

KAP STUDY

Mother's knowledge and attitudes regarding poliomyelitis eradication among a sample in Bab Al Muadham health centre in Baghdad city, Iraq

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Abstract

Objective: To determine knowledge and attitude and practice of mothers towards poliomyelitis vaccination.

Method: The cross-sectional study was conducted from October 2019 to March 2020 at Bab Al-Moadham Health Centre, Baghdad, Iraq, and comprised mothers regardless of age who were visiting the child care unit with at least 1 child aged <5 years. Data was collected through a questionnaire. Data was analysed using SPSS 10.

Results: There were 150 mothers with a mean age of 31.08±9.31 years. The largest age group was 20-29 years 90(60%) ($p<0.05$). There were 100(66.6%) subjects from urban areas, and 67(44.6%) had at least a college degree ($p<0.05$). The most common source of information was television 110(73.3%), and 135(90%) subjects agreed that polio vaccine for the child was a necessity. Overall assessment of the sample was good, with a percentile global means of the score value of 50.30±9.81.

Conclusion: Urban, educated and working mothers aged 20-29 years were more knowledgeable about polio than the rest.

Keywords: Health, Knowledge, Attitudes, Poliomyelitis, Vaccination, Eradication.

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Introduction

The World Health Assembly in 1988 adopted a landmark resolution regarding the eradication of polio from across the globe, and effective steps were subsequently taken, leading to good results when the caseload reduced significantly in 2018 compared to 2016.¹ When it happens, polio will be the third disease to be eradicated after smallpox and rinderpest.² All but 99% of polio cases around the world have been taken care of through international and media attention,³ but the final 1% seems to be the hardest part in the journey.⁴ The global polio infection rates drastically decreased between 2011 and 2017,⁵ but even with such progress, the final 1% has remained elusive.⁶ However, there is renewed and the primary goal of the eradication effort is to stop the spread of endemic poliovirus.⁷ There are four main methods used by the World Health Organisation (WHO) in this regard; high vaccination rates for new babies in developing countries, regular oral poliovirus vaccines (OPV) administration,⁸ organising National Vaccination Days to administer a supplemental OPV dosage to every child aged <5 years, and, finally, covert surveillance of the wild poliovirus by reporting and laboratory testing of all cases of acute flaccid paralysis.^{9,10,11} The strategy was adopted in 2009 to detect the main barriers that are interrupting efforts towards global eradication of poliomyelitis.^{12,13} Over the years, barriers and challenges have been identified that need to be overcome.¹⁴

The current study was planned to determine knowledge and attitude and practice (KAP) of mothers towards polio vaccination.

Subjects and Methods

The cross-sectional study was conducted from October 2019 to March 2020 at Bab Al-Moadham Health Centre, Baghdad, Iraq. In the absence of a research ethics review committee, approval was obtained from the scientific committee of the Iraqi Ministry of Health. The sample size was calculated using the formula:¹⁵

$$n = \frac{NP(1-P)}{(N-1)\left(\frac{d}{Z_{1-\alpha/2}}\right)^2 + P(1-P)} \quad (1)$$

After permission from the Rusafa Health Directorate and the health centre, the sample was raised using non-probability convenience sampling technique. Those included were mothers regardless of age who were visiting the child care unit with at least 1 child aged <5 years. Those who did not meet the criteria were excluded.

After taking informed consent form all the subjects, data was collected using a predesigned questionnaire which was drafted in both Arabic and English languages. It was based on content validity and assessed by a panel of 10 experts, each having over 15 years of professional experience. Parts of the questionnaire were modified in the light of the comments received from the panel of experts. Internal consistency of the questionnaire was checked using Cronbach's alpha (α),

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Alpha Cronbach (α) for the reliability of questionnaire (Internal consistency).

Where;

$$\alpha = \frac{K}{K-1} \left[1 - \frac{\sum_{i=1}^K \sigma_{ii}}{\sum_{i=1}^K \sum_{j=1}^K \sigma_{ij}} \right]$$

Where K is the number of items (questions) and σ_{ij} is the estimated covariance between items i and j. Note the variance (not standard deviation) of item 1 and reliability coefficient for the pilot study was assessed using Al-Naqeeb formula.

Reliability Coefficient for the pilot study were calculated by the following formula:¹⁶

$$\text{Actual value} = \left(1 - \frac{\text{no. of non coincidences items}}{\text{no. of all items} \times \text{sample size of pilot study}} \right) * 100\%$$

Data was analysed using SPSS 10. Data was expressed as either frequencies and percentages, or as mean of score (MS) and standard deviation (SD), as appropriate. Relative sufficiency (RS%)

$$\text{R. S. \%} = \frac{\text{Mean of Score}}{\text{no. of Scoring Scales}} * 100\%$$

and assessment by cut-off point (50%) were assessed to find out relationships with some socio-demographic variables according to classified RS0.5. Scores 0-33 were categorised as low, 34-67 as moderate, and 68-100 as high.

Inferential analysis included contingency coefficient (CC) test for the cause of correlations. Besides, chi-square test was used for assessing the distribution of the observed frequencies with no restriction on the expected outcomes.

Binomial test was used to calculate the difference of distribution of the observed frequencies of two categories nominal or ordinal with no restriction of expected outcomes at 50%.

The binomial probability, b (x; n, p) was calculated using:

$P < 0.05$ was considered significant, while $p < 0.01$ was considered highly significant.

Results

There were 150 mothers with a mean age of 31.08 ± 9.31 years. The largest age group was

20-29 years 90(60%). There were 100(66.6%) subjects from urban areas, 67(44.6%) had at least a college degree, 100(66.6%) were housewives, 40(26.6%) had one child, and 100(66.6%) were part of households having 5 people sharing one room (Table 1).

More than half of the sample 60(40%) had moderate socio-economic status (SES), followed by 50(33.3%) low SES, and 40(26.6%) high SES (Table 2)

Of the 13 questions evaluating women's knowledge about polio vaccination, 8(61.5%) were answered correctly (Table 3). The most common source of information was television 110(73.3%) (Table 4), and 135(90%) subjects agreed that

Table-1: Socio-Demographical characteristics of the participants.

Socio-demographic characteristics	Groups	n (%)	CS p-value
Residence	Rural	50 (33.3)	P=0.000
	Urban	100 (66.6)	(HS)
Age (years) of mother	< 20	10 (6.6)	$\chi^2 = 385.1$
	20 - 29	90 (60)	P=0.000
	30 - 39	20 (13.3)	(HS)
	≥ 40	30 (20)	
	Mean $\pm$ SD	31.08 $\pm$ 9.31	
Mother's educational level	Write and read	15 (10)	$\chi^2 = 385.1$
	Primary school graduate	10 (6.6)	P=0.000
	Intermediate school graduate	25 (16.6)	(HS)
	Secondary school graduate	17 (11.3)	
	Institute graduate	16 (10.6)	
	College graduate and more	67 (44.6)	
husband's level of education	"Read and write"	5 (3.3)	$\chi^2 = 385.1$
	"Primary school graduate"	11 (7.3)	P=0.000
	"Intermediate school graduate"	20 (13.3)	(HS)
	"Secondary school graduate"	40 (26.6)	
	"Institute graduate"	24 (16)	
	"College graduate and more"	50 (33.3)	
Government workers	Government employed	33 (22)	" $\chi^2 = 385.1$ "
	Self-employed	8 (1.9)	P=0.000
	Student	6 (1.4)	(HS)
	Retired	3 (0.7)	
	House wives	100 (66.6)	
Husband's job	Government employed	70 (46.6)	$\chi^2 = 385.1$
	Self-employed	45 (30)	P=0.000
	Student	10 (6.6)	(HS)
	Retired	20 (13.3)	
	Unemployed	5 (3.3)	
Number of children\nin the family	1	40 (26.6)	$\chi^2 = 385.1$
	2	32 (21.3)	P=0.000
	3	20 (13.3)	(HS)
	4	19 (12.6)	
	5	15 (10)	
	6	10 (6.6)	
	7	9 (6)	
	≥ 8	5 (3.3)	
Crowding Index	2 individuals	40 (26.6)	$\chi^2 = 385.1$
	Up to 5	100 (66.6)	P=0.000
	≥ 5	10 (6.6)	(HS)

CS: Comparison significance, HS: Highly significant, SD; Standard deviation.

Table-2: Socioeconomic status of the subjects.

Factor	Groups	n (%)	CS p-value]
Socioeconomic Status	"Low: ≤ 89"	50 (33.3)	" $\chi^2=24.300$ P=0.000 HS**"
	Mod.: 90 – 120	60 (40)	
	High :121 – 150	40 (26)	
	Total	150 (100)	

CS: Comparison significance, HS: Highly significant, SD: Standard deviation.

Table-3: Mothers' responses to the study questionnaire indicating their knowledge level.

Items	Response	n (%)	Mean ± SD	RS%	Assessment.
What type of Spread is it? (By tainted water and food)	I'm not sure	30 (20)	0.38 ± 0.6	38	Failure
	No	20 (13)			
	Sure	100 (66.6)			
What type of transmission is it (By means of sex)	I'm not sure	100 (66.6)	0.20 ± 0.40	21	Failure
	No	40 (26.6)			
	Sure	10 (6.6)			
Is the illness preventable with a vaccine?	I'm not sure	50 (33.3)	0.76 ± 0.30	56	Pass
	No	10 (6.6)			
	Sure	90 (60)			
What is it called? (Oral polio vaccine drops)	I'm not sure	60 (40)	0.65 ± 0.40	65	Pass
	No	10 (6.6)			
	sure	80 (53.3)			
"At what age OPV doses should be given to your baby? At birth (zero dose)"	I'm not sure	50 (33.3)	0.43 ± 0.5	34	Pass
	No	11 (7.3)			
	Sure	99 (66)			
When should your baby start receiving OPV doses? Two months (first dose)	I'm not sure	60 (40)	0.46 ± 0.2	45	Pass
	No	25 (16.6)			
	Sure	65 (43.3)			
What age should you start giving your baby OPV doses? 4months (second dose)	I'm not sure	37 (24.6)	0.33 ± 0.3	36	Pass
	No	15 (10)			
	Yes Sure	98 (65.3)			
"At what age OPV doses should be given to your baby? 6months (third dose)"	I'm not sure	70 (46.6)	0.40 ± 0.3	53	Pass
	No	9 (6)			
	Sure	71 (47.3)			
What duration should you start giving your baby OPV dosage? 18months (fourth dose)	I'm not sure	88 (58.8)	0.40 ± 0.3	49	Failure
	No	10 (6.6)			
	Sure	52 (34.6)			
"At what age OPV doses should be given to your baby? 4-6years (fifth dose)"	I'm not sure	60 (40)	0.45 ± 0.3	52	Pass
	No	10 (6.6)			
	Yes Sure	80 (53.3)			
What average age is polio targeted at? 0-three years	I'm not sure	40 (26.6)	0.50 ± 0.4	56	Pass
	No	20 (13.3)			
	Sure	90 (60)			
What age range is polio targeted at? 3-5Years	I'm not sure	35 (23.3)	0.2 ± 0.40	31	Failure
	No	20 (13.3)			
	Yes Sure	95 (63.3)			
What age range should be polio-free? >5 Years	I'm not sure	45 (30)	0.30 ± 0.40	40	Failure
	No	65 (43.3)			
	Yes Sure	40 (26.6)			

SD: Standard deviation, R: Relative sufficiency, OPV: Oral polio vaccine.

polio vaccine for the child was a necessity (Table 5).

Regarding the negative attitudes of mothers about polio eradication, most of the answers were correct (Table 6).

Overall assessment of the sample was good, with a percentile global means of the score (PGLMS) value of 50.30+/-9.81. Each domain was also scored separately (Table 7).

Table-4: Sources of first information regarding polio.

Items	Response	n (%)	MeanSD	RS%	Evaluation.
Sources of the first polio data? TV	I'm not sure	10 (6.6)	0.55 ± 0.32	55.0	Pass
	No	30 (20)			
	Yes	110 (73.3)			
Source of first information about polio? Internet	I'm not sure	15 (10)	0.12 ± 0.35	11.0	Failure
	No	100 (66.6)			
	Yes	35 (23.3)			
Friends were the first to learn regarding polio.	I'm not sure	5 (3.3)	0.50 ± 0.6	44.0	Pass
	No	40 (26.6)			
	Yes	105 (70)			
Source of first information about polio? Neighbours	I'm not sure	10 (6.6)	0.53 ± 0.40	35.0	Pass
	No	45 (30)			
	Yes	95 (63.3)			
How first learned about polio? Health professionals	I'm not sure	5 (3.3)	0.36 ± 0.40	65.0	Pass
	No	50 (33.3)			
	Yes	95 (63.3)			

SD: Standard deviation, RS: Relative sufficiency.

Table-5: Positive attitudes of mothers regarding poliomyelitis eradication

Items	Response	n (%)	Mean ± SD	RS%	Assessment.
I think Polio vaccine is necessary to protect the baby's health	Disagree	5 (3.3)	1.77 ± 0.16	77.4	Pass
	Not sure	10 (6.6)			
	Agree	135 (90)			
I believe it will help in polio eradication	Disagree	10 (6.6)	1.88 ± 0.2	70.0	Pass
	Not sure	15 (10)			
	Agree	125 (83.3)			
I think OPV cannot prevent other disease	Disagree	40 (26.6)	1.12 ± 0.88	37.4	Failure
	Not. sure	10 (6.6)			
	Agree	100 (66.6)			

SD: Standard deviation, RS: Relative sufficiency.

Table-6: Negative attitudes of mothers related to the elimination of polio.

Items	Response	n (%)	Mean ± SD	RS%	Assessment.
I think I have no trust in repeated immunization	Agree	135 (90)	2.04 ± 0.21	88.0	Pass
	Not sure	5 (3.3)			
	Disagree	10 (6.6)			
I believe my child suffer from adverse reaction	Agree	110 (73.3)	2.04 ± 0.22	88.7	Pass
	Not sure	20 (13.3)			
	Disagree	20 (13.3)			
I think polio vaccine causes harm to the child	Agree	90 (60)	2.15 ± 0.43	85.0	failure
	Not sure	30 (20)			
	Disagree	30 (20)			
I think I'm not aware of its importance	Agree	100 (66.6)	2.12 ± 0.33	86.0	Pass
	Not sure	10 (6.6)			
	Disagree	40 (26.6)			

SD: Standard deviation, RS: Relative sufficiency.

Table-7: Mothers' views on the study questionnaire's major domains.

Main Domains	No.	PGLMS	Standard Error	Standard Deviation	Assessment
Mother's Knowledge	150	40.88	1.03	21.02	Intermediate
Positive Attitude	150	70.58	0.88	18.13	V. Good
Negative Attitudes	150	20.21	0.56	11.51	Good
Mother's Attitudes	150	70.68	0.52	10.69	Good
Overall Assessment	150	50.30	0.48	9.81	Good

SD: Standard deviation, RS: Relative sufficiency.

Discussion

About 66% of the current subjects were from urban areas, which was in line with an Australian study (2018). which reported 77%.¹⁷ The current results showed that 50% of the participants' women were aged 20-29 years and were attending the healthcare centre to either receive vaccine or to seek treatment if their children were sick, or for tetanus vaccination if the mother was pregnant. A Nigerian study 2014 showed that 50% of the participating' women were aged 18-30 years, and 30% had similar reasons for attending the health centre.¹⁸ Most of the mothers (44%) and fathers (50%) were college graduates, which was in line with an Indian study done in 2011.¹⁹ Also, half of the current sample comprised housewives, while a study in Nigeria reported that 20% women in the sample were housewives.⁶ The largest SES group in the current study was that of moderate level compared to a 2011 Indian study which reported that the majority of the participants had high SES.¹⁹ Mothers' knowledge level related to transmission of poliovirus was 66.6%, which is similar to the study in Nigeria which reported 86.2%.⁶ In the current study, the main source of information was identified to the television, which agrees with an earlier study.⁶

Conclusion

Urban, educated and working mothers aged 20-29 years were more knowledgeable about polio than the rest. They derived their information from the television, internet, friends and family. Women generally agreed that polio vaccination helped to eradicate Poliomyelitis.

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References

- Mårdby AC, Akerlind I, Jörgensen T. Beliefs about medicines and self-reported adherence among pharmacy clients. *Patient Educ Couns* 2007;69:158-64. doi: 10.1016/j.pec.2007.08.011.
- Mårdby AC, Akerlind I, Hedenrud T. General beliefs about medicines among doctors and nurses in out-patient care: a cross-sectional study. *BMC Fam Pract* 2009;10:35. doi: 10.1186/1471-2296-10-35.
- Neame R, Hammond A. Beliefs about medications: a questionnaire survey of people with rheumatoid arthritis. *Rheumatology (Oxford)* 2005;44:762-7. doi: 10.1093/rheumatology/keh587.
- Menckeberg TT, Bouvy ML, Bracke M, Kaptein AA, Leufkens HG, Raaijmakers JA, et al. Beliefs about medicines predict refill adherence to inhaled corticosteroids. *J Psychosom Res* 2008;64:47-54. doi: 10.1016/j.jpsychores.2007.07.016.
- Singh MM, Bano T, Dabas P, Mehra M. Awareness about pulse polio immunization among the general population in Delhi. *Indian J Med Sci* 2001;55:453-7.
- Thomas BT, Makanjuola SO, Davies A, Kolawole RM. Knowledge and Perception of Mothers in Iseyin to the Integrated Measles and Polio Vaccine Campaign Held in 2013. *World J Med Sci* 2015;12:91-4. DOI: 10.5829/idosi.wjms.2015.12.2.92220
- Porteous T, Francis J, Bond C, Hannaford P. Temporal stability of beliefs about medicines: implications for optimising adherence. *Patient Educ Couns* 2010;79:225-30. doi: 10.1016/j.pec.2009.07.037.
- Sachdeva P, Patel BG, Patel BK. Drug use in pregnancy; a point to ponder! *Indian J Pharm Sci* 2009;71:1-7. doi: 10.4103/0250-474X.51941.
- Saks EK, Wiebe DJ, Cory LA, Sammel MD, Arya LA. Beliefs about medications as a predictor of treatment adherence in women with urinary incontinence. *J Womens Health (Larchmt)* 2012;21:440-6. doi: 10.1089/jwh.2011.2952.
- Dobe M, Ray SK, Biswas R, Mandal A, Meheta P, Baishya AC. Evaluation of pulse polio immunization in some districts of West Bengal & Assam. *Indian J Public Health* 2004;48:88-95.
- Lapi F, Vannacci A, Moschini M, Cipollini F, Morsuillo M, Gallo E, et al. Use, Attitudes and Knowledge of Complementary and Alternative Drugs (CADs) Among Pregnant Women: a Preliminary Survey in Tuscany. *Evid Based Complement Alternat Med* 2010;7:477-86. doi: 10.1093/ecam/nen031.
- DeVries AS, Harper J, Murray A, Lexau C, Bahta L, Christensen J, et al. Vaccine-derived poliomyelitis 12 years after infection in Minnesota. *N Engl J Med* 2011;364:2316-23. doi: 10.1056/NEJMoa1008677.
- Chezzi C. Rapid diagnosis of poliovirus infection by PCR amplification. *J Clin Microbiol* 1996;34:1722-5. doi: 10.1128/JCM.34.7.1722-1725.1996.
- He Y, Mueller S, Chipman PR, Bator CM, Peng X, Bowman VD, et al. Complexes of poliovirus serotypes with their common cellular receptor, CD155. *J Virol* 2003;77:4827-35. doi: 10.1128/jvi.77.8.4827-4835.2003.
- Pourhoseingholi MA, Vahedi M, Rahimzadeh M. Sample size calculation in medical studies. *Gastroenterol Hepatol Bed Bench* 2013;6:14-7.
- Al-Naqeeb AAAG, Jawad MA. A new measurement scale for evaluating health related quality of life in patients with post stroke in Al Najaf Al Ashraf governorate In Iraq. *World J. Pharm. Res.* 2018;7: 223-239. DOI: 10.20959/wjpr201817-13401.
- Skouteris H, Wertheim EH, Rallis S, Paxton SJ, Kelly L, Milgrom J. Use of complementary and alternative medicines by a sample of Australian women during pregnancy. *Aust N Z J Obstet Gynaecol* 2008;48:384-90. doi: 10.1111/j.1479-828X.2008.00865.x.
- Olajide BR, Onoja AB, Adewuyi AD. Determination of the level of knowledge about polio eradication efforts in a rural area in Nigeria. *Int. J. Sustain. Dev.* 2014;3:1078-87.
- Joseph N, Subba Sh, Nelliyanil M, Kotian S, Haridath A, N K, et al. A study of the knowledge and attitude towards pulse polio immunization in semi urban areas of South India. *Australas Med J* 2011;4:81-6. doi: 10.4066/AMJ.2011.532.