activities for the control of cholera epidemic we select the activities that provided by health promotion and communicable disease staff which included the health education the distribution of chlorine pills.
Objective: To evaluate the activities of health promotion and communicable disease staff for the control of cholera epidemic in Al-Hilla city, and determine the relationship between the activities of staff with demographic variables.
Materials and Methods : The present study is descriptive design and analytical study which held at the primary health care centers, at first and second sector of public health in Babylon government the sample was probability (simple random) selected from 20 primary health care centers .The data were collected by the interview with the participants on 4thNovember /2015 to 28thof June/2016. Design Likert Scale three level of activities (always, sometime, never) according to the national plan to control cholera epidemic.
Result: The findings of the study indicated the overall activities regarding control of cholera mild activities 7.5 %, moderate activities 75 % and high activities 17.5 %. No significant relationship was observed between the activities of the health promotion and communicable disease staff and their age, gender, workplace, occupation, levels of education, years of experience and years of employment at probability value more than 0.05.
Conclusion: The activities that provided by the health promotion and communicable disease staff were moderate and need to increase the focus because it the closely to community.
Keywords: Activities , Health promotion ,Communicable disease , Cholera epidemic.

Introduction

Cholera is one of intestinal disease conceded life-threatening can spread rapidly from place to another and cause epidemic, affecting the population and the causative agent of cholera is gram-negative bacterium called V. cholerae (Vibrio cholerae)[1].

When the epidemic of cholera occurs in the poor country, the fatality rates may be up to 50%, typically as a result of lack of services for treatment, or even because treatment will be given too delayed. As opposed, the well-organized reply with developed country disease control program founded reduce the fatality rate to lower than %1[2].

Although primarily affect the developing countries, the cholera epidemic remains serious general community health problem for a lot of developed countries [3].

Cholera endemic within the Indian subcontinent for hundreds of years and there are references recorded deaths caused by dehydrating diarrhoea founded in the writings of Hippocrates and Sanskri. the epidemic of cholera described in 1563 bythe Portuguese physician, Garcia delHuerto, in 1849the London physician, John Snowproven that the cholera transmission through water[4].

FilippoPacini in 1854 was first discovered V. cholerae and described in rod-shaped when test samples of stool from cholera patients and Robert Koch in 1883 was first isolated V. cholerae and proved conclusively that it was the agent of cholera[5].

Since 1817, researchers have documented cholera epidemics all across the world. A worldwide epidemic is called a pandemic. Other patterns of disease spread have also been observed for cholera. If the disease is present at a low, persistent level in a population, it is said to be endemic[6].

The world expose to seven pandemics of cholera, the first pandemic from 1817 to 1824 (Asiatic cholera) began spreading beyond the areas of India where it had long been endemic, especially Bengal and the Ganges river delta to Southeast Asia then China and Japan after that reach to Middle East and Russia. The second pandemic in 1827 to 1835, the wave of cholera move to North American and Europe particularly because of developments in traveling and international industry and increased human's migration through the soldiers[7].

The third pandemic from 1839 to 1856 brought the disease for the first time to South America, especially Brazil, and to much of North Africa as far west as Tunis. The fourth pandemic from1863 to1875, much of sub-Saharan Africa was ensnared in cholera's worldwide net. During 1881to1896 the fifth pandemic and sixth pandemic from 1899 to 1923 were less fatal because of high perception of cholera. Egypt and the Arabian peninsula, India, Persia, and the Philippines were hit hardest during these epidemics while other areas experienced severe outbreaks, in 1892 Germany and from 1910 to 1911 Naples. Indonesia was original of the final pandemic and emergence of a new strain, called ElTor, which often still persists today in developing nations around the world[8].

In 1965 – 1966 the Eltor biotype was transmitted from Asia and Middle East to Iraq and Iran through trading in the seventh pandemic[9].Cholera consider in Iraq since 1966 when the first cases appeared and increase to 277 cases which include 20 deaths the fatality rate reached to 8.8%. In the last forty years, all epidemic of cholera appears last months the and in the next year occur the second wave. Data refer to that the seasonality is not available, yet ordinarily cholera started in northern then distributed towards the centre and southern region[10].

According to the statistic of Iraqi Ministry of Health, in the last five years, theincidence of cholera was as following in 2010 two cases and not documented any case in 2011. In 2012 the number of casualties 653 cases of cholera. In 2013, one case of cholera and in 2014 not documented any case[11].

In 2015 Iraq is facing an outbreak of cholera that started in September along the Euphrates valley of the country. According to a Nov 26 WHO statement, from mid-September to November 22, nearly 2800cases of Vibrio cholerae 01 Inaba infection were reported in the country. Although WHO reported only two cholera related deaths in Iraq, the outbreak fuelled concerns across the region with reports of its spread to other countries such as Bahrain and Kuwait. The cholera outbreak has affected 17 of the 19 governorates in Iraq, according to WHO, with most cases reported in Baghdad (n=940), Babylon (n=675), Qadisiyyah (n=442), Muthanna (n=287), Karbala (n=157), and Basra (n=102). Neighbouring countries Kuwait and Bahrain have reported five and seven laboratory confirmed cases, respectively[12,13]. The presence of cholera in the country was because of the warm of climate in Iraq[14].

Methodology:

The present study is descriptive design and analytical study which held at the primary health care centers, at first and second sector of public health in Babylon government the sample was probability (simple

random) (40) subjects selected from 20 primary health care centers . The data were collected by the interview with the participants on 4th November /2015 to the 28th of June /2016. Design Likert Scale three level of activities (always ,sometime, never) according to the national plan to control cholera epidemic.

Results:

Table 1: Distribution of the health promotion and communicable disease staff by their demographic data:

Demographic data	Rating	Frequency	Percent
Gender	Male	23	57.5
	Female	17	42.5
Age /years	20-29	4	10
	30-39	11	27.5
	40-49	17	42.5
	50 and more	8	20
Work place	Disease unit	11	27.5
	Promote unit	29	72.5
Occupation	Medical assistant	7	17.5
	Nurse	33	82.5
Levels of education	Nursing school graduated	6	15
	Technical institute graduated	33	82.5
	College graduated	1	2.5
Years of experience	6-15	23	57.5
	16-25	14	35
	26-35	2	5
	36-45	1	2.5
Years of employment	6-10	25	62.5
	11-15	15	37.5

Table (1) indicated that the majority of the study sample (57.5%) was male and the remaining was female, most of them were (40-49) years old and accounted for (42.5%).the health promotion staff were (72.5%) more than the communicable disease staff were (27.5%) In regard to the occupation, the majority of the sample were nurses and they accounted for (82.5%) of the whole sample and the remaining was medical assistant (17.5%).Relative to their level of education, the greater number of them were technical institute graduated and they accounted for (82.5%) of the sample and (17.5%) of them were nursing school graduated. Concerning the number of years of experience in the field, the majority of the sample (57.5%) having 6-15 years of experience in the field, while (35%) having 16-25 years of experience .The majority of the sample (62.5%) are having (6-10) years of employment.

Table 2: Distribution of health promotion and communicable disease staff according to their activities about health education regarding control of cholera:

List	The Health education	Rating	Frequency	Percent
1	whendo health education	Epidemic disease	10	25
		Daily	24	60
		Weakly	6	15
2	The more means of spreading health education through it	The individual interview	16	40
		Mass crowds	11	27.5
		Publications paper	7	17.5
		Website of social media	6	15

Table(2) shows that (60%) of sample provide daily health education, (25%) are of them provide health education in the season of the epidemic and the lower number of sample (15%) provide health education weekly. In regard to the occupation, the majority of the sample were nurses and they accounted. In regarding the higher means of spreading health education were 40% of sample spreading health education through the individual interview ,27.5 %of them were provided health education by mass crowds,17.5% of sample give the health education through Publications paper (poster education),and lower percent of sample 15% show the health education by website of social media.

Table 3: Distribution of health promotion and communicable disease staff according to their activities about control of cholera:

Activates of Health education									
List	**Items**	**Never**		**Sometimes**		**Always**		**M.S.**	**Evaluation**
		F	**%**	**F**	**%**	**F**	**%**		
1	wash hands with soap and water well before perpetrating or have the food and after leaving the w.c.	**3**	**7.5**	**4**	**10**	**33**	**82.5**	**2.75**	**High acceptance**
2	Keep nails clean and short.	**7**	**17.5**	**25**	**62.5**	**8**	**20**	**2.2**	**Moderate acceptance**
3	Playing or swimming in river waters and source drink water.	**24**	**60**	**13**	**32.5**	**3**	**7.5**	**1.48**	**Mild acceptance**
4	Importance of protecting the resources of water you and the methods of storing it.	**7**	**17.5**	**23**	**57.5**	**10**	**25**	**2.08**	**Moderate acceptance**
5	Use the piped water (tap) because it is a source of clean and sterile, in the absence of piped water can filter the water from impurities then sterilize it in the manner of boiling or using chlorine.	**11**	**27.5**	**15**	**37.5**	**14**	**35**	**2.08**	**Moderate acceptance**
6	Educate the people about the method of using chlorine.	**2**	**5**	**14**	**35**	**24**	**60**	**2.55**	**High acceptance**
7	Use locally made ice to cool water.	**10**	**25**	**18**	**45**	**12**	**30**	**2.05**	**Moderate acceptance**
8	Wash the fruit and the vegetables well before eating.	**7**	**17.5**	**15**	**37.5**	**18**	**45**	**2.48**	**High acceptance**
9	Reheating stored foods well before eating.	**16**	**40**	**19**	**47.5**	**5**	**12.5**	**1.72**	**Moderate acceptance**
10	Importance of keeping the dishes or used kitchen tools clean to make or have food.	**7**	**17.5**	**27**	**67.5**	**6**	**15**	**1.98**	**Moderate acceptance**
11	Healthy disposal of human waste without polluting sources of water.	**21**	**52.5**	**12**	**30**	**7**	**17.5**	**1.65**	**Mild acceptance**
12	The control of flies through elimination of the places of proliferation.	**9**	**22.5**	**19**	**47.5**	**12**	**30**	**2.08**	**Moderate acceptance**
13	When the results of stool appear to be positive for V. cholerae go to the area of infected person and measure the ratios of chlorine in the water that used for drinking, if the ratio is low distribute chlorine pills to families.	**6**	**15**	**4**	**10**	**30**	**75**	**2.6**	**High acceptance**

14	Supply the families with high-risk areas by monthly quotas of chlorine.	**8**	**20**	**12**	**30**	**20**	**50**	**2.3**	**High acceptance**
15	Give one tablet of chlorine per day for a family consisting of five people or less (30 tablets per month) and increase the quota with the increase of the number of the family members.	**17**	**42.5**	**9**	**22.5**	**14**	**35**	**1.92**	**Moderate acceptance**
16	Increase the distribution of the quota of chlorine pills in epidemic wave of cholera, or if necessary.	**18**	**45**	**12**	**30**	**10**	**25**	**1.5**	**Mild acceptance**
17	Open a special record to document how reception and distribution of chlorine pills under the supervision of manager of the health center.	**4**	**10**	**1**	**2.5**	**35**	**87.5**	**2.78**	**High acceptance**
18	Conduct health education to the families about how to use chlorine pills and benefit from it.	**2**	**5**	**16**	**40**	**22**	**55**	**2.5**	**High acceptance**

Cut off point (0.66): mild acceptance (1-1.66), moderate acceptance (1.67-2.34), high acceptance(more than 2.34),F: Frequency,%:percentage, M.s:Mean of scores.

Table (3) reveals the activities of the health promotion staff and the communicable disease staff for control of cholera epidemic .These results were categorized by (cut off point) and (mean of scores) into mild , moderate and high acceptance; these include the activities for the health education contain :wash hands ,clean of nails,swimming in the rivers , the importance of protecting the resources of water ,Use the piped water (tap) ,educate the people about the method of using chlorine,made ice ,wash the fruit and the vegetables ,reheating stored foods ,the Importance of keeping the dishes or used kitchen tools clean ,healthy disposal of human waste ,the control of flies and the activities concerning with the distribution of chlorine pills contain : measure the ratios of chlorine in the water , distribute chlorine pills to families, document how reception and distribution of chlorine pills ,conduct health education to the families about how to use chlorine pills.

Table 4: Distribution of health promotion staff according to their overall activities about health education regarding control of cholera:

	Rating	**Frequency**	**Percent**	**M.S.**	**Evaluation**
Overall domain for promote health and control disease	Mild activities	3	7.5	2.1	Moderate active
	Moderate activities	30	75		
	High activities	7	17.5		
	Total	40	100		

Cut off point (0.66): mild acceptance (1-1.66), moderate acceptance (1.67-2.34), high acceptance (more than 2.34), M.S: Mean of scores.

Table (4) shows the overall activities toward control of cholera that include the highest percentage (75%) of the health promotion staff and communicable disease staff have high activities, (17.50%) of them have high activities and (7.50%) of them have mild activities.

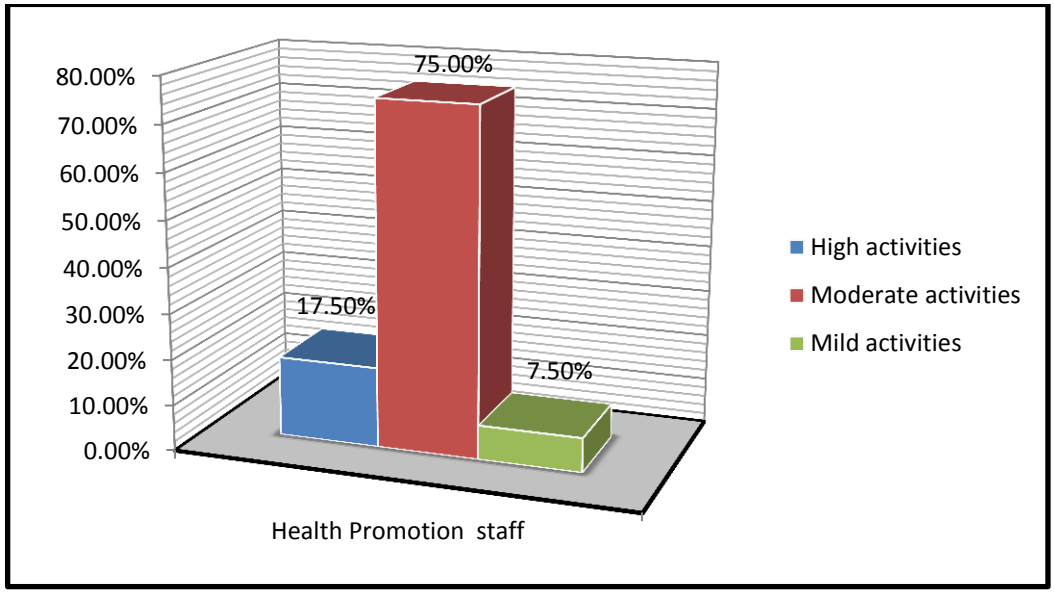

Figure 1 distribution of health promotion staff and communicable disease staff by their overall activities toward control of cholera.

The figure indicates the overall activities of the health promotion staff and communicable disease staff toward control of cholera that include the highest percentage (75%) of the health promotion staff have moderate activities, (17.50%) of them have high activities and (7.50%) of them have mild activities.

Table 5: Relationship between the health promotion staff activities and their demographic data

Demographic data	**Rating**	**Overall activities**			**Chi.sq**	**Critical value**	**D.f**	**p. value**
		mild activity	**moderate activity**	**high activity**				
Gender	Male	2	18	3	0.794	5.99	2	0.672
	Female	1	12	4				
Age /years	20-29	0	3	1	3.456	12.59	6	0.75
	30-39	0	10	1				
	40-49	2	11	4				
	50 and more	1	6	1				
Work place	Disease unit	2	7	2	2.574	599	2	0.276
	Promote unit	1	23	5				
Occupation	Medical assistant	0	6	1	.816	5.99	2	0.665
	Nurse	3	24	6				
Levels of education	Nursing school graduated	0	5	1	.984	9.49	4	0.912
	Technical institute graduated	3	24	6				
	College graduated	0	1	0				
Years of experience	6-10	0	5	1	6.462	12.59	6	0.373
	11-15	0	15	4				
	16-20	2	6	2				
	21-25	1	4	0				
Years of employment	6-10	0	20	5	2.5	5.99	2	0.736
	11-15	3	10	2				

Chi.sq:Chi square , D.f: Degree of freedom

Table (5) shows that no significant relationship between the activities of the health promotion staff and communicable disease staff and their age, gender, workplace, occupation, levels of education, years of experience and years employment at probability value more than 0.05.

Discussion:

A .Distribution of the health promotion staff and communicable disease staff by their demographic data

The findings of the study reveal that (42.5%) of the health promotion staff and communicable disease staff are within the age group forty to forty-nine years old,from researcher' point of view most Iraqi society is a young so needs to be someone close to the age level in order to build good communication and provide appropriate health education. and more than half of samples were males, the researcher' point of view the need to increase women's staff which provides health education because some of the topics that are sensitive for women and be accepted by the women's staff more than the men's staff. there are two units collaborate to provide the health education about control of cholera, health promotion unit and communicable disease unit, the result shows that (72.5%) of samples were working at the promote unit, most staff were nurses with technical institute graduated, this result is supported by study of al-Taee (2014) who conducted his study in primary health care centers in the governorate of Babylon the result show that (79.1 %) were technical institute graduated[15].

Nursing education in Canada is at the degree of diploma level. Auxiliary nurses are represented by registered practical nurses (RPNs) The majority of nurses in community health have scientific degrees. The educational programs provide nurses with a background in community health that prepares them for services in these areas. While the diploma programs offer some theoretical base, the university programs emphasize theory relevant to primary health care[16].

The results show that (57.5%) are having six to fifteen years of experience, and (62.5%) are having six to ten years of employment in occupational field. They have a good period of experience and service enable them to work in the health promotion and communicable disease units.

B . Distribution of health promotion staff and communicable disease staff according to their activities about health education regarding control of cholera

Table number 2 shows that (60%) provide daily education, this result provided health education good and increase campaigns when the spread of the epidemic and (40%) are provide single education. From the researcher' point of view single education is one of the most important ways in primary prevention. this result is supported by Neumann's model which emphasizes the importance of intervention through appropriate action in situations that are stress related. Intervention can be done through primary prevention, before the system reacts to a stressor before the individual suffers from cholera. This primary intervention can be through health education on how to prevent cholera[17].

The statistical analysis for the present study involved a statistical percentage, frequencies, and the mean of scores that used to divide the activities of the health promotion staff and communicable disease staff to control of cholera into mild satisfied, moderate satisfied and high satisfied.

The activities of the health promotion staff and communicable disease staff to control of cholera including 18 items. On investigating the activities of the health promotion and communicable disease staff in (Table No. 3), the results of the present study revealed that items number 1,6,8,13,14,17,18 were high satisfied and item number 2,4,5,7,9,10,12,15 were moderately satisfied except with items number 3,11,16, were mild satisfied . The distribution overall activities about control of cholera of the health promotion staff and communicable disease staff in (Table No. 4) and figure 1shows that the majority (75%) of the health promotion staff and communicable disease staff are moderately active toward control of cholera ,From researcher's point of view, the reason of this result may be attributed to the following reasons, Lack of emphasis on the following topics Keep nails clean and short, Importance of protecting the resources of water you and the methods of storing it, Use the piped water (tap) because it is a source of clean and sterile, in the absence of piped water can filter the water from impurities then sterilize it in the manner of boiling or using chlorine, use locally made ice to cool water, reheating stored foods well before eating, Importance of keeping the dishes or used kitchen tools

clean to make or have food, the control of flies through elimination of the places of proliferation and give one tablet of chlorine per day for a family consisting of five people or less (30 tablets per month) and increase the quota with the increase of the number of the family members, these items not always focus on them because of the reliance on paper publications and advertising of television or radio. In addition to touched for some items was very low such as playing or swimming in river waters and source drink water when asked the staff about this most their answer was no river in the region, also item healthy disposal of human waste without polluting sources of water from researcher's point of view some PHCC should be focused on this item because presence of drainage in the center of city, either item increase the distribution of the quota of chlorine pills in epidemic wave of cholera, was mild acceptance because most of PHCC was distributed depend on demand and the need and use piped water after confirmation the ratio of chlorine and distance of the water network.

C. Relationship between the health promotion staff and communicable disease staff activities and their demographic data

Table number 5 shows that there is a no-significant relationship between the activities of health promotion staff and communicable disease staff and their demographic data. From researcher's point of view, In explanation of the reason for no-acceptance relationship between the activities of health promotion staff and communicable disease staff and their demographic data that may be because most of the activities of a cadre of health promotion, including health education and the distribution of water sterilization pills were High and moderate significant except playing or swimming in river waters and source drink water and healthy disposal of human waste without polluting sources of water and Increase the distribution of the quota of chlorine pills in epidemic wave of cholera, or if necessary.

Conclusion

The activities that provided by the health promotion and communicable disease staff were moderate and need to increase the focus because it the closely to community.

Recommendation

1. Increase health education and community awareness through intensive lectures offered at mosques and Hussainiat to be public education and reach the largest number of people.
2. Add physicians to the program of health education about cholera and employ the academic nursing in the primary health care to raise the level of services.
3. I suggest to avoid the shortage of medical staff can be involved students of the medicine and students of the family & community nursing to face the epidemic after training them on health education to increase awareness among people.

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