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Attitude of health care workers towards acute flaccid paralysis surveillance system in Al-Najaf city

Halah J. Jasim[1], Najat H. Hassan[2]

[1] *M.Sc., Student Al-Furat Al-Awsat Technical University, College of Health and Medical Technologies Kufa, Health Techniques Department, Al-Najaf, Iraq.*

[2,] *Al-Furat Al-Awsat Technical University, Technical Institute of Karbala, Community Health Department. Iraq.*

E-mail: halajabbar96@gmail.com E-mail: inkr.njh@atu.edu.iq

Background*: As the gold standard for poliomyelitis case detection, acute flaccid paralysis (AFP) surveillance is an important method for monitoring progress toward the global eradication goal of poliomyelitis.* ***Aim of study****: To evaluate health workers' attitudes regarding Acute flaccid paralysis (AFP) in primary healthcare centers Najaf city.* ***Methods****: cross-sectional descriptive study was carried out in 18 primary healthcare centers located in 2 districts of Najaf city, using the method of simple random sampling technique. The research study includes 210 primary healthcare workers. A questionnaire was used to evaluate the acute flaccid paralysis attitudes of healthcare workers. Data collection from November 1, 2023, to the of February 31, 2024.* ***Result:*** *The results showed that health workers' assessment of their attitudes about the reporting case of AFP was good (2.35±0.684) and about Laboratory prosses case of AFP was fair (2.31±0.656). there is statistical significance between the attitude of health care workers and Age group/years, Education level, Specialists and experimental years in PHCs where P value (0.012, 0.012, 0.000, 0.002 respectively).* ***Conclusion:*** *Health care workers' attitudes about surveillance of acute flaccid paralysis were fair.*

Keywords*: Primary health care, Acute Flaccid Paralysis, Najaf*

INTRODUCTION

Acute flaccid paralysis surveillance played a major role in the global eradication of polio. The World Health Organization adopted this method to monitor the progress toward poliomyelitis eradication[1]. Acute Flaccid Paralysis (AFP) is a severe clinical symptom that could have a variety of different causes. Acute flaccid paralysis (AFP) is a clinical symptom characterized by the sudden onset of weakness or paralysis and decreased muscle tone (less periodic muscles of the respiratory tract). It occurs in 0.1–1% of infected cases and is the most frequent clinical manifestation of acute poliovirus infection[2]. Poliomyelitis is an acute viral infection caused by the RNA virus. It is primarily an infection of the human alimentary tract but the virus may infect the central nervous system in a very small percentage (1%) of cases resulting in varying degrees of paralysis, and possibly death [3]. Health care workers play a multifaceted role in AFP surveillance, including case identification through clinical diagnosis, timely reporting, and specimen collection. Their active involvement is critical for maintaining the sensitivity and accuracy of surveillance systems, directly impacting the success of polio eradication programs [4]. The awareness and knowledge of health care workers regarding AFP directly influence the accuracy and timeliness of case reporting.

Assessing their baseline awareness through surveys or interviews provides insights into the areas that may require additional training or educational interventions [5].

Iraq is still free from confirmed wild polio virus infection since the last case of poliomyelitis in 2014. When a single child remains infected, the children of the country become at risk of polio virus infection. As global eradication of polio fails this strongholds could result in 200 ,000 new cases every year within 10 years, all over the world[6]. Following the elapse of one year after the detection of last polio case, Iraq has been removed from the list of polio infected countries, but is still at highest risk for importation and resurgences of wild polio virus. Through polio surveillance, 289 new AFP cases were reported during the first 33 weeks of the year 2015 over all governorates. Adequate stools tested negative for polio and non polio enteroviruses at national polio laboratory[7].

METHODS

Subjects and Methods

This study was a descriptive, cross-sectional study conducted at 18 randomly selected Primary Health Centers in Najaf city. Data collection started from 1 November ,2023 to 1 February, 2024 the time allocated to collecting data was two days for each primary health care center.

Sampling Technique:

The Najaf city has 31 primary healthcare centres dispersed throughout two primary healthcare sectors (North sector, South sector). 18 centres were picked at random from all sectors using the simple random approach from each sector based on the sector aggregation map.

Study population:

The population includes all health workers (both sex) who work in immunization units (4), communicable disease unit(2),Integrate management newborn and child health (IMNCH) unit(4), pharmacy unit(3) and medical unit(2). The study population was 465, calculated according to the standard structure of the above units in each health care centre. The sample size for healthcare workers was (210) persons. The sample size was selected Depending on the attached equation to choose the appropriate sample size [8]. Sample size calculator:

$$n = \frac{N \cdot z^2 \cdot p \cdot (1-p)}{E^2 \cdot (N-1) + z^2 \cdot p \cdot (1-p)}$$

Where: N(Population size) ,z(Z-score corresponding to the desired confidence level)
p (Estimated proportion of the population)
,E (Margin of error) .The selection of this convenience sample adhered to specific criteria outlined as follows:

Inclusion criteria

HealthCare workers (both sex and all age groups) who work in the IMNCH unit, immunization units, communicable disease unit, pharmacy unit and medical unit in the healthcare center where verbal consent was taken and the purpose of the study was clarified.

Exclusion criteria

1. Staff who refused the interview.
2. All healthcare workers who did not have an administrative order to work in the relevant units.

Data collection technique:

Data were collected through questionnaire was prepared based on the information from the acute flaccid paralysis Program of the Iraqi Ministry of Health and the World Health Organization as well as the opinion and approval of experts[9].

Assessment of HCWs about attitude for AFP

In this section, a 3-point Likert scale scoring system was used for each question in all two domains ranging from 1 (Disagree), 2 (Not sure) to 3 (Agree) and according to the mean of the score for each question, we found the final assessment for this question according to Table (1)[10].

Table (1) 3-Point Likert Scale

Assessment	**Range**
poor	1.00-1.66
fair	1.67-2.33
good	2.34-3.00

Statistical Analysis: The data analysis was conducted using IBM-26. The data were presented using basic statistical measures such as percentage, frequency, standard deviation, and mean. Chi square is used to detect any association and p-value of 0.05 or less considered significant.

RERESULTS

Sociodemographic characteristics of healthcare workers

The following Table (2) provides a summary of the study group's characteristics, indicating that 59.5% of the workers were aged between 20 and 29. Regarding the residents, almost all of the respondents resided in cities, accounting for 89.5% of the healthcare workers. Furthermore, healthcare workers, specifically 46.2%, obtained a diploma degree. The majority of healthcare workers are female, comprising 71% of the workforce, The majority of healthcare workers are married, accounting for 66.7% of the total. Regarding the years of experience, most healthcare workers have served from (<1-5) years with percentage (36.7%).

Table (2) Characteristics of Health Care workers (HCWs)

variables		F	%
Age group	20-29 y	125	59.5%
	30-39 y	43	20.5%
	40-49 y	32	15.2%
	above 50	10	4.8%
Gender	female	149	71.0%
	male	61	29.0%
place	urban	188	89.5%
	rural	22	10.5%
married state	single	66	31.4%
	married	140	66.7%
	widow	4	1.9%
Education level	primary	26	12.4%
	diploma	97	46.2%
	bachelor	81	38.6%
	master	4	1.9%
	PhD	2	1.0%

Table (2) Characteristics of Health Care workers (HCWs)

variables		F	%
specialty	assist medical.	78	37.1%
	nurse	52	24.8%
	pharmacy	42	20.0%
	technical medical	36	17.1%
	physician	2	1.0%
Years of experience	<1-5	77	36.7%
	5-10	72	34.3%
	10-15	30	14.3%
	15-20	17	8.1%
	20-25	2	1.0%
	25-30	9	4.3%
	30-35	3	1.4%

Attitude of health care workers about reporting case of AFP

Table (3) presents attitude of health care workers about reporting case of AFP. The data reveals that the highest average score was in the question (Would you commit to sending notifications of the case report or active surveillance forms to the highest health level within the specified timeframe?) with mean and SD (2.74±0.509), followed by question (Track missing information on vaccination status, number of OPV and routine IPV doses and campaigns during case investigation?) with (2.50±0.676) with agree by 77.6%,61.0% respectively. While the lowest average was favored to the question (All surviving patients should be examined again 30 days after the onset of paralysis for research All surviving patients should be examined again 30 days after the onset of paralysis for research About permanent paralysis) with (1.58± 0.660), with agree by 51.4%.

Table (3) attitude of health care workers about reporting case of AFP

Item No.	Item	Agree		Neutral		Disagree		Mean	Std
		F	%	F	%	F	%		
1	Would you commit to sending notifications of the case report or active surveillance forms to the highest health level within the specified timeframe?	163	77.6%	40	19.0%	7	3.3%	2.74	0.509
2	Are you sending late reports (positive or negative) due to road closures or a sudden public holiday?	118	56.2%	73	34.8%	19	9.0%	2.47	0.657
3	Have you reviewed the AFP investigation form?	87	41.4%	74	35.2%	49	23.3 %	2.18	0.786
4	Is implementing vaccination in response to an outbreak when a case of acute flaccid paralysis is reported necessary?	126	60.0%	56	26.7%	28	13.3 %	2.47	0.720
5	Is there an AFP field guide for surveillance and any documented instructions from the Public Health Department regarding the monitoring mechanism and work in the program?	127	60.5%	57	27.1%	26	12.4 %	2.48	0.707

Table (3) attitude of health care workers about reporting case of AFP

Item No.	Item	Agree		Neutral		Disagree		Mean	Std
		F	%	F	%	F	%		
6	Do you follow up on missing information (date of travelling, date of visit, date of intramuscular injection) during the investigation	116	55.2%	74	35.2%	20	9.5%	2.46	0.664
7	Track missing information on vaccination status, number of OPV and routine IPV doses and campaigns during case investigation?	128	61.0%	60	28.6%	22	10.5 %	2.50	0.679
8	*All surviving patients should be examined again 30 days after the onset of paralysis for research About permanent paralysis	108	51.4%	82	39.0%	20	9.5%	1.58	0.660
9	Is it important to have a list of lines and data saved for cases?	79	37.6%	90	42.9%	39	18.6 %	2.19	0.730
10	Does holding events (workshops, seminars, conferences) for AFP observers in your organization contribute to their knowledge development?	111	52.9%	71	33.8%	28	13.3 %	2.40	0.713
11	Do you think you need training for filling out the form?	112	53.3%	74	35.2%	22	10.5 %	2.43	0.678
12	Are there any challenges in sending data in a timely manner?	93	44.3%	87	41.4%	30	14.3 %	2.30	0.706
Total		2.35±0.684				good			

***Reverse question**

Attitude of health care workers about Laboratory processes case of AFP

Table (4) presents attitude of health care workers about Laboratory processes case of AFP .The data reveals that the highest average score was in the question (The National Polio Laboratory must report the final results To the Polio Eradication Initiative Program Director and a monitoring unit within no more than 28 days from the time the sample is received at the laboratory.) with mean and SD (2.49±0.651), followed by question (When AFP is suspected, two samples are collected after 24-48 hours.) with(2.45±0.634)with agree by 57.1%,52.9%respectively. While the lowest average was favored to the question (The sample must be collected within a week of the onset of acute flaccid paralysis) with (1.63±0.666), with agree by47.1%.

Table (4) Attitude of health care workers about Laboratory prosses case of AFP

Item No.	Items	Agree		Neutral		Disagree		Mean	Std
		F	%	F	%	F	%		
1	When AFP is suspected, two samples are collected after 24-48 hours	111	52.9%	83	39.5%	16	7.6%	2.45	0.634
2	After collection, samples should be immediately placed in a refrigerator for shipping, or in a cool box between ice bags. Frozen at a temperature of 4-8°C.	103	49.0%	91	43.3%	14	6.7%	2.43	0.617

(Cont.)

Table (4) Attitude of health care workers about Laboratory prosses case of AFP

3	*The sample must be collected within a week of the onset of acute flaccid paralysis	99	47.1%	89	42.4%	22	10.5%	1.63	0.666
4	Samples must arrive at the laboratory within 72 hours of collection. If this is not possible, it should be frozen Samples (at 20°C)	92	43.8%	98	46.7%	20	9.5%	2.34	0.646
5	With dry ice or cold frozen cubes at 47°C, samples are shipped frozen, preferably at a temperature of -20°C	104	49.5%	88	41.9%	18	8.6%	2.41	0.644
6	Suitable sample size (8-10 grams) or the size of a thumb.	91	43.3%	93	44.3%	26	12.4%	2.31	0.681
7	A characteristic of the sample is that there is no evidence of leakage or drying in the samples	100	47.6%	84	40.0%	24	11.4%	2.37	0.682
8	When a case of AFP infection is suspected, a stool sample is collected from (3-5 contacts) in the event that the routine vaccination status of the case is not completed or in the event of the patient's death or failure to take any vaccine dose	112	53.3%	72	34.3%	24	11.4%	2.42	0.691
9	The National Polio Laboratory must report the final results To the Polio Eradication Initiative Program Director and a monitoring unit within no more than 28 days from the time the sample is received at the laboratory.	120	57.1%	72	34.3%	18	8.6%	2.49	0.651
Total		2.31±0.656		Fair					

***Reverse question**

Attitude of health care workers about acute flaccid paralysis

Table (5) show attitude of health care workers about Acute flaccid paralysis (AFP). overall attitude was fair.

Table (5) attitude of health care workers about acute flaccid paralysis

domain	mean	
Attitude of health care workers about reporting case of AFP	2.35	good
Attitude of health care workers about Laboratory prosses case of AFP	2.31	Fair
Overall attitude	2.33	fair

Relationship attitude of health care workers about AFP with Sociodemographic Characteristics.

The data in Table (6) displayed the correlation between demographic characteristics and attitude of health care workers of AFP for healthcare workers. The investigation indicated that there is not a statistically significant association with Sex, place and marital state where is (P =0.084, 0.070 and 0.121 respectively).

When considering Age group, the findings indicate that the highest proportion, 38.1% of healthcare workers aged 20-29 had good attitude compared to those in other experience brackets (30-39, 40-49, above 50), which had

percentages of 15.2%,10.5% and 1.0% respectively. A statistically significant difference was observed, with a p-value of 0.012.

Addressing educational levels, the findings indicate that a greater proportion of healthcare workers with a diploma, which is 33.3%, had strong attitude compared to those with other levels of education (primary, bachelor's, master's, PhD), which have percentages of 7.1%, 23.3%, 1.0% and 0.0% respectively, the observed difference was determined to be statistically significant with a p-value of 0.012.

Regarding Speciality, the findings indicate that a greater proportion of healthcare workers with a assistant medical., which is 29.5%, had strong attitude compared to those with other levels Speciality (nurse, pharmacy, technical medical, physician), which have percentages of 14.3%, 8.6%, 12.4% and 0.0% respectively, The observed difference was determined to be statistically significant with a p-value of 0.000.

Considering years of experience, the findings indicate that a greater proportion of healthcare workers 24.8% with ≥30 years of experience had strong attitude compared to those with other levels of experience (<1-4, 5-9, 10-14, 15-19, 20-24, 25-29), which have percentages of 23.8%, 7.1%, 6.7%, 0.0%, 1.0% and 1.4 % respectively, a statistically significant difference was observed, with a p-value of 0.002

Table (6) Relationship attitude of health care workers about AFP with Sociodemographic Characteristics.

variables		agree		neutral		disagree		P. value
		F	%	F	%	F	%	
Age group/years	20-29 y	80	38.1%	42	20.0%	3	1.4%	0.012 *
	30-39 y	32	15.2%	8	3.8%	3	1.4%	
	40-49 y	22	10.5%	8	3.8%	2	1.0%	
	above 50y	2	1.0%	6	2.9%	2	1.0%	
	Total	136	64.8%	64	30.5%	10	4.8%	
Sex	female	91	43.3%	52	24.8%	6	2.9%	0.084 **
	male	45	21.4%	12	5.7%	4	1.9%	
	Total	136	64.8%	64	30.5%	10	4.8%	
place	urban	121	57.6%	60	28.6%	7	3.3%	0.070 **
	rural	15	7.1%	4	1.9%	3	1.4%	
	Total	136	64.8%	64	30.5%	10	4.8%	
marital state	single	44	21.0%	22	10.5%	0	0.0%	0.121 **
	marital	88	41.9%	42	20.0%	10	4.8%	
	widow	4	1.9%	0	0.0%	0	0.0%	
	Total	136	64.8%	64	30.5%	10	4.8%	
Education level	primary	15	7.1%	8	3.8%	3	1.4%	0.012 *
	diploma	70	33.3%	20	9.5%	7	3.3%	
	bachelors	49	23.3%	32	15.2%	0	0.0%	
	master	2	1.0%	2	1.0%	0	0.0%	
	PhD	0	0.0%	2	1.0%	0	0.0%	
	Total	136	64.8%	64	30.5%	10	4.8%	
Speciality	assistant medical.	62	29.5%	12	5.7%	4	1.9%	0.000 *

Table (6) Relationship attitude of health care workers about AFP with Sociodemographic Characteristics.

variables		agree		neutral		disagree		P. value
		F	%	F	%	F	%	
	nurse	30	14.3%	16	7.6%	6	2.9%	
	pharmacy	18	8.6%	24	11.4%	0	0.0%	
	technical medical	26	12.4%	10	4.8%	0	0.0%	
	physician	0	0.0%	2	1.0%	0	0.0%	
	Total	136	64.8%	64	30.5%	10	4.8%	
experimental years in PHCs	<1-4	50	23.8%	24	11.4%	3	1.4%	0.002 *
	5-9	15	7.1%	10	4.8%	5	2.4%	
	10-14	14	6.7%	2	1.0%	1	0.5%	
	15-19	0	0.0%	2	1.0%	0	0.0%	
	20-24	2	1.0%	6	2.9%	1	0.5%	
	25-29	3	1.4%	0	0.0%	0	0.0%	
	≥30	52	24.8%	20	9.5%	0	0.0%	
	Total	136	64.8%	64	30.5%	10	4.8%	

*** Significant at level (P≤0.05).**

**** Non-Significant at level (P>0.05).**

Conclusions

1. Health workers' attitude towards reporting acute flaccid paralysis was good while laboratory processes were fair.
2. There is a significant relationship between age group, specialization, education level and years of experience and health workers' attitude about acute flaccid paralysis.

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