

Full Length Research Paper

Knowledge, attitude and practice on hand washing and associated factors among public primary schools children in Hosanna town, Southern Ethiopia

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The burden of communicable diseases within developing countries is mainly influenced by poor personal hygiene practices. Despite substantial evidence about the effectiveness of hand washing, especially using soap at all critical time, the practice is poor in developing countries including Ethiopia. The problem is not researched well on children who are major risk groups for diarrheal diseases, ARI and other hygiene related problems. To assess knowledge, attitude and practice of hand washing and associated factors among primary school children in Hosanna town, SNNPR, Ethiopia. Institution based cross sectional study was conducted with sample size of 246 students in Girma Bekele primary school in Hosanna town from April 15 -30/2016. Data was collected using interviewer administered pre tested structured questionnaires by trained data collectors. From students participated in this study over all 167(69.9%) students have good and 72 (30.1%) have poor knowledge. Knowledge of students in this primary school is affected by grade of student and area of residence with (AOR, 95% CI 9.099(.587-.850) and (AOR.384; 95% CI (.114-.299)) respectively. Regarding the attitude of students 142(59.4%) and 97(40.6%) have good and poor attitude respectively. Overall 172(71.97%) of students have good practice and 67 (28.03%) have poor practice toward hand washing. Majority of the study subjects has adequate knowledge and about more than half of them have positive attitude. Overall practice of HW is good but utilization of soap and HW after toilet visit is low. Maternal educational status, area of residence, age, sex and grade of student are factors that affect KAP of school children toward hand washing with soap.

Key words: Primary school children, hand washing, knowledge, attitude and practice, Ethiopia.

INTRODUCTION

Water, sanitation and hygiene are a crucial but all too often underplayed part of the prevention and control of

neglected Tropical diseases. Diseases including Trachoma, Soil-Transmitted helminthis and schistosomiasis all

demand practical interventions so that their prevention, treatment and ultimately their elimination can be achieved by the international community as soon as possible (WASH, 2012).

Hand washing is the act of washing hands with plain or antimicrobial soap and water and it is the single most preventive measure for reducing the spread of contagious diseases. In fact skin is the body's first line of defense against bacteria, therefore careful attention to hand care is an essential part of the hand hygiene program. The presence of dermatitis, cracks, cuts or abrasions can trap bacteria and compromise hand hygiene (Core, 2002). According to CDC report estimates each year nearly 2 million patients in the United States get an infection in hospitals, and about 90,000 of these patients die as a result of their infection. More widespread use of hand hygiene products that improve adherence to recommended hand hygiene practices will promote patient safety and prevent infections (Core, 2002).

The two biggest killers of children in the developing world today are diarrheal disease and respiratory tract infections (Jennifer and Param, 2014). The simple act of washing hands with soap can cut diarrhoea risk by almost half, and respiratory tract infection by a third (Jennifer and Param, 2014). There is improvement on morbidity and mortality rates but still diarrheal diseases are responsible for 21% of all deaths and 2.5 million deaths per year which has either direct or indirect relation with poor hand washing. In developing countries, there were 3.2 episodes of diarrhoea per child per year in under five children with mortality rate of 4.9 children per 1000 per year (Kosek et al., 2003).

Lack of knowledge on hand washing has association with prevalence of diarrhoea (Ejemot et al., 2008; Mengistie et al., 2013).

Proper hand washing with soap (HWWS) is important for school children's health improvement and disease prevention which in turn reduces absenteeism due to illness. The practice is significant for schoolchildren, who might suffer a more severe burden of hygiene-related diseases compared to adults (Vivas et al., 2010; Thanh Xuan et al., 2013; WASH, 2012). Promotion of hand washing through education in school children and provision of safe and clean water supply as well demonstration of proper hand washing techniques in schools saves children from such life threatening but easily preventable illness (Ejemot et al., 2008; WASH (2012); Ejere, 2004; Mohammed et al., 2013; Garg et al.,

2013). The level of knowledge and practice of students in schools is relatively better in developed countries but it needs more intervention in low income countries including Ethiopia WASH (2012). Rubanprem et al., (2014). The latest available evidences indicate that Ethiopia has made some progress towards access to basic sanitation by reaching 28% of the population in 2014, compared to a 3% baseline in 1990 but considerable number of children and mothers are still dying due to failure to reach them with high impact interventions (Controlling diarrheal disease in Vietnam, 2015).

A study conducted by the United Nations Children's Fund (UNICEF) and the Ethiopian Ministry of Health found that study participants in rural Ethiopia had poor status regarding knowledge, attitudes, and practices (KAP) of hygiene (Kumie and Ali, 2005). Approximately, 60% of children surveyed did not know about the possible transmission of diseases through human waste (Assefa and Kumie, 2014).

Simple hygienic measures such as washing hands with soap were poorly practiced, especially in rural areas (Kumie and Ali, 2005). Another study conducted by the Research-inspired Policy and Practice Learning in Ethiopia (RIPPLE), a program surveying rural households in the southwest region of Ethiopia, found that hand washing practices were also poor (Research-inspired Policy and Practice Learning in Ethiopia (RIPPLE), 2008). New hand washing facilities, in addition to awareness and knowledge about proper hygiene, have led to some changes in behaviour and attitude, yet the prevalence of hand washing remains low in this region Ministry of health (MOH) (2015). Despite substantial evidence about the effectiveness of hand washing, especially using soap at all critical time, the practice is poor in developing countries including Ethiopia. The problem is not researched well on children who are major risk groups for diarrheal diseases, ARI and other hygiene related problems.

Although hand washing after contact with faecal material (for example after defecation), before and after meal, before food preparation and cleaning baby provides important barrier to faeco-oral transmitted disease, cause of point of contamination in schools with poor hygiene and sanitation facilities are much more broader than these points means level of knowledge, attitude and practice as well as other associated factors of students need further studies to intervene in areas with gap of HWWS in primary schools.

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Objectives of the study

The general objective

The general objective was to assess the knowledge, attitude and practice of hand washing and associated factors among primary schools children in Hosanna town, SNNPR, Ethiopia.

Specific objectives

The specific objectives of the study were: 1) to assess knowledge of hand washing among primary schools children in Hosanna town, SNNPR, Ethiopia, in 2016; 2) to assess the attitude towards hand washing among primary school children in Hosanna town, SNNPR, Ethiopia in 2016; 3) to assess the hand washing practice among primary schools children in Hosanna town, SNNPR, Ethiopia in 2016 and 4) to determine associated factors of knowledge, attitude and practice of hand washing among primary schools children in Hosanna town, SNNPR, Ethiopia.

MATERIALS AND METHODS

Study area and period

This study was conducted in Hosanna town which is located in 232 km South West from Addis Ababa, Ethiopia. Hosanna is an administrative centre of Hadiya Zone with a total population of 92,735, according to 2007 census. There are six public educational facilities in the Town Administration, among which three are primary schools, two high schools and one preparatory school. There are four governmental (one general hospital and three health centres) and 12 non-governmental health facilities in the town. The study was conducted from April 15 to 30, 2016.

The study was conducted at Hosanna town Primary School, a government-owned institution which provides free education to children in grades 1-8 who live in Hosanna. A school based cross-sectional study involving quantitative method was undertaken among 246 randomly selected students. Eligible students were selected using simple random sampling technique from the existing sampling frame (student's roster). In every step of selection, simple random sampling technique was used.

Data collection process and tools

Data were collected using interviewer administered questionnaires at school and socio demographic and socio economic variables are completed with parents. Eight data collectors from three health centres participated in data collection. Each student was interviewed using a structured questionnaire in a safe room specifically dedicated for this study by the school administration. All data collectors were trained on interviewing skills, content of the questionnaire, data quality and ethical conduct. Two graduate students supervised the overall process, assisted interviewers and collected completed questionnaires on daily basis. All completed questionnaires were checked for consistencies and completeness of the data.

The questionnaire was initially drafted in English, and translated to Amharic, and then pre-tested in 10% of sample size outside of the study area to assess the suitability with regards to duration, language appropriateness, content validity, and question comprehensibility. Based on the feedback from the pilot test, corrections were made.

Data quality assurance

After data collection, each questionnaire was given a unique code by the principal investigator. The principal investigator prepared the template and entered data using Epi Data version 3.1 then exported to SPSS version 20. Five percent of the entered data was re-checked by comparing the entered data with the actual questionnaire. Frequencies are used to check for missed values and outliers. Any errors identified at this time were corrected after revision of the original data using the code numbers.

Data analysis

The data were cleaned for inconsistencies and missing values. Simple frequencies run to see the overall distribution of the study subject with the variables under study. Bivariate and multivariate analysis was used to determine the association between different factors and the outcome variable.

Inclusion and exclusion criteria

All children in the age range between 5-18 years and registered at primary schools of Hosanna town in 2015/2016 academic year were included in the study. Students with hearing and speaking disabilities were excluded from the study.

Study variable

Dependent variable

Dependent variable included: knowledge, attitude and practice towards hand washing.

Independent variables

Independent variables included: Socio- demographic (Age, sex, Religion, area of residence, grade of student, family size, and educational status of parents); Socio economic (Occupation of parents); Health system related at school and home (History of illness; Availability of water and soap and Information on HHWS).

Operational definitions

Hand washing at critical time

It includes washing hand before preparing food, before eating food, after eating, after cleaning baby and after visiting toilet.

Good practice

Those students who scored at least 60% and above in practice questions.

Poor practice

Those students who answer less than 60% of practice questions.

Good Knowledge

Those students who scored at least 60% and above in knowledge questions.

Poor knowledge

Those students who fail to answer 60% of the knowledge questions.

Positive attitude

Those students who could answer/score at least sixty percent and above from the questions that measure attitude.

Negative attitude

Those students who could not answer at least 60% of attitude questions.

Ethical considerations

Prior to data collection, written ethical clearance was obtained from research and ethics committee of AAU College of Allied Health Sciences, Department of Nursing and Midwifery. During data collection, each parent of the child that participates in the study was informed about the purpose, scope and expected outcome of the research, and appropriate informed verbal consent was taken. Consented parents completed the socio-demographic and socio-economic information. During the interview all participating children were informed about the purpose, scope and expected outcome of the research, and appropriate informed verbal consent was obtained.

RESULTS**Socio-demographic characteristics**

A total of 246 school children were recruited from the school giving a response rate of 97%. From the total students who participated (239) in this study 116 (48.5%) are males and 123 (51.5%) are females with mean age of 11.66 years. Majority of the respondents' families (160, 66.9%) were protestant religion followers whereas 17.2, 12.6 and 3.3% were Orthodox, Muslim and other religion followers respectively (Table 1)

Knowledge about hand washing

The global hand washing day as a movement is a critical initiative; it is a source of information and enhances knowledge of individuals on practice of hand washing.

From the respondent students 158 (66.1%) have information on global hand washing day but only 3 reported the exact month in which global hand washing day is celebrated.

Benefit of washing their hands using clean water and soap was reported by 108 (45.2%), 83 (34.7%), and 39 (16.3%) to promote health, prevent transmission of disease and to be beautiful respectively (Table 2).

Based on the specific responses by the participant students, over all 167(69.8%) and 72 (30.1%) students had good and poor knowledge respectively.

Factors that affect level of knowledge

Primarily, variables that had p-value <0.2 at bivariate analysis were used to develop logistic model in order to identify factors which are more strongly linked with the outcome knowledge. On multivariate logistic regression, educational status of mother and grade of student were found to be significantly associated to knowledge toward hand washing.

The likelihood students in 2nd cycle are 8 times [AOR, 9.099; 95% CI (4.36-.17.36)] more likely to have good knowledge on hand washing than those students in first cycle (Table 3).

Attitude towards hand washing

Among the participant students, 222 (92.9%) and 17 (7.1%) said that it is their own and their parents' responsibility to wash their hands respectively. Based on six questions/scale to measure the attitude towards hand washing, 142 (59.4%) and 97 (40.6%) had positive and negative attitude respectively.

There is no statistically significant association with different socio demographic variables and attitude towards hand washing.

Practice of hand washing

Of the total respondents, 237(99.2%) washed their hands in the morning of the interview day and only two students failed to wash their hands because they were aroused from their sleep. From those who have washed their hands in the morning of the interview day, about 204 (85.4%) reported the use of soap and the remaining 33 (13.8%) used water only to wash their hands. Water and soap (188, 78.7%) are more used in the families of students to wash their hands followed by water only (50, 20.9%). The usage of soap is elaborated in the following bar graph before and after some activities.

Overall, 172 (71.97%) of the students had good practice and 67 (28.03%) had poor practice toward hand washing (Table 4).

Table 1. Socio demographic characteristics of the students in Girma Bekele primary school Hosanna Ethiopia, 2016.

S/N	Variable	Category	Frequency (n=239)	
			Number	%
1	Grade of student (n=239)	1-4	102	42.7
		5-8	137	57.3
2	Area of residence (n=239)	Hosanna town	217	90.8
		Local kebele	22	9.2
3	Educational status of mother (n=239)	Can't read and write	36	15.1
		Grade 1-8	106	44.4
		Grade 9-12	52	21.8
		Diploma and above	45	18.5
4	Occupation of father (n=239)	Government employee	125	52.3
		Private employee	68	28.5
		Daily labourer	10	4.2
		Farmer	34	14.2
		Student	2	.8
5	Occupation of mother (n=239)	Government employee	68	28.5
		Private employee	23	9.6
		House wife	146	61.1
		Student	2	0.8
6	History of illness (n=239)	Yes	66	27.6
		No	173	72.4
7	Illness diagnosed (n=66)	Diarrhea	39	59.09
		RTI	7	10.6
		Intestinal parasite	7	10.6
		Other problems	13	19.71

Table 2. Knowledge and Attitude of students on hand washing among GirmaBekele primary school children Hosanna, Ethiopia, 2016.

S/N	Characteristics	Category	Frequency (n=239)	
			Number	%
1	Have information on HWWS(n=239)	Yes	239	100
		No	0	0
2	Have information on global hand washing month (n=239)	Yes	158	66.1
		No	81	38.7
3	Source of information on global hand washing day	Television	134	56.10
		Teachers	62	26.10
		Family	14	5.7
		Radio	8	3.2
		health worker	21	8.90
4	Human faces contains disease causing microorganisms (n=239)	Yes	167	69.8
		No	6	2.5
5	Unclean hands are way to transmission of disease. (n=239)	Yes	233	97.5
		No	6	2.5
6	Hands become visibly dirty(n=239)	Before meal	68	28.5
		After meal	23	9.6
		After play	73	30.5
		After toilet	2	.8

Table 2. Contd.

7	Risk to contaminate food and water if we do not wash our HWS (n=239)**	After toilet	27	11.3
		After playing	73	30.54
		Before meal	219	91.6
		After meal	223	93.3
		After work	193	80.7
8	Needed to wash hand properly (n=239) **	Soap	98	41.00
		Clean water only	29	12.13
		Soap and clean water	106	44.35
9	If you fail to wash your hands you will be exposed to disease. (n=239)	Strongly agree	112	46.86
		Agree	97	40.5
		Disagree	21	8.7
		Strongly not agree	9	3.7
10	It is order of parents or teachers to wash your hands. (n=239)	Strongly agree	24	10.04
		Agree	31	12.97
		Disagree	124	51.9
		Strongly not agree	60	25.10
11	If you fail to wash your hands you will be exposed to disease. (n=239)	Strongly agree	101	42.25
		Agree	40	16.7
		Disagree	50	20.92
		Strongly not agree	48	20.08

Table 3. Logistic regressions of factors affecting knowledge of hand washing among school children in GrimaBekele primary school, Hosanna Ethiopia April 2016.

Characteristics	Level of knowledge		P	COR (CI 95%)	P	AOR (CI 95%)	
	Good (%)	Poor (%)					
Sex of student	Male	27(23.4)	88(76.6)	1	1.77(1.01-.3.13)	0.259	0.355(-1.329)
	Female	43(34.7)	81(65.3)	0.048			
Grade of student	1-4	48(49.02)	54(50.98)	1	(4.37-16.04)	0.000	8.70(4.36-17.36)*
	5-8	119(88.3)	16(11.7)	0.020			
Area of residence	Rural	9(40.9)	13(59.09)	1	4(1.62-.9.83)	0.171	0.461(0.15-1.39)
	Urban	158(73.7)	57(26.3)	0.003			
Educational status of mother	Illiterate	16(44.4)	20(55.6)	1	3(1.51-.7.26)	0.396	1.59(0.544-4.66)
	1-8	77(72.64)	29(27.36)	0.003			
	9 -12	39(78)	11(22)	0.002	4(1.73-11.32)	0.187	1.85(0.74-4.62)
	≥Diploma	35(77.7)	10(23.3)	0.506			

Factors that affect practice toward hand washing

From those factors that affect practice of elementary school children area of sex and grade of students are among the major ones (Table 5).

DISCUSSION

From those having information on HWWS, television (81, 33.9%) and teachers (77, 32.2%) are main sources of information followed by health extension workers (40,

16.7%) and family (23, 9.6%) in Girma Bekele Primary School. Compared with this study in Indonesia on hand washing practices among elementary school students, parents (91.86%), health workers (50.0%) and teachers (34.9%) are major sources of information (Ministry of Health (MOH), 2015).

This study shows that the main source of information is television followed by teachers. In South Africa, the main sources of information are teachers and television (Setyautami et al., 2012). This variation could be due to access to television and other media's role in the home of students. In Bangladesh, it is indicated that multivariate

Table 4. Practice of students on hand washing among GirmaBekele primary school children Hosanna, Ethiopia, 2016.

S/N	Characteristics	Category	Frequency (n)	
			Number	%
1	Have you washed your hands today?	Yes	237	99.2
		No	2	0.8
2	If yes for above question what material do you have used? (n=237)	Water only	33	13.8
		Soap and water	204	85.4
3	Why you don't wash your hand today?(n=2)	Lack of water	-	-
		Lack of time	2	0.83
		I do not found my hands dirty	-	-
4	Which one is more practiced to wash your hand in your family?(n*)	Towel	2	0.83
		Soap and water	188	78.7
		Water only	50	20.9
5	When do you wash your hands?	Before meal	205	85.7
		After meal	185	78.2
		After work	49	20.70
		After play	30	12.40
		After toilet	15	6.30
6	For how long duration do you wash your hand at a time?	For less than 30 s	47	19.7
		30 s-1min	37	15.4
		I do not know	155	64.9
7	In average for how many times you wash your hands per day?(n=239)	six and above six times	121	50.6
		Blow six times	111	46.5
		I do not know	7	2.9

Table 5. Logistic regressions of factors affecting practice of hand washing among school children in GrimaBekele primary school, Hosanna Ethiopia April 2016.

Characteristics		Level of practice		P	COR (CI 95%)	P	AOR (CI 95%)
		Good (%)	Poor (%)				
Sex of student	Male	81(86.9)	13(13.8)	1	1.87(1.75-4.89)	0.020	1.66(1.453-2.19)*
	Female	138(95.1)	7(4.9)	0.211			
Grade of student	1-4	48(49.02)	54(50.98)	1	3.92(2.36-5.06)	0.000	8.56(4.35-16.83)*
	5-8	119(88.3)	16(11.7)	0.010			
Area of residence	Urban	175(90.2)	42(9.8)	1	1.78(1.511-1.97)	0.044	0.337(0.116-0.973)
	Rural	8(36.36)	14(63.64)	0.012			

analysis of socio-economic factors including education of household head and respondent, water availability and access to media have strong positive association with hand washing with soap (Sibiya and Gumbo, 2013).

From the medical report of the students' families, diarrhoea accounts for about 39 (16.3%) and 59% of all cases. Even this large figure may be due to outbreak of acute watery diarrhoea in the past two months in the area it has direct or indirect relation with hand washing especially with soap. In rural Bangladesh it is stated that promotion of hand washing resulted in reduction of

diarrhoeal disease (Ejemot et al., 2008). Study in Ariba Minch also showed that that the prevalence of diarrhoea was significantly associated with poor hand washing practice (AOR= 2.33, 95%CI =1.80, 4.15) (Ejere, 2004).

Knowledge about hand washing

From the study participants 158(66.1%) have information on global hand washing day but only 3 reported the exact month in which global hand washing day is being

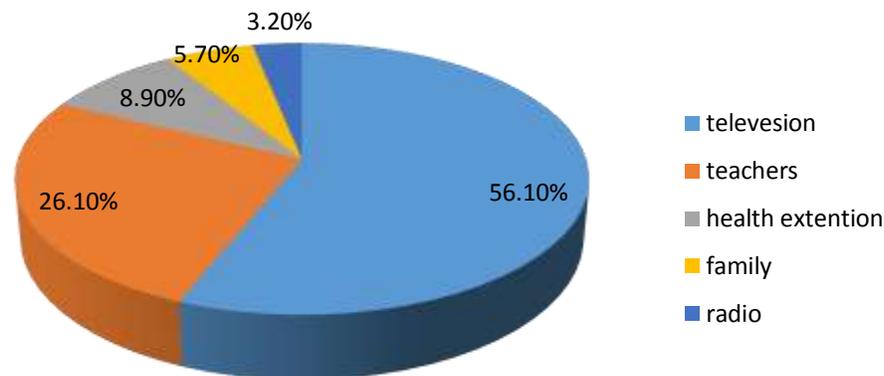


Figure 1. Source of information on global hand washing day among GrimaBekele primary school students, 2016.

celebrated; the main sources of information about global hand washing day are television (89, 56.3%), teachers (41, 25.95%) and health extension workers (14, 5.9%). This finding is better than that of South Africa where almost all the students do not have information on it and lack clue on global hand washing month (Sibiya and Gumbo, 2013). Even if there is time discrepancy between the studies, this study shows better exposure for media.

Of the students who participated in this interview in GrimaBekele primary school, 167 (69.9%) and 72 (30.1%) students had good and poor knowledge about hand washing respectively (Figure 1). When we compared this with knowledge of students report in University of Sri Jayewardenepura (77%), (Provincial Infectious Diseases Advisory Committee, 2014) the level is lower in the school showing slight variation of current study students. But it was better with the case of Northern Shoa of Ethiopia where about 52% of the students were classified as having adequate knowledge of proper hygiene including HWWS (Sibiya and Gumbo, 2013).

Of all the school students in GrimaBekele primary school, 233 (97.5%) know that unclean hands is a way of transmitting germs and 167 (69.9%) know that human faces contains disease causing microorganisms; 70 (29.3%) and 6 (2.5%) students do not know that the presence of disease causing microbes in faecal matter and unclean hands are a way of transmitting disease respectively (Figure 2). When we compare this with Bangladesh where 83% of the total respondents are aware that unhygienic practices facilitate growth and transmission of 'germs' (Akter and Ali, 2014) is lower. In Angolale of Ethiopia the importance of hand washing after defecation was witnessed by 75% of students who participated while the majority of the participants reported

that hand washing before and after meals was important (Sibiya and Gumbo, 2013).

The benefit of washing their hands using clean water and soap was reported for promotion of health (108, 45.2%), prevention of disease transmission (83, 34.7%) and to be beautiful (39, 16.3%). Studies also show that there is association between healthy seeking behaviour and sexual attractiveness concern on hand hygiene in Middle School of Delhi (Garg et al., 2013).

Overall, 167 (69.8%) and 72 (30.1%) students had good and poor knowledge respectively. In comparing this with the case of Northern Ethiopia with adequate knowledge of hygiene 52% (Vivas et al., 2010) in this school there was more number of students with adequate knowledge.

Attitude towards hand washing

Of the 239 students in GrimaBekele primary school, 142 (59.4%) and 97 (40.6%) had good and poor attitude respectively. In comparing this with study in South Africa with good attitude ($91.40 \pm 1.16\%$) (35), the level of attitude was less in this study. This finding is almost similar with finding from Lake Mereb District of Ethiopia with positive hygiene behaviour of 61.6% (Tadesse, 2000).

Practice of hand washing

Of the total respondent students in GrimaBekele Primary School, 237(99.2%) washed their hands in the morning of the interview day. From those who have washed their hands in the morning of the interview day about 204

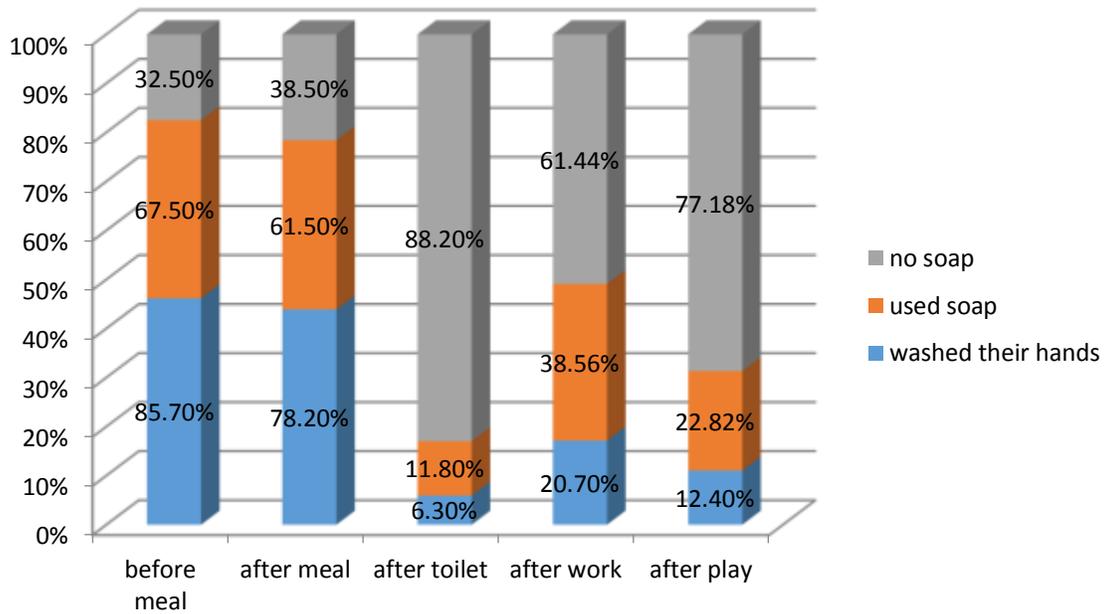


Figure 2. Hand washing times and soap utilization among GrimaBekele Primary school students, 2016.

(85.4%) reported the use of soap and the remaining 33 (13.8%) used water only to wash their hands. The practice is less than that of Ghana after toilet visit hand washing with soap (90.2%) (Tadesse, 2000); but better in comparison with that of Northern rural Vietnam where 319 (66%) students used soap to wash their hands (Thanh Xuan et al., 2013). Studies in northern Ethiopia also showed that nearly all participants reported washing their hands the day before the interview (99.7%), but only 36.2% of children reported usage of soap (Vivas et al., 2010). This good practice in the school may be due to awareness created by wash club in the school and different media but utilization of soap still needs more intervention.

Most students wash their hands before meal (205, 85.7%) and after meal, (185, 78.2%) whereas only 15 (6.3%) after defecation. This finding has similarity with finding from South Africa interims of most frequent practice of hand washing before meal (Sibiya and Gumbo, 2013), but practice after toilet visit in this school is lower than that of South Africa. In Vietnam, the common time for hand washing was before eating (60%) and after defecation (23%) (Thanh Xuan et al., 2013). In Babile town Ethiopia, 98.3% of the children regularly practiced hand washing before meals (Monney et al., 2014). This shows better practice of hand washing in the school but those students fail to wash their hands prior to meal 32 (13.5%), after toilet visit and those that do not use soap are at high risk for food born disease.

On duration of hand washing, 155 (64.9%) do not know how long duration they wash their hands at a time and of

the remaining, 84 students 47(19.7%) and 37(15%) said they used <30 s and 30 s-1 minto wash their hands respectively. The finding of inspection in Vietnam reveals that only 10 out of 319 school children who performed in required demonstration protocol (Vivas et al., 2010) strongly agree with this self-reported practice in the school. The percentage of students who report practice of washing their hands at recommended times (30-60 s) was only 15.1%. In comparison of the case with 58% in Vietnam, (Vivas et al., 2010) the duration of hand washing once a time is very low in the school students; this may promote transmission of disease causing microbes from wet hand and increased number of residual micro-organisms on hand.

The frequencies of wash per day show that the hand washing practice is mainly related with meal times. Overall, 172 (71.97%) of students had good practice and 67 (28.03%) had poor practice toward hand washing. From those factors that affect practice of elementary school children are area of residence, availability of hand washing materials and grade and sex of students are among major ones.

Females were 2 times [AOR, 1.66; 95%CI (1.45-2.19)] more likely to have good hand washing practice than that of males. This could be more concern of females toward hygiene and beauty issues (Tadesse, 2000). Students in the second cycle were 8 times more with AOR, 8.56; 95%CI (4.35-16.83) to have good practice than those in the first cycle. This finding has similarity with more common correlates of self-reported HWWS with increasing grade level of students in Vietnam [Grade 4

vs. grade 1: odds ratio (OR) =4.14 (2.00-8.56), grade 7 vs. grade 1: OR=7.76 (3.67-16.4) (Thanh Xuan et al., 2013).

Conclusion

Majority of the study subjects have adequate knowledge about hand washing and about more than half of elementary school children have good attitude. Majority of the students were not using soap even though they report having soap in their home. Hand washing with soap is also under reported practice after defecation. Maternal educational status, area of residence, age and sex of student, grade of student and availability of hand washing materials are among factors that affect KAP of school children toward hand washing with soap.

RECOMMENDATIONS

The school should have to provide basic information to improve knowledge attitude and practice of the students on hand washing. Wash club in the school should have to go further to improve accesses of hand washing facilities at school. Therefore, other associated factors like hand washing habit of food handlers at home like mothers and/servants, conditions in the school including play environment, interpersonal contacts including shaking hands, observation of accessibility and availability of hand washing facility at home and other related factors should have to be investigated to come up with better findings with possible intervention.

CONFLICT OF INTERESTS

The authors declare that they have no conflict of interest.

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