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Hygiene and Sanitation Behavior of Rural Community People: Cases from Makawanpur District, Nepal

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ABSTRACT:

Hygiene and sanitation behavior determines the prevalence of diseases in particular community. It prevents from the various types of communicable diseases as well as reduces the burden of health related expenditure. There are various programs running in Nepal to improve hygiene and sanitation status of rural community. In this context, Community Led Total Sanitation (CLTS) and School Led Total Sanitation (SLTS) approaches are widely in use for ending open defecation practices and behavioral change. In this connection, the study has aim to identify the hygiene and sanitation behavior of rural community people of Makawanpur district, Nepal as a result of Total Sanitation (TS) program through CLTS and SLTS. The study collected data from 600 households by using the structured questionnaire survey. The result found that there was significant improvement in proper use of toilet which has reduced the open defecation practices. Besides that, there was significant difference in hand washing practice, use of safe drinking water and hygienic food after implementation of various activities and declaration of ODF condition in the study areas. Among these two approaches, CLTS was found more effective in improvement of hygiene and sanitation behavior so further researcher should study on the factor affecting the performance of SLTS approach which may give the idea for the improvement of SLTS.

KEYWORDS:CLTS, Community, Behaviour, Hygiene, Makawanpur, Sanitation, SLTS

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INTRODUCTION:

Community hygiene education and good hygiene are important tools in preventing infectious diseases from spreading throughout a community. Successful hygiene education will inspire real and lasting improvements to current hygiene practices and promote good attitudes towards community hygiene. Practicing good hygiene is also a behavioral change – one that everyone can make whether they are rich or poor, young or old, educated or not¹. Governments traditionally give priority to treating diseases that have become manifest and to immunization of people against falling ill. Yet, improvements in water supply, sanitation and hygiene are the most important barrier to many infectious diseases, because with safe behavior and appropriate facilities, people reduce their risk of becoming exposed to disease². The Demographic Health Survey of Nepal (2016) shows that almost all households (95%) have access to an improved source of drinking water. whereas from the sanitation perspective, 62% of households have an improved toilet facility that is not shared with other households³.

The proper management of hygiene and sanitation is still not adequate in school and community of Nepal. Many previous literatures have shown some lacking in hygiene and sanitation. A previous study conducted among 300 households (HHs) of Dhankuta Municipality found that majority of respondents (95.3%) had practiced washing hands with soap and water after defecation. Among them 71.3% believed that hand washing reduces the many communicable diseases⁴. The sanitation status of Dhankuta municipality seems satisfactory. The sanitation status of Chandragadhi VDC of Jhapa district was found poorer than Dhankuta Municipality. A study conducted by Sah et al. reported that 66% people washed their hands with soap and water after defecation. The study also reported that out of 203 HHs, only 91 (44.82%) HHs was using untreated drinking water which may cause the diarrhea, dysentery and other communicable diseases⁵.

A Study conducted among the 40 schools comprising public and private schools of Sunsari district. The study found that sanitation facilities were in neglected state evidenced by unavailability of sanitation facilities even though that was physically present and the sanitation facilities were in pitiable condition including cleanliness, water supply⁶. Many previous studies have shown that sanitation problem in schools is not the issue of only developing countries, schools in developed countries have also failed to maintain the sanitation facilities based on their own standards. Inadequate numbers of toilet facilities and hand basins, locking of school toilets, unavailability of toilet papers were reported in Schools in London⁷. Due to negligence or lack of awareness of hygiene and sanitation; people have to suffer from the various types of infections.

A hospital-based study carried out in Department of Pediatrics, Dhulikhel Hospital/Kathmandu University Hospital among 100 cases reported that 74% of the family had habits of hand washing (53% with soap and 21% without soap), whereas 26% had no habits of hand washing at all. The lack of clean water and proper technique of hand washing may contribute to the large number of diarrheal cases seen in hand washing group. The main source of drinking water in family attending Dhulikhel hospital was tap water (65%), followed by irrigation water (17%), pond water (10%) and underground water (8%). Infected cases were found more in family where tap water was the main source of drinking water. The report showed that 44% family didn't use any method for water purification. Study found more infected cases in the family who were drinking the unpurified water⁸. Considering the risk of diseases due to poor hygiene and sanitation, Governmental and non-governmental organizations are working in the promotion of health, hygiene and sanitation program in school and community level.

Over the past few years a new approach has been developed focusing on the realization that sanitation benefits both the individual and the community. This new Community Led Total Sanitation (CLTS) approach recognizes that individual hygiene behavior can affect the whole community: even if your family uses a latrine, washes their hands and practices good hygiene, if your neighbor does not, you and your children are still at risk⁹. Besides that School Led Total Sanitation (SLTS) approach is also in practice which is used in school level health, hygiene, and water and sanitation program. SLTC approach is led by school's students to organize the awareness campaign. But in the Nepalese context, CLTS approach was found more effective than the SLTS. CLTS is community based approach led by community itself. The study has analyzed the changes in hygiene and sanitation behavior of community people of Makawanpur district, Nepal due to CLTS and SLTS approach.

MATERIALS AND METHODS:

It was a cross-sectional study conducted using pre-tested questionnaire to identify the hygiene and sanitation behavior of rural community people. The study was carried out in 10 VDCs (Village Development Committee) of Makawanpur district, Nepal among the beneficiaries of Total Sanitation program implemented through Community Led Total Sanitation (CLTS) and School Led Total Sanitation (SLTS) approaches. The Total Sanitation program is implemented by Government of Nepal and other non-governmental organization for improving the hygiene and sanitation behavior of rural community. The total 600 households were surveyed by using the structured questionnaire.

Systematic random sampling technique was adopted to select the household. The target population for the study is the head of household considering the equal participation of gender, caste and ethnicity. The interviews were conducted face-to-face at respondents' homes and pro-form was filled. The data were analyzed from the Statistical Package for Social Science (SPSS) and data presented in the tabular form. Basically, frequency table and paired sample t-test was used to analyze the changes before and after program intervention.

RESULT & DISCUSSION:

There were 48.2% males and 51.8% female respondents were participated in this study. Similarly, on the basis of caste, Janjati respondents had high population range with 64.0%, and Bramin/Chhetri had second position with 29.8%, and Dalit respondents were 5.5% with the lowest population and with 0.3% Madhesi and 0.3% Other from other caste groups.

1. Differences in Practice in Use of Toilet

Nepal government introduced Total Sanitation program through CLTS and SLTS approaches aimed to stop open defecation as well as improve in hygiene and sanitation status of the community. Before the systematic effort for sanitation promotion in Nepal undertaken by the Government of Nepal and other stakeholders over the years, the disease burden associated with poor water, sanitation and hygiene was high. Promoting safely disposal of excreta and hygienic practices are the most important measure to improve public health and reduce human suffering and financial losses. The study reported that there was certain changes in the behavior of the community people after CLTS and SLTS intervention such as using permanent toilet, cleaning the toilet once a day, using soap and water after defecation, making safety tanking, and never go outside for defecation either septic tank of toilet is full.

Comparatively, community respondents used personal toilet after the CLTS and SLTS practices along with 99.2% where there was mean differences between before and after use of personal toilet was significant. Community respondents even clean their toilet once a day after the SLTS and CLTS practices along with 93.2% where there was mean difference between cleaning toilet once a day before and after of practice was significant. After CLTS and SLTS practice in the community, respondents kept water and soap near to toilet along with 94.7% where there was mean differences between practices of good habit after initiation was significant. After the knowledge about different communicable disease transmitted by open defecation and contact without washing hands, community people construct water seal toilet with safety tank or pit and have water inside the toilet along with 97.0% where there was mean difference between before and after the CLTS and

SLTS practice was significant. Similarly, community people made toilet 15m far from the drinking water source only after the CLTS and SLTS practice in their locality along with 90.5% where there was mean differences between before and after making of toilet far from the water sources was significant. Behavior is changed by good knowledge and practices and once good behavior is setup in the individual mind it cannot be easily detached. Community respondents did not go for toilet in open area even if their septic tank of toilet is full that shows good behavioral change and here from the above table 82.2% respondents rejected to go for defecation in open area where there was mean difference between before and after go for defecation in open area was not significant. These mean differences indicated the positive changes in the community and in individual life after CLTS and SLTS intervention.

Table 1: Differences in Practice in Use of Toilet

		Before		After		Paired Samples Statistics				
		N	%	N	%	Mean	t	Df	Sig. (2-tailed)	
I always use my personal toilet for defecation	Yes	446	74.3	595	99.2	Before	1.2567	13.591	599	.000
	No	154	25.7	5	8	After	1.0083			
I always clean my toilet once a day	Yes	335	55.8	559	93.2	Before	1.4417	18.374	599	.000
	No	265	44.2	41	6.8	After	1.0683			
I have water and soap facilities in/near toilet	Yes	324	54.0	568	94.7	Before	1.4600	19.348	599	.000
	No	276	46.0	32	5.3	After	1.0533			
I have water seal toilet with septic tank or pit	Yes	410	68.3	582	97.0	Before	1.3167	14.808	599	.000
	No	190	31.7	18	3.0	After	1.0300			
My toilet/septic tank/pit is 15 meters far from the sources of drinking water	Yes	400	66.7	543	90.5	Before	1.3333	12.784	599	.000
	No	200	33.3	57	9.5	After	1.0950			
I revert to open defecation when septic tank of toilet is full	Yes	112	18.7	107	17.8	Before	1.8133	-.454	599	.650
	No	488	81.3	493	82.2	After	1.8217			

Source: Field Survey, 2017

The statistical analysis of t-test showed that there was significant different between these two before and after CLTS and SLTS intervention in the community because $P=.000$ which is less than 0.05 significant levels. However, there was not significant different between these two before and after CLTS and SLTS approach in regard going outside if septic tank of toilet is full because $P=.650$ which is less than .05 significant level.

2. Differences in Hand Washing Practice

Hand washing is the process of cleaning hands with water and soap or other special liquids. Hand washing prevents lots of new disease. Thousands of people die every day around the world from infections acquired while receiving health care. Hands are the main pathways of germ transmission during health care. Hand washing with soap consistently at critical moments during the day prevents the spread of diseases like diarrhea and cholera which are transmitted through fecal-oral routes. The study reported that there were certain changes in behavior after declaration of ODF zone, like, washing their hands after using toilet, before having food, before preparing meal, after handling children’s feces, after disposal of animal dung/feces, after using chemical/fertilizer/insecticides, after reaching home from work/ from outside/ touching any dirt, wash hands with soap, fixing hand-washing station, and facilities of soap and water anytime.

Table 2: Differences in Hand washing practice

Statements		Before		After		Paired Samples Statistics				
		N	%	N	%	Mean	T	Df	Sig. (2-tailed)	
I always use soap for hand-washing after using toilet/defecation	Yes	418	69.7	587	97.8	Before	1.3033	14.512	599	.000
						After	1.0217			
I always use soap for hand-washing before taking food	Yes	331	55.2	510	85.0	Before	1.4483	14.925	599	.000
						After	1.1500			
I always use soap for hand-washing before preparing meal	Yes	253	42.2	456	76.0	Before	1.5783	16.544	599	.000
						After	1.2400			
I always use soap for hand-washing after handling children’s faeces	Yes	425	70.8	584	97.3	Before	1.2917	14.105	599	.000
						After	1.0267			
I always use soap for hand-washing after disposal of animal faeces	Yes	412	68.7	545	90.8	Before	1.3133	12.364	599	.000
						After	1.0917			
I always use soap for hand washing after using chemical/ fertilizer/insecticides	Yes	475	79.2	587	97.8	Before	1.2083	11.357	599	.000
						After	1.0217			
I always use soap for hand-washing after reaching home from work/ from outside/touching any dirt	Yes	333	55.5	547	91.2	Before	1.4450	17.028	599	.000
						After	1.0883			
My children wash their hands with soap	Yes	332	55.3	559	93.2	Before	1.4467	18.211	599	.000
						After	1.0683			
At home, I have fixed hand-washing place/station	Yes	303	50.5	528	88.0	Before	1.4950	18.318	599	.000
						After	1.1200			
Water and soap is available anytime in my home for hand washing	Yes	322	53.7	585	97.5	Before	1.4633	21.334	599	.000
						After	1.0250			

Source: Field Survey, 2017

Community respondents used soap for hand washing after using toilet/after defecation these practices was improved in individual only after CLTS and SLTS intervention with 97.8% where only 69.7% respondents used soap and water before any kinds of CLTS and SLTS knowledge practiced and in this point there was mean difference in between before and after making practice of use of soap and water after using toilet were significant. Respondents before taking food wash their hands with soap and water 85.0% respondents have this practices only after intervention where 55.2% respondents had before the SLTS and CLTS and in this point there was mean differences between before and after of practice was significant.

Before preparing meal individual respondents of the community wash their hands with 76.0% where only 42.2% respondents had such knowledge before CLTS and SLTS intervention and in this comparison there was mean difference between before and after hand washing before making meal was significant. Respondents from the certain community washed their hands after handling children feces this behavior was changed by after CLTS and SLTS approach and here in the above table 97.3% respondents changes after approach where 70.8% respondents were already washed their hands for such activity and in this point, there was mean difference between before and after the CLTS and SLTS practice was significant.

Respondents before CLTS and SLTS, 68.7% of respondents used to wash their hands after disposal of animal dung /feces where after the intervention 90.8% respondents washed their hands after disposal of animal feces and in this point there was mean differences between before and after washing hand after disposal of animal feces was significant. Respondents before the intervention have knowledge to wash their hands after using chemical/fertilizer/insecticides, even before the programs along with 79.2% were had such practice and after the program there was increasing number 97.8% of believing in such hygienic behaviour along with significant. Comparatively, there was few respondents before CLTS and SLTS practice who washed their hands after reaching home from work/from outside/touching any dirt along with 55.5% where there was 91.2% increasing number of respondents washed their hands after reaching form outside and in this regard there was mean difference between in these two before and after washing hands even after coming from outside of the house was significant.

After the CLTS and SLTS approach in the community and at school there was increasing number of following washing hands practice by children along with 93.2% where before the programs there was only 55.3% children washed their hands. Before SLTS and CLTS practice in the community, there was increasing number of respondents who use soap and water for hand washing along with 93.2% after the programs where 55.3% respondent used soap and water in placed before health and hygiene practice and in this point there was mean differences between before and after the

program in the community. Finally, 97.5% respondents said they have water and soap at home in any time after SLTS and CLTS practice where 53.7% respondents had water and soap at their house in any time even before the sanitation campaign in their locality and in this point there was mean difference between before and after was significant. The mean difference between before and after the sanitation and hygiene practice in use of soap and water, the result explained improvement in respondent's behavioral change.

The statistical analysis of t-test showed that there was significant different in washing hands after contact with germs before and after of CLTS and SLTS practice in the community because $P=0.000$ which is less than 0.05 significant level.

3. Differences in Use of Safe Drinking Water

Access on safely managed drinking water services is an essential prerequisite for community's people. Although, thousands of people in the country who still lacked a basic drinking water services either use limited sources or unimproved sources or surface water resources. Men and women, in particular the poor and vulnerable condition does not have access to improved sanitation and safe water facilities. The respondents had some changes were found regarding on wash the water container and cover the drinking water, drink purified water, and drink tested and treated water source for drinking purpose after ODF campaigning.

Table 3: Differences in Use of Safe Drinking Water

		Before		After		Paired Samples Statistics				
		N	%	N	%		Mean	t	df	Sig. (2-tailed)
I always wash the container/water pot and cover the drinking water	Yes	452	75.3	586	97.7	Before	1.2467	12.536	599	.000
					After	1.0233				
I always drink purified water	Yes	159	26.5	334	55.7	Before	1.7350	14.676	599	.000
					After	1.4433				
I always use tested and treated water source for drinking purpose	Yes	126	21.0	253	42.2	Before	1.7900	11.578	599	.000
					After	1.5783				

Source: Field Survey, 2017

Respondents from the certain community had practice of washing the water container and cover the drinking water even before and after the sanitation campaigning; however the number of respondents increased after the campaign along with 97.7% where before 75.3% respondents managed their drinking water and in this point changing on behavior of respondents before and after

the practices. Similarly, respondents drank purified water even before the campaign along with 26.5% where after the sanitation practice number of respondents started more care about their drinking water along with 55.7% and in this matter there was significant difference in mean value between before and after of it. Finally, in regarding respondents of the community always drank tested and treated water sources, before the ODF campaign only 21.0% respondents drank tested water source on the other hand, 42.2% respondent drank tested and treated water source after the CLTS and SLTS approach and on this matter, there was significant difference in mean value between before and after the CLTS and SLTS practice in the locality.

The statistical analysis of t-test showed that there was significant different between all these use of safe and clean drinking water before and after of CLTS and SLTS intervention in the community because $P=.000$ which is less than .05 significant level.

4. Differences in Use of Hygienic Food

Food hygiene is the practices in the handling, preparation, and storage of food that minimize food-borne infection. Food hygiene is concerned with the hygiene practices that prevent possible food poisoning. The five key principles of food hygiene are to be followed. Proper cooking kills harmful bacteria in food. The following table elaborated the food behaviour of respondents and maintain healthy life and shown the difference between before and after CLTS and SLTS intervention in the locality.

Table 4: Differences in Use of Hygienic Food

Statements		Before		After		Paired Samples Statistics				
		N	%	N	%	Mean	t	Df	Sig. (2-tailed)	
I always use clean utensil for cooking, putting and eating foods	Yes	454	75.7	555	92.5	Before	1.2433	10.882	599	.000
						After	1.0750			
I always cover the food properly	Yes	460	76.7	592	98.7	Before	1.2349	12.764	595	.000
						After	1.0134			
I always eat fresh food/properly cooked food	Yes	490	81.7	587	97.8	Before	1.1823	10.258	597	.000
						After	1.0201			
I have the improved cooking stove in my kitchen	Yes	155	25.8	369	61.5	Before	1.7417	17.137	599	.000
						After	1.3850			

Source: Field Survey, 2017

In comparison, respondents had changes their food habit after total sanitation campaign through CLTS and SLTS and started to clean utensil for cooking with 92.5%, where 75.7%

respondents had already followed such practice and there was significant mean differences between before and after the practices. Respondent from the community had the knowledge to cover the food properly so there was less difference before and after the program, here from the table, there was 98.7%, had knowledge covered their food properly after the programs, however, 76.7% respondents already had knowledge about it and in this matter there were significant mean differences between them. Similarly, in the matter of taking fresh food/properly cooked food, there was some improvement on it, where 97.8% respondents ate fresh and properly cooked food on the other hand, 81.7% respondents ate fresh food before the hygiene and sanitation campaigning in the community and there was also significant mean difference in it. In the point of using improved cooking stove there was 61.8% respondent used it after the program intervention where only 25.8% respondents used improved cooking stove before the program so there was significant mean difference between them.

The statistical analysis of t-test showed that there was significant different between use of hygiene food before and after Total Sanitation program through CLTS and SLTS in the community because $P=.000$ which is less than 0.05 significant level.

CONCLUSION:

The study had measured the two types of sanitation approaches of community awareness program: CLTS and SLTS. The study found that Community-based approach (CLTS) was very effective in changing hygiene and sanitation behavior of community people. Basically, proper use of toilet, handwashing practices, safe drinking water and use of hygienic food behavior were improved among the community people. Working in a community-based approach is best way in reducing open defecation situation. CLTS approach was widely appreciated by community because there was direct participation of community themselves to implement the open defecation free (ODF) campaign. It has significant contribution in improving knowledge, attitude and sanitation behavior. The effectiveness of SLTS approach was not significant to change the sanitation behavior so further researcher can study on factors affecting the performance of SLTS approach.

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