ORIGINAL ARTICLE

Health Poems Intervention for Awareness of Polioand Routine Immunization Among Rural Children of Pakistan

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Abstract

Objective
To evaluate the impact of health poems intervention for awareness of polio and routine immunization among rural children at Sethar Pir District Sanghar.

Materials and Methods
This was a quasi-experimental trial conducted at Sethar Pir District Sanghar from August 2017 to December 2018. Two fifty students of primary schools of age 9-15 years of either gender were included in the study. The students were approached during the free period and the questionnaire (study tool) was filled by them in 15-20 minutes. After that the educational intervention i.e. a health poem regarding the importance of routine immunization and polio eradication with schedule of the vaccination status written was given in syllabus. The three session of health poem were given after every week for 21 days to all the students and the printed materials were pasted on the books of the students for further memorization. After completion of three sessions the post intervention data from the same students through the use of study instrument (which was administered before the intervention) was collected to see impact. SPSS version 23 was used to analyze the before and after intervention data.

Results
Total of 250 primary students were included in the study. The mean age of students was reported as 13.45±1.21 years. Two hundred and five students were males (82%) and 45 students were females (18%). The frequency of adequate awareness showed statistically significant increase after the health poem intervention as compared to before ($p<0.05$).

The health poem intervention was an ideal and innovative method to increase the awareness &has shown successful results among primary school going children of District Sanghar.

Keywords
Health poem intervention, Impact of educational intervention, rural area, Primary school, Awareness of polio, Routine immunization

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Introduction
Children under the age of five years are mainly influenced by polio. One out of every two hundred infected patient may suffered from irreversible paralysis and 10% of those paralyzed die due to immobilization of breathing muscles.[1]Prior to the beginning of Global Polio Eradication Initiative (GPEI) in 1988, poliomyelitis (polio)had killed and paralyzed approximately 200,000individuals every year.[2] Since 1988 the incidence of wild poliovirus have reduced by over 99 percent from an estimate of 350,000 cases to 33 cases in 2018[1]. In 1955 the integration of the "inactivated poliovirus vaccine" (IPV) resulted in a sharp decrease in transmission of polio virus and in USA the cases of polio decreases approximately to 1000 cases in 1960s from 20,000 cases per year in the 1950s.[3] Hence, the live-attenuated "oral poliovirus immunization" (OPV) produced in 1963 remains the fundamental vaccine in developing world because of its simple oral administration, cost-viability and relatively better acceptance of intestinal insusceptibility contrasted with the IPV.[4]

In 2015, four out of six WHO regions were certified as polio-free, hence Pakistan, Nigeria and Afghanistan are the only remaining countries where polio is endemic.[5] The major factors associated with increase in wild polio virus in these countries are religious misconception, illiteracy, insecurity and conflict which have highly affected the vaccination attempts and efforts made by GPEI.[6] Due to these factors the outbreak of thirty six polio cases have been reported in Syria and the isolation of type 1 wild poliovirus, traced to Pakistan, from sewage samples in Israel towards the end of 2013.[7,8] Therefore, the effective eradication of wild poliovirus therefore rests on Pakistan's immunization plan and approach. [9]

In Pakistan, the investment on Expanded Programme on Immunizations (EPI) programme is important to attain the eradication of polio. Furthermore, concerns and misconceptions regarding vaccination and inaccessibility to EPI centers are the main causes of refusal.[10-12] The slums of Karachi and northwest Pakistan are the high risk regions for poliovirus, however the polio workers have been attacked by extremist groups and Pakistani Taliban to stop and ban polio vaccination activities in these areas.[13] Therefore Pakistan is facing many challenges in health issues like routine immunization and polio eradication.

The incidence of polio has increased from 58-306 cases during 2012 to 2014[14], and low frequency of immunization coverage (56%) has been observed which is directly related to the highest IMR (infant mortality rate) among South Asian countries.[15]

The major cause of low immunization coverage & unsuccessful polio eradication programme in Pakistan is "awareness deficit". Educational institutes provide the logical place to intervene health education in order to fill the gap and increase awareness regarding good health status. The school going children are considered as primary target audience for health education and promotion through class room activities, curricula and training. Hence, the innovative educational interventions are of dire need which may lead to some improvements in the setup of health and education in Pakistan especially in rural areas where low education is the main reason of inadequate awareness regarding polio and routine immunization. So, the aim of current research was to evaluate the impact of health poems intervention for awareness of polio and routine immunization among rural (desert) children at Sethar Pir, District Sanghar. This innovative activity of educational intervention with health poems would be helpful for school children of age 9-15 years in developing better understanding for importance of immunization which would lead to positive society's attitude towards immunization in future generation as well as for community in order to make them aware and educate, advocate and counsel about the importance of immunizations and eradication of polio in Pakistan.

Material & Methods

This was aquasi-experimental trial conducted at Sethar Pir, District Sanghar from August 2017 to December 2018. Total 250 students of age 9-15 years of either gender were enrolled in the study. Mentally incapacitate and who didn't want to participate were excluded from the study. The two-stage sampling was employed. In the first stage of sampling, the list of all public primary schools were obtained from union council office and three public primary schools of Sethar Pir, District Sanghar were selected randomly out of 68 schools through lottery method. In the second stage of sampling the registration numbers (Roll no.) of all the students were obtained from the school's principals of those 3 primary schools and 50 students were selected randomly from five classes [100 students from 2 primary schools (4 classes) and 50 from one primary school (1 class)] through lottery method. (Fig 1)

Written permission was taken from the principals of participating schools whereas informed consent and assent were taken from the parents and students before the conduct of study.

The students were approached during the free period and the questionnaire (study instrument) were filled by them in 15-20 minutes. The students of same class level and caliber from all three public primary schools were selected. The principal investigator was present at the time of data collection in order to solve any query. After that the educational intervention i.e.

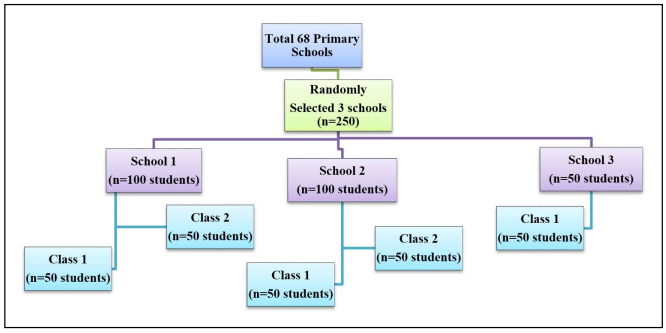

Fig 1. Selection of Students (n=250)

a health poem regarding the importance of routine immunization (the poem was in Sindhi language) and polio eradication with schedule of the vaccination status written in Sindhi was given in syllabus. The three session of health poem were given after every week for 21 days to all the students and the printed materials were pasted on the books of the students for further memorization. After completion of three sessions the post intervention data from the same students through the use of study instrument (which was administered before the intervention) was collected to see impact.

Study instrument

The questionnaire was made after the intensive literature search and validity of questionnaire was checked (Cronbach's α=0.86). The questionnaire contained two parts. In the first part demographics details of students such as age and gender were noted. In the second part 13 questions regarding the awareness of polio and routine immunization were asked (Table 1). Every correct response was given score as "1". Impact was deemed positive in terms of adequate awareness. Seven or above correct responses out of 13 responses was labelled as adequate awareness.

SPSS version 23 was used to analyze the data. Frequencies and percentages were calculated for qualitative variables whereas mean and SD were calculated for quantitative variables. Mcnamer's test was applied to see the before and after intervention impact of health poems. P=0.05 was taken as statistically significant.

Results

Total of 250 primary students were included in the study. The mean age of students was reported as 13.45±1.21 years. Two hundred and five students were males (82%) and 45 students were females (18%).

The descriptive of all the responses before and after intervention of health poem are summarized in table 1. (Supplement file) Before intervention, almost all the students had inadequate awareness (97.2%) and only 2.8% had adequate awareness. After intervention, about 200 students had adequate awareness (80%) and 20% had inadequate awareness. (Fig 2)

Total 243 students had inadequate awareness pre intervention.

Table 1: Questionnaire Part 2 (Supplement File)

S.No.	Questions	Responses	Correct Response
1	What is polio?	A. Disease B. Dangerous disease C. Simple disease D. None of above	B
2	What happen in polio?	A. Mostly disability of arms B. Mostly disability of legs C. Mostly disability of arm & leg D. None of above	B
3	How many drops given?	A. One B. Two C. Three D. Four	B
4	Up to what age polio drops given?	A. Up to-one year B. Two year C. Three year D. Five year	D
5	Where is mark of identification regarding polio-vaccination?	A. On thumb B. On index finger C. Middle finger D. Little finger	D
6	What is routine immunization?	A. Vaccination of adults B. Vaccination of only mothers C. Vaccination of children D. None of the above	C
7	How many diseases covered in routine immunization?	A. Five B. Seven C. Nine D. Eleven	D
8	Name the first vaccine?	A. BCG only B. BCG+polio C. Only polio D. None of above	B
9	When first dose routine vaccine given?	A. After one month B. After one & half month C. After two month D. After three month	B
10	When second dose routine vaccine given?	A. After one month B. After one & half month C. After two month D. After three month	C
11	When third dose routine vaccine given?	A. After one month B. After one & half month C. After two month D. After three month	D
12	When first dose of measles given?	A. Five month B. Seven month C. Nine month D. Eleven month	C
13	When second dose of measles given?	A. Seven month B. Nine month C. Eleven month D. Fifteen month	D

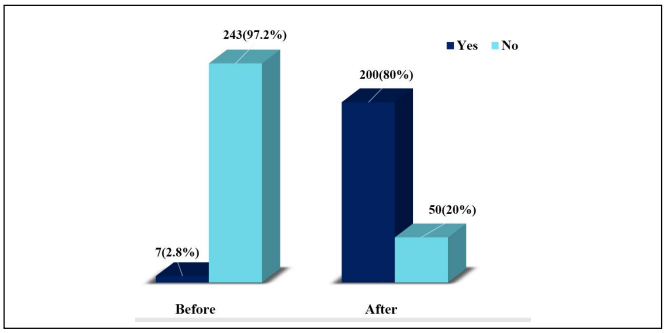

Fig 2. Awareness Shift after Health Poem Intervention

Out of 243 students, unaware students 80% achieved score for adequate knowledge on polio and immunization. This shows more positive impact than negative impact of health poems. The proportion of adequate awareness after intervention of health poem showed statistically significant increase as compared to before ($p<0.05$). (Table 2)

Discussion

Polio is viral infection which mostly affect sunder 5 years old children.[16] According to WHO report Pakistan is one the remaining country where polio is endemic.[5]The health professionals are still working on eradication of polio in Pakistan.[17] One of the most adequate and reliable approach for eradication and prevention of polio virus and other infectious diseases is immunization.[18] However, in Pakistan low frequency of immunization coverage (56%) has been observed which is directly related to the highest IMR (infant mortality rate) among South Asian countries.[15] The main cause of low immunization coverage & unsuccessful polio eradication programme in Pakistan is "awareness deficit", whereas other causes are false traditional and religious beliefs, maternal education, poverty, inaccessibility to EPI centers, lack of political will & security risk of health workers.[13,19, 20]

Certain medicines and treatments are available for polio illness but the consequent quantity of information is also important for the society, many studies have recorded a lack of understanding of polio virus among the individuals of Pakistan.[21]It has been observed that schools and other educational institutes provide the logical place to intervene health education in order to improve their health status. The school going children are considered as primary target audience for health education and promotion through class room activities, curricula and training. So, the aim of current research was to evaluate the impact of health poem interventions regarding polio and routine immunization among rural (desert) children of Pakistan. In the current research, before intervention the frequency of inadequate awareness was very high among students as 97.2%, 23.2% of them knew that polio is a dangerous disease, 24% of them knew about the routine immunization and18.4% of them knew about the target age group for routine immunization and. After health poem intervention the awareness regarding polio and immunization increased and 73.6% of them become aware that polio is a dangerous disease, 55.2% of them become aware about routine immunization and 55.6% of them become aware that the target age group for immunization is up to 5 years. There is lack of literature available regarding intervention among children however various studies has been conducted to assess the level knowledge of parents and adults regarding polio and immunization. In the study conducted at Karachi assess the impact of health education messages regarding vaccine and the immunization status of children under five in mothers, study showed significant increased from 60% to 77% in mother's awareness regarding the target age of first vaccination after intervention.[20] In the study conducted at the 2 semi-urban regions of India, showed 90% knew about the purpose of polio vaccine was to eradicate polio, furthermore educational status showed positive association with their level of awareness ($p<0.05$).[22] In another study conducted at the Dehli slums, showed 56% of the participants have some information regarding polio and 82% of them knew that 0-5 years is the target age group for oral polio vaccine.[23] The study conducted among Pashtun parents residing in Karachi showed 41% had not ever heard about polio,[11] where as another study conducted at Nigeria showed 65.4% had good knowledge paralytic poliomyelitis and showed statistical significance with higher educational status ($p<0.05$).[24]

The written pamphlets regarding the vaccine uptake, other educational and informational intervention and social media campaigns have been observed as successful strategies to improve and promote health education regarding polio eradication and routine immunization among different age groups.[25-28] In the study conducted at Malaysia, evaluated the impact of a short educational intervention on improving awareness of parents regarding childhood immunization. The study showed significant increase in parent's awareness post intervention as compared to before ($p<0.05$).[29] In another study conducted England included a cohort of young individuals and divided them into three groups i.e. group A received presentation-based intervention, group B received interactive simulation-based intervention and Group C received no intervention and found both intervention groups have showed slightly positive shift in attitude and knowledge of vaccination whereas the control group has moved to a more sympathetic position.[30] In the present research out of 250 students two forty three students who were initially unaware regarding the polio and routine immunization. After giving health poem intervention their awareness level dramatically shift and 195 students adequately become aware regarding the polio and routine immunization (80.2%) which showed statistically significant increase ($p<0.05$) as compared to before. This shown that students have learned health poems with interest which brought the change in their awareness regarding polio and routine immunization.

Hence health poem intervention showed positive impact and it can be an effective methodology in order to change knowledge of students. Schools should introduce different health programs

Table 2: Descriptives of Questions Regarding Polio and Immunization Status

S.No.	Questions	Responses	Before Intervention		After Intervention	
			n	%	n	%
1.	What is polio?	A. Disease	72	28.8	30	12.0
		B. Dangerous disease	58	23.2	184	73.6
		C. Simple disease	67	26.8	22	8.8
		D. None of above	53	21.2	14	5.6
2.	What happen in polio?	A. Mostly disability of arms	38	15.2	28	11.2
		B. Mostly disability of legs	96	38.4	149	59.6
		C. Mostly disability of arm & leg	66	26.4	37	14.8
		D. None of above	50	20.0	36	14.4
3.	How many drops given?	A. One	51	20.4	29	11.6
		B. Two	74	29.6	206	82.4
		C. Three	72	28.8	3	1.2
		D. Four	53	21.2	12	4.8
4.	Up to what age polio drops given?	A. Up to-one year	65	26.0	37	14.8
		B. Two year	79	31.6	36	14.4
		C. Three year	60	24.0	38	15.2
		D. Five year	46	18.4	139	55.6
5.	Where is mark of identification regarding polio-vaccination?	A. On thumb	37	14.8	9	3.6
		B. On index finger	80	32.0	32	12.8
		C. Middle finger	75	30.0	31	12.4
		D. Little finger	58	23.2	178	71.2
6.	What is routine immunization?	A. Vaccination of adults	50	20.0	24	9.6
		B. Vaccination of only mothers	83	33.2	52	20.8
		C. Vaccination of children	60	24.0	138	55.2
		D. None of the above	57	22.8	36	14.4
7.	How many diseases covered in routine immunization?	A. Five	58	23.2	12	4.8
		B. Seven	111	44.4	39	15.6
		C. Nine	35	14.0	35	14.0
		D. Eleven	46	18.4	164	65.6
8.	Name the first vaccine?	A. BCG only	32	12.8	27	10.8
		B. BCG+polio	71	28.4	152	60.8
		C. Only polio	82	32.8	33	13.2
		D. None of above	65	26.0	38	15.2
9.	When first dose routine vaccine given?	A. After one month	61	24.4	28	11.2
		B. After one & half month	30	12.0	138	55.2
		C. After two month	87	34.8	44	17.6
		D. After three month	72	28.8	40	16.0
10.	When second dose routine vaccine given?	A. After one month	52	20.8	29	11.6
		B. After one & half month	60	24.0	42	16.8
		C. After two month	76	30.4	147	58.8
		D. After three month	62	24.8	32	12.8
11.	When third dose routine vaccine given?	A. After one month	69	27.6	16	6.4
		B. After one & half month	94	37.6	23	9.2
		C. After two month	27	10.8	89	35.6
		D. After three month	60	24.0	122	48.8
12.	When first dose of measles given?	A. Five month	58	23.2	21	8.4
		B. Seven month	88	35.2	32	12.8
		C. Nine month	41	16.4	170	68.0
		D. Eleven month	63	25.2	27	10.8
13.	When second dose of measles given?	A. Seven month	64	25.6	38	15.2
		B. Nine month	78	31.2	30	12.0
		C. Eleven month	66	26.4	26	10.4
		D. Fifteen month	42	16.8	156	62.4

Table 3: Comparison of Adequate Awareness Before and After Health Poem Intervention

Before	After		Total	P-value
	Adequate	Inadequate		
Adequate	5 (71.4%)	2 (28.5%)	7	0.0001
Inadequate	195 (80.2%)	48 (19.8%)	243	

which can be helpful in improving health status of children and community. Furthermore different comparative studies should be conducted in which different health interventions should be compared between urban and rural primary/secondary schools. In this way we can be able to find out the gaps and barriers regarding the low awareness between urban and rural school going children.

Conclusion

The health poem intervention was an ideal and innovative method to increase awareness and has shown successful results among primary school going children of District Sanghar.

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