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Knowledge and Attitude of The Medical Staff Toward Poliomyelitis and Polio Vaccination Campaign: A Cross–Sectional Study in Al-Najaf Al -Ashraf City–Iraq

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ABSTRACT

Background: *Medical staff needs to understand factors that affect poliomyelitis vaccination because their attitudes about vaccination are highly associated with rates of childhood vaccination if medical staff do not view a specific vaccine as necessary or acceptable, vaccination campaigns can be ineffective.* ***Aim of the study:*** *To assess the knowledge and attitudes of the medical staff toward poliomyelitis and polio vaccination campaigns.* ***Patients and methods:*** *A cross-sectional study conducted from 1st of January 2019 to 29th February 2020, and included (332) medical staff from randomly selected hospitals and primary health centers. Data were collected using a questionnaire designed for the study, which consists of three parts: socio-demographic and personal information, knowledge, and attitude. for knowledge, each correct answer scored 1 while the wrong one scored 0. For attitude, each "agree" answer scored 1 while "disagree" or "I don't know" scored 0. Statistical analyses were done using SPSS version 26 and a P- value ≤0.05 was considered Statistically significant.* ***Results:*** *The study included 332 medical staff: 143 (43.1%) doctors, 77 (23.2%) dentists, and 112 (33.7%) pharmacists. The mean knowledge score was higher among doctors than dentists and pharmacists (18.22, 15.38, and 15.67, respectively, p = 0.0001). As age increased, the mean knowledge score also increased (20.22 for 50-59 years old vs. 14.81 for 23-29 years old, P = 0.0001). The attitude score followed the same trend, being higher among doctors and older age groups (2.97 vs. 2.68 and 2.82, P = 0.0001) and higher for the older age group (3 vs. 2.82, P = 0.0001).* ***Conclusions:*** *The mean knowledge and attitude scores of doctors are significantly higher than dentists and pharmacists and for the older age group.*

Keywords: Attitude, Knowledge, Polio Campaign, Poliomyelitis.

Article Information

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INTRUDUCTION

Poliomyelitis (polio) is a highly contagious viral disease caused by the poliovirus that most commonly affects children under 5 years of age. It is a serious problem in large parts of the developing world and continually poses threat to the child population with critical concerns for social and economic development [(1)].

Poliomyelitis is mainly transmitted via the fecal-oral route and through person-to-person contact with infected secretions from the nose and mouth. Approximately 95% of individuals infected with polio show no apparent symptoms, while another 4%–8% experience minor, non-specific symptoms such as sore throat, fever, nausea, and vomiting, which are common to many viral illnesses [(2)].

There are two rounds per year for the polio vaccine campaign, each round consists of two campaigns one month apart, the first campaign runs in March and the second one usually runs in October and the target group includes all the children from birth to five years. Polio vaccine is one of the most important vaccinations imposed on children .It is therefore included in the compulsory vaccination program in all countries, it is essential for the prevention of polio, which affects the nervous system and the life of the person in general [3].

Improving the immunization-related knowledge and attitudes of medical staff is vital. Enhanced knowledge about the risks and benefits of vaccination can significantly influence the success of immunization campaigns. Medical staff plays a critical role in child immunization and have a positive impact on parents' decisions regarding vaccinations. Therefore, medical staff needs to understand the factors that influence polio vaccination. Their attitudes towards vaccination are closely linked to children's vaccination rates. If medical staff do not perceive a particular vaccine as necessary or acceptable, vaccination campaigns may become ineffective. Barriers to immunization include misinformation about vaccine-preventable diseases, concerns about adverse effects, and misunderstandings about the development of diseases post-vaccination. Gaps in medical staff's knowledge about adverse effects and contraindications often lead to decreased immunization rates [4 5 6].

The medical staff is considered as an important member of society to fight endemic diseases like polio. The role of medical staff is exceptional for improving access to healthcare and health-seeking behavior [7]. Medical staff forms an important part of immunization campaigns this is expected to increase vaccination coverage. Furthermore, the medical staff is also responsible for ensuring the effectiveness of polio vaccines by adhering to cold chain guidelines [8]. They are the source of information to the parents and the community about the importance and benefits of vaccination. Therefore, the medical staff needs to have the proper knowledge and positive attitudes toward polio vaccination as it is crucial to the success of immunization campaigns. Furthermore, assessment of knowledge and attitudes is an ongoing process that serves as an educational diagnosis among medical staff to assess changing beliefs and behaviors over time [9]. So that this study aimed to assess the knowledge and attitude of the medical staff toward poliomyelitis and polio vaccination campaigns.

PATIENTS AND METHODS

The Study Design: A cross - sectional study from 1st January 2019 to 28th February 2020.

Setting: Primary health care centers and Hospitals in Al - Najaf city - Iraq.

Subjects: By using a simple random sampling, four major hospitals.

Controls: Seventeen primary health care centers were selected. The participants were selected conveniently.

Instruments

Data were collected by a questionnaire constructed by the researchers and derived from previous articles on medical staff knowledge and attitudes toward the poliomyelitis vaccination campaign (10 7) the questionnaire was reviewed by a panel of five experts in the field with an experience of more than five years. It includes full Socio-demographic and personal information and an assessment of medical staff knowledge and attitude toward the poliomyelitis and polio vaccination campaign. The data were collected by direct interviews with the medical staff.

Scoring: Regarding knowledge, each correct answer was given a score of 1, and each incorrect answer was given a score of 0. For attitude, each 'Agree' response was given a score of 1, while 'Disagree' or 'I don’t know' responses were given a score of 0."

Sample size calculation

The sample size estimation was according to the following equation

Sample size $= \frac{Z1-\alpha/2^2 P(1-P)}{d^2}$ [11]

Where Z1-α/2 equals 1.96 at 95% confidence intervals, d was decided to be 5%, and the expected proportion of the population with good knowledge about the polio vaccination Campaign based on previous studies in Pakistan is 70% of good knowledge, so that the minimal sample size equals332.

Pilot Study: Before collecting information, a two-week pilot study was conducted in Al - Sader Medical City from first to 14th. March 2019 on 20 medical personnel who were excluded from the study sample. It aimed to test the validity and reliability of the questionnaire and estimate the time needed for the collection of data, in addition to find any other difficulties. Modifications were made to the questionnaire according to the pilot study.

Ethical approval

The study was approved by the Iraqi Council for medical specialization, an official agreement from al Najaf – al Ashraf general health directorate and verbal consent was obtained from all participants. the data were kept confidentially.

STATISTICAL ANALYSIS

The collected data were summarized and analyzed statistically using the statistical package for the social science (SPSS) software. Mean and SD for continuous variables, t-test was used to compare the mean knowledge and attitude score between males and females, and ANOVA test was used to compare mean knowledge score among different occupations and age groups. Frequency and percentage illustrated categorical data; chi-square test was used to find associations between categorical variables. P-value ≤0.05 was considered Statistically significant.

RESULTS

The current study consists of 332 medical staff. They were distributed as follows: 143 (43.1%) doctors, 77 (23.2%) dentists, and 112 (33.7%) pharmacists. Regarding sex distribution, 134 (40.4%) were males and 198 (59.6%) were females. The mean age is 32.5±6.3 years with a minimum of 23 years and a maximum age of 55 years, the details of the socio-demographic features of the medical staff are shown in Table 1. The mean knowledge score was significantly higher among doctors than dentists and pharmacists (18.22, 15.38 and 15.67, respectively) P= 0.0001. As the age increases, the mean knowledge score increases (20.22 for 50-59 years old vs 14.81 for 23-29 years old) P= 0.0001. The attitude score followed the same role as it was higher among doctors (2.97 vs 2.68 and 2.82 with P = 0.0001) and older age group staff (3 vs 2.82 with a P = 0.0001). There was no significant difference in the knowledge and attitude regarding sex, as shown in Table 2.

Regarding the percentage of correct answers to knowledge questions, in general, the doctors had a higher percentage of correct answers and this is significant in questions about the causative agent, the main route of transmission, other possible routes of transmission, the routes of vaccine administration, immunization through a campaign to prevent poliomyelitis if poliomyelitis vaccine can cause paralysis, Poliomyelitis vaccination can be given with other vaccines in the same time, lack of immunization against polio is a major risk factor of poliomyelitis, More than one dose of vaccine required for complete protection, poliomyelitis drops vaccine can be given to a child with a mild illness, vomiting, and diarrhea are not

contraindicated to oral poliomyelitis vaccination, Poliomyelitis can cause the death of the patient and inactivated poliomyelitis vaccine (IPV) can't cause poliomyelitis, as shown in Table 3. For the attitude of the medical staff toward the polio campaign, 326 (98.2 %) supported immunization, with doctors being (100 %) agreed than others but with no significant relationship, while 309 (93.1 %) accepted immunization, which was significantly higher in doctors (100 %) than others.

Of the total sample, 305 (91.9 %) preferred immunization which again was significantly higher in doctors (97.2 %) than others, as shown in Table 4.

Table (1): Socio-demographic features of the sample (N= 332).

Feature		No.	%
Age group (years)	23-29	102	30.7
	30-39	184	55.4
	40-49	37	11.1
	50-59	9	2.7
Sex	Male	134	40.4
	Female	198	59.6
Occupation	Doctor	143	43.1
	Dentist	77	23.2
	Pharmacist	112	33.7
Address of work place	Primary health care centers (PHC)	222	66.9
	Hospitals	110	33.1
Marital Status	Married	263	79.2
	Unmarried	69	20.8
Number of children	No	87	26.2
	1-3	196	59.0
	4+	49	14.8

Table (2): The mean knowledge and attitudes scores according to sex, occupation, and age group.

Variables	Subgroup	Knowledge mean scores	P value	Attitudes mean scores	P value
Sex	Male	16.81	0.99	2.84	0.9
	Female	16.80		2.82	
Occupation	Doctor	18.22	0.0001	2.97	0.0001
	Dentist	15.83		2.79	
	Pharmacist	15.67		2.68	
Age group (years)	23-29	14.83	0.0001	2.82	0.0001
	30-39	17.45		2.83	
	40-49	18.22		2.81	
	50-59	20.22		3.00	

Table 3: The distribution of medical staff knowledge about poliomyelitis and poliomyelitis vaccination campaign.

Item name	Doctors N=143	Dentists N=77	Pharmacists N=112	Total	P value
Poliomyelitis is a viral disease	140 (97.9%)	64 (83.1%)	103 (92%)	307 (92.5%)	0.002*
The main route of transmission through feco- oral route	134 (93.7%)	49 (63.6%)	76 (67.9%)	76 (67.9%)	0.0001*
Route of vaccine administration through oral and injectable route	48 (33.6%)	17 (22.1%)	41 (36.6%)	106 (31.9%)	0.01*
What is the target age group for the Poliomyelitis Vaccination Campaign (0-5 years)	133 (93.0%)	67 (87.0%)	102 (91.1%)	302 (91.0%)	0.3
The target group includes children Who are all children regardless of immunization status	129 (90.2%)	64 (83.1%)	88 (78.6%)	281 (84.6%)	0.08
Immunize your child through a campaign, to prevent poliomyelitis	84 (58.7%)	34 (44.2%)	36 (32.1%)	154 (46.4%)	0.0001*
All children should be vaccinated in the campaign	136 (95.1%)	71 (92.2%)	110 (98.2%)	317 (95.5%)	0.1
Paralysis in Poliomyelitis is not curable	120 (83.9%)	53 (68.8%)	86 (76.8%)	259 (78.0%)	0.1
Poliomyelitis is preventable	142 (99.3%)	72 (93.5%)	105 (93.8%)	319 (96.1%)	0.1
Poliomyelitis can also be transmitted through contaminated food and water by the feces of an infected person	128 (89.5%)	64 (83.1%)	91 (81.3%)	283 (85.2%)	0.04*
poliomyelitis vaccine can cause paralysis	123 (86.0%)	66 (85.7%)	72 (64.3%)	261 (78.6%)	0.0001*

Immunization is the most effective way of preventing poliomyelitis	123 (86.0%)	59 (76.6%)	86 (76.8%)	268 (80.7%)	0.1
Poliomyelitis vaccination can be given with other vaccines at the same time	140 (97.9%)	64 (83.1%)	93 (83.0%)	297 (89.5%)	0.0001*
Lack of immunization against poliomyelitis is a major risk factor for poliomyelitis	127 (88.8%)	72 (93.5%)	103 (92.0%)	302 (91.0%)	0.001*
More than one dose of vaccine is required for complete protection	140 (97.9%)	56 (72.7%)	91 (81.3%)	287(86.4 %)	0.0001*
Healthy children also need vaccination	134 (93.7%)	71 (92.2%)	99 (88.4%)	304 (91.6%)	0.1
Poliomyelitis drops vaccine can be given to children with a mild illness	87 (60.8%)	38 (49.4%)	52 (46.4%)	177 (53.3%)	0.0001*
Vomiting and diarrhea are not contraindicated by oral Poliomyelitis vaccination	54 (37.8%)	23 (29.9%)	18 (16.1%)	95 (28.6%)	0.0001*
Poliomyelitis can cause the death of the patient	77 (53.8%)	41 (53.2%)	47 (42.0%)	165 (49.7%)	0.01*
Inactivated poliomyelitis vaccine (IPV) can't cause poliomyelitis	83 (58.0%)	31 (40.3%)	44 (39.3%)	158 (47.6%)	0.005*
The poliomyelitis campaigns are necessary	136 (95.1%)	72 (93.5%)	108 (96.4%)	316 (95.2%)	0.5
If the child completes vaccination on a card regularly, it is not sufficient, and need a vaccination campaign	74 (51.7%)	26 (33.8%)	50 (44.6%)	150 (45.2%)	0.1
Repeated vaccination in poliomyelitis campaign can't cause vaccination overdose	114 (79.7%)	47 (61.0%)	55 (49.1%)	216 (65.1%)	0.0001

Table 4: Distribution of attitude questions in the studied sample.

Attitude	The variables	Group			Total	p
		Doctors N=143	Dentists N=77	Pharmacists N=112		
Do you support the immunization activity against Poliomyelitis in the campaign	Agree	143(100%)	75(97.4%)	108(96.4%)	326(98.2%)	0.1
	Disagree	0 (0.0%)	2 (2.6%)	2 (1.8%)	4 (1.2%)	
	I don't know	0 (0.0%)	0 (0.0%)	2 (1.8%)	2 (0.6%)	
Do you accept the immunization with Poliomyelitis vaccination campaign	Agree	143(100%)	70(90.9%)	96 (85.7%)	309(93.1%)	0.0001
	Disagree	0 (0%)	6 (7.8%)	14 (12.5%)	20 (6.0%)	
	I don't know	0 (0.0%)	1 (1.3%)	2 (1.8%)	3 (0.9%)	
Do you prefer immunization with a vaccination campaign	Agree	139(97.2%)	70(90.9%)	96 (85.7%)	305(91.9%)	0.02
	Disagree	4 (2.8%)	5 (6.5%)	11 (9.8%)	20 (6.0%)	
	I don't know	0 (0.0%)	2 (2.6%)	5 (4.5%)	7 (2.1%)	

DISCUSSION

Poliomyelitis (polio) is a highly infectious viral disease; that most commonly affects children under the age of 5 years. [1]. To our knowledge, this is one of the few studies to assess medical staff knowledge and attitude towards the polio vaccination campaign. The results revealed that doctors had a significantly higher mean knowledge score than dentists and pharmacists. This finding is consistent with previous studies conducted in Nigeria, Pakistan, and India [12 13 14]. This disparity might be attributed to the fact that polio is more extensively covered in the curriculums of medical schools compared to dentistry and pharmacy schools, highlighting a gap in the teaching of this important subject.

In the current study, medical staff aged 50 - 59 years; were found to have a higher mean knowledge score than younger medical staff, this finding is similar to studies conducted in Pakistan and Saudi Arabia [13] [15]. This could be explained by the older the medical staff, the more the experience with poliomyelitis and polio vaccination campaigns. In contrast to a study conducted in Nigeria [16]., which showed that a high percentage of medical staff with good knowledge had few years of employment. our findings indicate otherwise. These differences could be attributed to variations in the medical school curricula, postgraduate training programs, and sample characteristics.

Regarding sex, there was no significant difference between males and females in the mean knowledge score, while a study conducted in Pakistan [13] reported a higher percentage of males than females had good knowledge this might be explained by similar academic achievement in males and female medical staff in Iraq and both have participated in regular and obligatory training courses designed by the ministry of health in Iraq.

For the attitude, there was a significant relationship between medical staff attitude and occupation where doctors had significantly higher mean attitude scores than dentists and pharmacists, this difference might be related to the lack of educational programs about the benefits of poliomyelitis vaccination campaigns for these groups and less contribution to the vaccination and campaign activities for dentists and pharmacists. This agreed with a study conducted in Pakistan where the doctors had significantly higher mean attitude scores than other groups of medical staff. [13].

With increasing age, the mean attitude score significantly increases, which is agreed with a study conducted in India [14]. This could be explained by the older medical staff the more experience with poliomyelitis and polio vaccination campaigns. In contrast to a study conducted in Pakistan where the younger medical staff had a positive attitude this might be attributed to the health system in Pakistan [13].

Again, there was no significant difference between males and females in the mean score of attitudes this might be due to both males and females being afraid of mistakenly conserved vaccines. The results from previous studies regarding attitude and sex are controversial as a study in Saudi Arabia showed that the positive attitude was associated with the female sex and the most likely reason for this discrepancy because the females regard the vaccine as an important issue to enhance their child health as well as prevention of disease; however, education program still needs to improve the information [17].

Opposite to it, a study conducted in Pakistan showed that the positive attitude was associated with the male sex than females. The most likely reason for this discrepancy might be due to the male more attending the conferences about the recent intensification of the polio education program in Pakistan. [13]. A study conducted in Malaysia found that the attitude of medical staff both males and females was poor and negative toward the vaccination in campaigns due to geographical factors and deprived equipment. [18].

This study also shed light on the areas where knowledge gaps were identified such as vomiting and diarrhea are contraindications to an oral poliomyelitis vaccination (71.4 %) and there is no possibility of death with polio (50.3%) this result was agreed with a study in Pakistan [19]. As (65.3 %) of the participants answered that vomiting and diarrhea are contraindicated to oral poliomyelitis vaccination and (36.9 %) there is no possibility of death with polio and disagreed with a study in Saudi Arabia [20], as the vomiting and diarrhea are contraindicated to oral poliomyelitis vaccination (19 %) and there is no possibility of death associated with polio (24%).

In the current study the percentage of medical staff that refused to immunize their child through campaign was (53.6%), and the rate of the participants that answered the question (Poliomyelitis is not preventable) was (3.9 %), and (8.4%) responded that the healthy child does not need vaccination, this result disagreed with a study in Saudi Arabia that identified the percentage of medical staff that refused to immunize their child through campaign was (12.8%), poliomyelitis is not preventable (20.3%), healthy child did not need vaccination (3.7%) [20], and about polio is not a viral disease (7.5%), lack of immunization against poliomyelitis is not a major risk factor of polio (9%) the main route of transmission is not through feco- oral route (32.1%), Paralysis in Poliomyelitis is curable (22%), Immunization is not the most effective way of preventing poliomyelitis (19.3%) and these results also disagreed with a study in Pakistan that identified poliomyelitis is not a viral disease (3.8%), lack of immunization against polio is not a major risk factor of polio (19.2%) the main route of transmission is not through the fecal-oral route (18.6%), Paralysis in Poliomyelitis is curable (68.1%), immunization is not the most effective way of preventing poliomyelitis (5.1%).[19]. These findings might be due to a lack of

information about the administration of the polio vaccine, the contraindications, and fear of the expiration of the vaccine these causes might have far-reaching implications as it could be a contributing factor towards the failure of immunization campaigns [19 20].

CONCLUSIONS

The knowledge and attitude of doctors are higher than those of dentists and pharmacists. There is no difference between males and females in the knowledge and attitude. Additionally, the knowledge and attitude are higher among the older age group.

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