

Participatory Hygiene and Sanitation Transformation (PHAST) in a Remote and Isolated Community in Samar Province, Philippines

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Abstract Diarrheal disease is one of the leading causes of death in children under five years old, most people who die from this disease actually die from severe dehydration and fluid loss. Moreover, 88% of its global diarrheal disease is attributed to unsafe water supply, inadequate sanitation, and hygiene. This investigation was developed to determine the effect of Participatory hygiene and sanitation transformation (PHAST) program in an isolated community of Mabini, Samar Province, Philippines. Longitudinal research design was used in order to determine the effect of the program one year was implemented in the community. A purposive sampling was utilized in this investigation which accounts a total of 39 households in Mabini community, Basey, Samar, without toilet facilities. The instrument used was the modified questionnaire of the Philippine Red Cross in water and sanitation before and after the program was implemented. Results showed that there was improvement of knowledge on water and sanitation, handwashing practice, household waste practices drinking practices, defecation practices. Thus, program reaching the most isolated and difficult areas experiencing the most detrimental effects which improve poor hygiene and sanitation, improving health, equality and social justice.

Keywords Participatory hygiene, Sanitation transformation, Remote and isolated community

1. Introduction

Diarrheal disease is one of the leading causes of death in children under five years old, most people who die from this disease actually die from severe dehydration and fluid loss according to [1]. It is also an indication of an infection in the intestinal cavity, which primarily caused by a bacterial organisms and virus. This infection is spread through contaminated drinking-water and food, or from person-to-person as a result of poor hygiene.

Moreover, 2.6 Billion People in the world (almost 40% of global population) had a lack access to basic sanitation, 88% of its global diarrheal disease is attributed to unsafe water supply, inadequate sanitation, and hygiene. 5,000 children under 5 die each day due to diarrheal diseases routed in inadequate water & sanitation – deaths which are preventable [2].

Consequently, an anticipated 2.5 billion people in the world have lacked access to improved sanitation which is related to diarrheal diseases [3]. Approximately 801,000 children lower than 5 years of age have diarrhea every year highest of these were from in developing countries [4]. It

also mentioned constituting 7.6 million deaths of children under the age of five and also means that about 2,200 children were dead every day because of the diarrheal diseases. In addition, diarrheal disease related to inadequate water supply and sanitation is among the leading causes of death among people in the developing world, and stemming the tide means that should look critically at what and does not work in decreasing morbidity and mortality [5].

In developing countries, children under three years old experience on average three episodes of diarrhea every year. In the Philippines like the other developing countries, about 20 million Filipinos who do not have an access to improved water supply and environmental sanitation [6].

In addition to this, since many Filipinos who do not have an access to improved water supply and environmental sanitation, almost 8 million of these areas defecates in the open. The poorest 20 percent of its rural population went from 36 percent open defecation to a staggering 48 percent open defecation. Open defecation related to poor sanitation and poverty go hand in hand, and the rural poor are four times practice more open defecation than in urban parts [7].

However, when the super typhoon Haiyan hit the Philippines, thousands were killed and injured, survivors were warned about the diarrheal diseases such as cholera because of the lack of sanitation. Contaminated water remains a problem of the country because of the bodies along with dead livestock were floating in the water supplies [8].

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Similarly, the problem has hampered the implementation of much needed investment in the sector.

Meanwhile, Participatory hygiene and sanitation transformation (PHAST), an innovative approach designed to promote hygiene behaviors, sanitation improvements using specifically developed participatory techniques. Hygiene promotion and water treatment in the home are among the most effective interventions. This program depends on the expertise of health education facilitators for community education and motivation according [9].

The PHAST program approach helps people to become self-reliant about themselves and their capability to take action and make growth in their communities. Spirits of enablement environment and personal growth are as important as the physical changes, such as cleaning the environment or building toilet facilities [10]. Meanwhile, despite of several hygiene promotion programs to prevent diarrhea, there still pockets of the population that need to be addressed in terms of hygiene and sanitation.

Furthermore, International Committee of the Red Cross ICRC mentioned that one of the community in Samar province cited as one of the places vulnerable population areas that needs to be addressed for improvement of knowledge among the affected families in the community of Mabini, Basey, Samar [11]. Moreover, it is also one of the communities that are high number without toilet facilities. Thus the researcher was motivated to conduct the study. Hence, this will valuable to the families, communities, in decreasing the burden of diarrheal diseases in the community. Furthermore, to the local government units this would serve as the basis for the development and prioritizing health programs.

This investigation developed to evaluate the effect of program in an isolated community of Samar Province, Philippines.

2. Methods

This study utilized a longitudinal research design in order to determine the effect of Participatory hygiene and sanitation transformation (PHAST) program to the community. This study was appropriate in order the evaluate of its effect of the program to the community. The baseline assessment was conducted on June 2012; meanwhile the endline assessment was conducted on August 2013 which after the program was implemented.

A non-probability-purposive sampling was utilized in this investigation. A total of 39 households in Mabini community, Basey, Samar, without toilet facilities were recruited to participate in the program specifically utilizing total purposive sampling.

The instrument of this research was the modified questionnaire of the Philippine Red Cross in water and sanitation. There were two sets of questionnaires. Set I was the demographic profile of the respondents. Set II was determined Knowledge on Water and Sanitation,

Handwashing Practices, Drinking Practices, Household Waste Practices, Defecation Practices.

In presenting the profile of the respondents, frequency counts, percentage, whichever will be used. The data were analyzed using SPSS, version 19. T –value determines the ratio of an estimated parameter from its notional value and its standard error. Moreover, Paired t-test determines whether before the program and after the program was implemented differs from each other in a significant way.

The investigators send an approval letter to the Ethics Committee on Local Government of Basey, Samar before conducting the investigation and was approved. The Confidentiality of information and anonymity of the respondents was maintained by using only code number of the questionnaire instead the name of the respondents.

3. Results

Table 1 provides information on the demographic profile of the respondents. Most of the respondents were female (29 or 74%) among the 39 respondents. As to age, almost three fourth of the respondents (28 or 72%) have the age range of 50 years old – above. As to the Length of time lived in the house, almost half (18 or 46%) of the respondents live from 6-10 years while only 2 or 5% of the respondents lived from 16-20 years old. Finally, as to their Educational Background, it found out that 12 or 31% respondents were Elementary level while only 2 or 5 % were college graduate.

Table 1. Demographic Profile of the Respondents

	Profile	Frequency	Percentage
Age	21 – 30 years old	3	8
	31 – 40 years old	3	8
	41 – 50 years old	5	13
	50 years old above	28	72
Gender	Female	29	74
	Male	10	26
Length of time lived in the house	1 – 5 years	16	41
	6 – 10 years	18	46
	11 – 15 years	3	8
	16 – 20 years	2	5
Educational Background	College Graduate	2	5
	College Level	5	13
	High school Graduate	6	15
	High school Level	7	18
	Elementary Graduate	7	18
	Elementary level	12	31
	Total	39	100

Table 2 depicts the knowledge on water and sanitation. In the question “Have you received any health information about water and sanitation?” has a computed p-value of 0.000 in their yes and no answer. Moreover, in the question “Where do you generally get your information about hygiene and sanitation?” has a computed p-value of 0.000 in the Philippine Red Cross and Barangay Health Worker Social media.

Table 3 provides information about the hand washing practices of respondent during baseline assessment and end line assessment. In the question, “When do you wash your hands?”, before eating, after handling garbage and after defecation, in the after eating question, has a p-value of 0.000. Meanwhile, “after handling domestic animal has a computed p-value of 0.831. Furthermore, in the “purpose of hand was washing”, water and water and soap have a p-value of 0.000.

Table 4 depicts the drinking practice of the respondents. As gleaned on the table, in the question of “What is the best way to prevent diarrhea?” the proper hand washing and drinking of potable water answers, has a computed p –value of 0.000. Moreover, the being hygienic answers has a computed p –value of 0.006. Likewise, “Ways of treating the drinking water?” question in ways of boiling and filtering

answer have a computed p –value of 0.000. Finally, “Reasons of non- treating the water?” question has a t-value of -2.226 with a computed p –value of 0.006.

In table 5, In the “What is the solution for garbage problem?” question, the respondents have answered the ordinances of proper waste disposal, implement solid waste management, calling the public attention at least once a month, and each household has a responsibility which has the same p-value of 0.000. Moreover, in the question “Was there a waste can in your house?”, have a computed p-value of 0.000 in their yes and no answer.

Table 6 reveals the defecation practices of respondents. As gleaned on the table, the “Where did you defecate?” questions, which has a computed p-value of in terms of “In the toilet”, “River”, and “Forest” answers. Moreover, “Did you wash your hands after defecation?” question, has a p-value of 0.000 in their yes and no answer. Results also showed improvement of household waste practices after the implementation of the program. This is worth noting, since the previous study discussed in sanitation education decreases the children diarrhea in developing countries, particularly the intervention simple way to promote lower rates of childhood diarrhea, Clemens (1987).

Table 2. Knowledge on Water and Sanitation

	Baseline(June, 2012)		Endline(August, 2013)		t- value	P-value
	Frequency	Percentage	Frequency	Percentage		
Have you received any health information about water and sanitation?						
Yes	17	43.58	39	100	-7.01	.000
No	22	56.41	0	0	6.008	.000
Total	39	100	39	100	-14.45	.000
Where do you generally get your information about hygiene and sanitation?						
Philippine Red Cross	0	0	34	87	-14.45	.000
Barangay Health Worker	6	35	1	3	2.36	.000
Social media	11	65	4	10	2.652	.000
Total	17		39	100		

Table 3. Handwashing Practices

Baseline(June, 2012)				Endline(August, 2013)		t- value	P-value
Frequency		Percentage	Frequency		Percentage		
When do you wash your hands?							
Before eating	21	53.84	37	95	-5.14	.000	
After handling garbages	19	48.71	35	90	-4.67	.000	
After defecation	17	43.59	30	77	-3.57	.000	
After eating	26	66.67	36	92	-3.86	.000	
after handling domestic animal	14	35.90	16	41	-.22	.831	
Purpose of Hand washing							
Water	17	43.59	4	13	4.61	.000	
water and soap	22	56.54	36	92	-1.27	.000	

Table 4. Drinking Practices

	Baseline (June, 2012)		Endline(August, 2013)		t- value	P-value
	Frequency	Percentage	Frequency	Percentage		
What do you do when your child (under 5) gets diarrhea?						
Give ORS	4	10.25	3	13	1.43	.210
Give more fluids	27	69.23	28	72	-.81	.160
Health services	3	7.69	7	18	-.81	.241
Arbularyos	4	10.25	1	3	1.78	.083
Nothing	1	2.56	0	0		
What is the best way to prevent diarrhea?						
Handwashing	21	53.84	36	92	-4.17	.000
Being hygienic	19	48.72	31	79	-2.88	.006
Drinking of potable water	24	61.53	37	95	-3.86	.000
Proper preparation of food	17	43.58	34	87	.00	1.00
Nothing	1	2.56	0	0	-	-
Where did you get your drinking water?						
Red Cross/ Red Crescent communal tap	31	79.48	37	97	1.36	.181
Spring	4	10.25	1	-	1.78	.083
Rainwater	4	10.25	1	-	1.78	.083
Total	39	100 %	39	100		
Did you treat your drinking water?						
Yes	11	28	18	46	-1.86	.070
No	28	72	21	54	1.864	.070
Ways of treating the drinking water?						
Boiling	9	82	12	60	-2.88	0.000
Filtering	2	18	6	40	-2.08	0.000
Total	11	100	18	100		
Reasons of non- treating the water?						
Expensive	12	43	19	90	-2.23	.006
I think it's clean	14	50	1	5	4.36	.044
There were no incidence of diarrhea and its clear ,	2	7	1	5	.572	.032
Total	28	100	21	100		

3. Discussion

The results of this study showed improvement in terms of the respondent's knowledge on water and sanitation. This result was same to the previous results from Uzbekistan [12], Zimbabwe [13, 14] and Vietnam [15] in terms of improvement in knowledge. Moreover, this finding validates the study [16] which revealed the need for handwashing to eliminate unsafe domestic water handling during handwashing and reduce the spread of communicable diseases.

Findings also indicated that there were improvement of their drinking practices after the said program was implemented. This affirms to the previous study that improvement of drinking practice has been an important strategy in the effort to reduce diarrheal morbidity [17].

This also consistent with the study of [18] diarrheal outbreaks is a sign of insufficient efforts in controlling the garbage problem and monitoring the risk of disease outbreaks. Effective sanitation and hygiene programmes in require a better understanding of the relationship between practices and physical landscape.

Table 5. Household Waste Practices

	Baseline(June, 2012)		Endline(August, 2013)		t- value	P-value
	Frequency	Percentage	Frequency	Percentage		
Where did you dispose your household waste?						
Burying	21	54	28	72	-2.48	.018
Burning near the side of the house	13	33	9	73	1.40	.661
Dumping in the river	4	10	2	5	.44	.160
Bush	1	3	0	0	1.43	.160
Total	39	100	39	100		
What is the solution for garbage problem?						
Ordinances of proper waste disposal	18	46.15	1	2.6	5.41	0.000
Implement solid waste management	15	38.46	1	2.6	4.61	0.000
Calling the public attentions at least once a month	1	2.56	5	13	-1.67	0.000
Self-Responsibility	5	12.82	32	82	-10.49	0.000
Was there a waste can in your house?						
Yes	14	35.89	31	79	-4.92	0.000
No	25	64.10	8	21	4.92	0.000

Table 6. Defecation Practices

Baseline(June, 2011)		Endline(August, 2012)		t- value	P-value (2 tailed)	
Frequency	Percentage	Frequency	Percentage			
Where did you defecate?						
In the toilet	2	0	24	62	-7.013	0.000
Outside the house	2	0	2	5	-1.433	0.160
River	4	10	6	15	7.797	0.000
Forest	31	80	7	18	7.797	0.000
Total	39	100	39			
Did you wash your hands after defecation?						
Yes	17	43.58	37	95	-7.013	0.000
No	22	56.41	2	5	5.419	0.000

There also improved hygiene practices, finding further affirms the study [19] who concluded that personal hygiene practices cannot be attained without water supply, which the ICRC constructed 2nd level water facilities in the area.

Then, it likewise supports the study of [20] that improvement of people water and sanitation knowledge was factors which can motivate people to adopt safe hygienic practices. Next, the result of the program agrees that community participations promote hygienic defecation and stool clearance practices in order to decrease diarrheal diseases. Furthermore, promoting of safe hygiene is one of the most cost-effective means of preventing communicable diseases.

Furthermore, there is progress in sanitation among the community. This corroborates the study of [21] that sanitation has a substantial impact on peoples' survival. Personal and domestic hygiene was important in reducing the rates of ascariasis, diarrhea, schistosomiasis, and trachoma. Sanitation facilities decreased diarrhea morbidity

and mortality and the severity of hookworm infection. However, finding on the baseline assessment proves the study [22] isolate and difficult community was contending with an inadequate public health infrastructure, lack of education programmes, and economic limitations in obtaining hygiene products. Therefore, it carries a greater burden of morbidity and mortality from infectious illnesses.

Finally, results also showed improvement of household waste practices after the implementation of the program. This is worth noting, since the previous study discussed in sanitation education decreases the children diarrhea in developing countries, particularly the intervention simple way to promote lower rates of childhood diarrhea [23].

4. Conclusions

Based on the result findings, the following conclusion drawn and the recommendations that were formulated based on the results of the study.

In the context of the study, educational attainment is not a prerequisite in to make effective decision making on hygiene and sanitation. It also creates synergy process on the people perception.

Moreover, improvement of knowledge hygiene and sanitation and practices into communities has been shown in preventing diarrheal diseases. This makes a good idea of the health implications on poor hygiene and sanitation. Moreover, they have adequate knowledge about safe hygienic practices. However, it seems that some knowledge was not properly utilized as numerous field visits confirmed that taking a bath in the river of some households even after the program was implemented. In terms of the questionnaire's results, practices were also found to be higher among households who attended the program indicated that there is improved knowledge and practices. Consequently, enlightening the access to safe water supply and improve sanitation measures, as well as promoting good hygiene, are key mechanisms for the prevention of diarrhea.

Therefore, Participatory Hygiene and Sanitation Program reaching the most vulnerable people experiencing the most detrimental effects of poor sanitation and hygiene. Thus, investment in the program, especially for isolated and very remote communities, has the possible to bring about lasting change.

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