



Barriers and motivators to participation in hand washing promotion programs at household level among refugees in Rhino Settlement, Arua District _ Uganda

Frank Namara, Kizito Omona & Scovia Mbabazi |

To cite this article: Frank Namara, Kizito Omona & Scovia Mbabazi | (2020) Barriers and motivators to participation in hand washing promotion programs at household level among refugees in Rhino Settlement, Arua District _ Uganda, Cogent Medicine, 7:1, 1757184

To link to this article: <https://doi.org/10.1080/2331205X.2020.1757184>



© 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.



Published online: 05 May 2020.



Submit your article to this journal [↗](#)



Article views: 2



View related articles [↗](#)



View Crossmark data [↗](#)



PUBLIC HEALTH & PRIMARY CARE | RESEARCH ARTICLE

Barriers and motivators to participation in hand washing promotion programs at household level among refugees in Rhino Settlement, Arua District _ Uganda

Frank Namara, Kizito Omona and Scovia Mbabazi

Cogent Medicine (2020), 7: 1757184

 cogent  oa





Received: 27 November 2019
Accepted: 07 April 2020

*Corresponding author: Kizito Omona,
Faculty of Health Sciences,
Consortium of Uganda University
Libraries, Uganda
E-mail: kizitoomona@gmail.com

Reviewing editor:
Rahman Shiri, Finnish Institute of
Occupational Health, Helsinki
Finland

Additional information is available at
the end of the article

PUBLIC HEALTH & PRIMARY CARE | RESEARCH ARTICLE

Barriers and motivators to participation in hand washing promotion programs at household level among refugees in Rhino Settlement, Arua District _ Uganda

Frank Namara¹, Kizito Omona^{2*} and Scovia Mbabazi²

Abstract: Introduction: The major aim of hand washing promotion programs is to persuade people to change their behaviour to reduce high-risk hygiene practices and use. Unfortunately, in a refugee setting, there is a dearth of information about participation in hand washing promotion programs. Objective: To assess barriers and motivators to participation in hand washing promotion programs at household level among refugees in Rhino Camp, Arua district, Uganda. Methods: A cross-sectional study was conducted to collect quantitative and qualitative data. A semi-structured questionnaire was used to collect data on participation, individual, household factors related to hand washing promotional programs from 312 refugees. Five key informant interviews were conducted to gather data on public policy, institutional and community factors related to participation in the hand washing promotion programs. Qualitative data were analyzed using thematic content analysis. Results: Only 19.6% (61/312) of the refugees had participated in hand washing promotion programs. Significant barriers to participation were; no formal education and staying in the camp for more than 3 years. The significant motivators were; households who had 6 to 10 members and more. Conclusion: Participation in hand washing promotion programs was low among the refugees. There is need for relevant stakeholders to come up with interventions to increase participation among the refugees while taking into consideration the potential barriers and motivators to their participation as identified by this study.



Kizito Omona

ABOUT THE AUTHOR

Dr Omona Kizito is a Medical Doctor and Lecturer in the Faculty of Health Sciences (FHS) of Uganda Martyrs' University, Kampala. He holds a PhD in Mgt [Healthcare Mgt], Master of Science in Health Services Mgt (MSc. HSM), Post Graduate Diploma in Project Planning and Mgt (PGD PPM), Post Graduate Certificate in Monitoring and Evaluation (PGC M & E), and Bachelor of Medicine and Bachelor of Surgery (MBChB). He is currently engaged in teaching Public Health and Health Services Management at Bachelors and Masters Level, Research Supervision in the said areas and level, community engagement, among others. His major Research areas are; Clinical Researches, Public Health and Maternal and Child health Researches

PUBLIC INTEREST STATEMENT

This study was about sanitation and hygiene promotion in refugee settlement, Rhino Camp in Arua District _ Uganda. Refugee setting is quite prone to sanitation and hygiene-related diseases which can largely be prevented. In many cases, due to laxity in sanitation and hygiene practices, these diseases claim lots of lives of the community who should not have otherwise die.

With regular research and dissemination, among other interventions, it is very possible to contain these diseases. More researches are still encouraged in this area and also in other refugee settings.

Keywords: hand washing; participation; barriers; motivators; behaviour; practices; hand washing facilities

1. Introduction

1.1. Background

According to the United Nations High Commissioner for Refugees ([UNHCR], 2018), nearly 20 people are being forcibly displaced every minute as a result of conflict or persecution worldwide. The most current UNHCR statistics show that there are nearly 22.5 million refugees globally; with Africa being the largest host continent for these refugees (UNHCR, 2018). This high influx of refugees consequently results in overcrowded conditions and limited water, hygiene and sanitation (WASH) facilities making them highly susceptible to communicable disease outbreaks (Hershey et al., 2011). The most frequent form of these diseases is those transmitted through the fecal-oral route such as diarrhoea and viral hepatitis A and E (UNHCR, 2018). Consequently, research findings have shown that diarrhoea causes up to 49% of child mortality in refugee settings (Nannyonga, 2012; Teshale, 2010).

Given these conditions, hand hygiene is of substantial concern to populations affected by humanitarian emergencies in order to prevent the consequences of disease outbreaks. Research findings have consistently indicated the potential to reduce the risk of diarrhoea by up to 50% among young children by promoting hand washing with soap (Fewtrell et al., 2005). However, only 19% of people on average are estimated to wash their hands with soap following contact with excreta worldwide (Freeman et al., 2014). Therefore, there is a need to scale up hand washing promotion campaigns. The overall aim of hand washing promotion campaigns is to persuade people to change their behaviour to reduce high-risk hygiene practices and to use and maintain the appropriate facilities (Humanitarian Innovation Fund [HIF], 2013). Common approaches to hand washing promotion employed in refugee settings can be broadly classified as the social and physical approaches (HIF, 2016).

The social approaches are meant to empower the refugees with knowledge about hygiene and sanitation. According to research done in 2009 by the Water Supply and Sanitation Collaborative Council (WSSCC) social approaches seek to help refugees improve hygiene behaviours, reduce diarrheal diseases and encourage effective management of water and sanitation services. The different learning methodologies include; Participatory Hygiene and Sanitation Transformation (PHAST), child-to-child approaches, child-to-community approaches, and community health clubs (Peal, 2010). Another important socially related initiative is the Global Hand Washing Day which is celebrated every 15 Octoberth. This day was launched in 2008 by The Global Public Private Partnership for Hand Washing. The day aims to raise awareness of the importance of hand washing and critical moments to wash hands and has been celebrated in many refugee camps (HIF, 2016).

The physical approaches are meant to provide the refugees with the necessary materials to enable them to wash their hands such as soap and safe water containers. Different hand washing technologies have been employed in humanitarian settings and include; Oxfam buckets, tippy taps, bush proof hand washing containers, hand washing bags and communal wash stations (HIF, 2016). The success of such hand washing promotion interventions is highly dependent on the active participation of the refugees (Oxfam, 2010). There is need for active involvement of all sections of the refugee community in planning and decision-making processes related to the hand washing promotion program (Vujcic et al., 2014). The overall aim for this participation is to encourage people to take responsibility for the process and outcomes both in the short and long term in order to achieve sustainable hand washing behavioural practices (HIF, 2016). Therefore, vigorous assessment to identify potential barriers and motivators to participation in hand washing promotion programs in order to ensure sustainability is needed.

Studies related to motivators and barriers to participation in hand washing promotion programs have primarily been performed in stable developing country contexts (Curtis et al., 2009). However, in a setting of internal displacement or among the refugees; habits, social systems and cultural norms can be disrupted, thereby potentially altering participation and engagement mechanisms of the refugees. Therefore, to generalize research findings from a stable developing country context to be the same as those of a refugee setting would be inappropriate. There is a dearth of information about participation in hand washing promotion programs in refugee settings (Vujcic et al., 2014).

1.2. Secondary objectives of the study

To address the information gap by assessing the barriers and motivators to participation in hand washing promotion programs at household level among refugees in Rhino Camp, Arua district, Uganda.

1.3. Primary objectives of the study

The study had the following primary objectives;

- (1) To determine the level of participation in hand washing promotional programs at household level among refugees in Rhino Camp, Arua district, Uganda by July 2019.
- (2) To establish the possession of hand washing facilities at the household level among refugees in Rhino Camp, Arua district, Uganda by July 2019.
- (3) To describe the barriers and motivators to Participation in Hand washing promotion programs at household level among refugees in Rhino Camp, Arua district, Uganda by July 2019.
- (4) To analyse the barriers and motivators to participation in hand washing promotion at household level among refugees in Rhino Camp, Arua district, Uganda by July 2019.

2. Methods

2.1. Study area

This study was conducted in Rhino Refugee Settlement Camp. Rhino settlement Camp lies in the North-Western Corner of Uganda. It is bordered by Maracha district in the North West; Yumbe in the North East; DRC in the West; Nebbi in the South; Zombo in the South East; and Amuru district in the East. It is located 520 km from Kampala and only 80 km from the South Sudan Border. The camp covers an area of 85.525 Km²; of which 65% of the land is arable thus agriculture being the main economic activity. Rhino camp is administratively divided into seven zones and then further sub-divided into 39 villages (UNHCR, 2016). According to statistics from the OPM; as at February 2018 the camp had an estimated population of 123,363 refugees. These refugees are mainly from South Sudan and are of diverse ethnic backgrounds namely: Dinkas, Kuku, Nuer, Kakwa, Madi, and Siluk.

Figure 1 shows an example of a homestead in Rhino camp while figure 2 shows map of Uganda with location of Rhino camp

2.2. Study design

This was an analytical cross-sectional study, mixed method, whereby both quantitative and qualitative were employed. The study population for this study was adults aged 18 years and above residing in Rhino Camp settlement. The study participants were men and women in selected households who are currently living in Rhino Camp settlement.

2.3. Sample size

A sample size of 312 respondents was selected using the Kish Leslie formula (1965) for cross-sectional studies as follows.

$$n = \frac{Z^2 PQ}{e^2} = \frac{1.96^2 * 0.85 * (1 - 0.85)}{0.05^2} = 196 \text{ respondents}$$

Figure 1. Example of home-steads in Rhino Camp.



Figure 2. Map of Uganda showing location of Rhino Camp.



Where;

e = precision of the study. The precision of 5% was used for this study

Z = standard normal deviate corresponding to the 95% confidence interval (CI), CI = 1.96

P = proportion of households in a refugee setting who had ever participated in hand washing promotion programs. P = 85% = 0.85.

Q = proportion of households in a refugee setting who did not participate in hand washing promotion programs. Therefore, $Q = 1 - P = 1 - 0.85 = 0.15$

Considering a design effect of 1.6; the sample size shall be $196 \times 1.6 = 312$

Therefore, the sample size was **312 respondents**.

2.4. Sampling method

This study employed the multi-stage sampling as follows:

Rhino Camp is broadly divided into seven administrative zones. This study was carried out in all seven zones so as to get a general representation of the whole camp. However, two villages per zone were selected by simple random sampling. There are 123,363 refugees in the camp, residing in households of 4–6 persons.

Sampling of participating villages was done by entering all the names of the villages for each zone into a random function Excel spreadsheet and then using the random function, two villages per zone were selected. The selection of households from the chosen village to participate in this study was done by systematic random sampling. A compass was used to identify the starting direction and a pre-determined interval of households was used. The village local leader provided the village population and directions within the villages. A sampling interval K was calculated by dividing the total number of households per village by the number of households targeted for inclusion in the study.

With guidance from the local leader, the research team located the centre of the selected village and then used a compass to identify the Northern direction as the starting direction for household interviews. Every K^{th} household from the centre of the village in the Northern direction was considered until the village boundary was reached and the same pattern was repeated in different directions clockwise. The research assistants then interviewed only one participant per sampled household. In cases where there was more than one eligible participant, simple random sampling was used to select a respondent to answer the questionnaire. This was done by randomly picking from a bag a folded ballot paper with a number corresponding to the participant's name who was interviewed.

For the key informant interviews, four hygiene promoters and 1 WASH officer were purposively selected. They were interviewed to obtain information on the institutional, public policy and community factors affecting participation in hand washing promotion programs.

2.5. Data collection tools and methods

The study employed both quantitative and qualitative approaches of data collection as follows:

2.6. Quantitative data collection methods and instruments

The quantitative data for this study were collected through household interviews using a standardized semi-structured questionnaire. The questionnaire was composed of both open- and closed-ended questions. It helped to capture data on knowledge about hand washing and its importance, attitudes towards hand washing, cultural beliefs about hand washing and socio-demographic characteristics, among others. Responses were self-declared by responding to a single question at a time.

2.7. Qualitative data collection

The qualitative data for this study were collected through key informant interviews using a key informant interview guide. The interview guide captured data on institutional factors like availability of IEC materials, availability of hand washing facilities and availability of hygiene promoters, Public Policy factors such as Sphere standards, Uganda Refugee Act 2006 and Cholera Prevention and Control guidelines and Community factors like availability of Community groups and Involvement of community leaders in decision making.

2.8. Quality control

Pre-visits to the study site were made to build rapport with the community leaders at Rhino Camp and research assistants with good knowledge of the local languages were identified and trained. Two days training was done to ensure good understanding of the goals and aims of the study.

Questionnaires were designed with expert opinion to ensure they showed a logical flow of questions and were able to collect the needed data. There were translation and back translation of the questionnaires, which were pre-tested in an area that was not be used in data collection.

The supervisor conducted spot checks on all data collected using questionnaires to ensure data accuracy. Debrief meetings were held with data collectors at the end of each day to review questionnaires and record any incidents/events occurring during data collection. There was regular supervision by the Principle Investigator.

For qualitative data, key informant interviews were tape-recorded and field notes were also taken.

2.9. Ethical consideration

All ethical considerations for research were adhered to. This included ethical clearance and approval by relevant authorities, informed consent and confidentiality, among others. Uganda Martyrs' University, Faculty of Health Sciences, gave ethical clearance and approval for this study.

2.10. Data analysis

2.10.1. Quantitative data

Quantitative data were double entered in Epidata version 3.1. The discrepancies within the two data sets were corrected during data cleaning. It was then exported into Stata version 13.0 for data analysis.

Descriptive analysis was carried out with the aim of answering objectives one and two (To determine the level of uptake of household visits aimed at promoting hand washing and to determine the level of use of hand washing facilities). This information was summarized in percentages.

Since the main outcome of interest (participation in hand washing promotional programs) was binary (yes/no), further analysis required logistic regression as the appropriate mode of analysis.

Univariate analysis was done using logistic regression to establish associations between each independent variable and the outcome (participation). An analysis of the relationship between participation in hand washing promotional programs and different independent variables like age, length of stay in the camp and knowledge towards hand washing was carried out. Crude odds ratios with corresponding 95% confidence intervals were computed and variables with probability (P) values less than or equal to 0.05 were considered to be significantly associated with participation in hand washing promotional programs.

Multivariate analysis was also carried out to control for the other variables (confounding). This was determined by observing differences in the relationship between the independent variables and whether a respondent participates or does not participate in hand washing promotion programs.

Variables with P values less than or equal to 0.2 were included in the multivariate analysis, variables that met this criterion as well as those deemed important in determining participation in hand washing promotion programs from prior literature were also considered. The stepwise method of elimination of variables was used to create the model.

2.10.2. Qualitative data

All the key informant interviews were transcribed verbatim. They were analysed using a software for qualitative analysis; ATLAS.ti.8.0. Two research assistants read the transcripts several times and independently developed code books. The members then discussed any arising issues and agreed on a final codebook. Thematic content analysis was the form of analysis used. This was done by coding responses from the transcripts and then categorised into emerging themes and sub-themes. Code counts were done to determine the strength of responses.

3. Results

3.1. Socio-demographic characteristics of the respondents

A total of 312 respondents were recruited for the study and all of them participated representing 100% response rate. The majority of respondents; 70.8% (221/312) were female, 67.9% (212/312) were married. The mean age of respondents sampled was 32.7 years. Majority of the respondents; 52.9% (165/312) had ever attended school and 74.0% (231/312) had lived in the camp for less than or equal to 3 years.

3.2. Level of participation in hand washing promotional programs at household level

The study findings revealed that only 19.6% (61/312) of the refugees had participated in the hand washing promotion programs within the settlement. 80.4% of the respondents never participated in the programs.

3.3. Possession of hand washing facilities at the household level

A minority of the participants; 39.4% (123/312) had a hand washing Facilities/station (HWS) at their households, with tippy taps; 84.6% (104/123) being the most common form of HWSs. On average each HWS served eight people with most of the HWSs having water; 89.4% (110/123) and soap; 60.2% (74/123) present. The lack of materials; 44.3% (66/149) to set up the HWS was the most frequent reason for households who lacked a HWS (Table 1).

3.4. Findings from key informants

All the key informants described the hand washing promotion programs at the household level entailed both a social component (sensitization) and a physical component (provision of tippy taps and ropes). For example:

[...] we have the tippy-tap approach where every household that has a latrine is given a tippy-tap jerry can of either three litres or five litres plus the rope for installing it. This is always done before sensitization exercise. When we are going for distribution, we first do sensitization which is coupled with demonstration on how to install the tippy-taps. (Key Informant III)

3.5. Descriptive findings on barriers and motivators to participation in hand washing promotion programs

This sub-section presents descriptive results of the various potential barriers and motivators to participation in hand washing promotion programs. The barriers and motivators presented in this sub-section include; knowledge and attitudes towards hand washing and availability and accessibility of essential materials (soap and water) needed for hand washing.

3.6. Knowledge about hand washing

Majority of the respondents; 90.4% (282/312) mentioned after visiting the toilet as the critical time for hand washing with avoiding diseases; 74.0% (231/312) as the most mentioned primary purpose for hand hygiene. The majority of the respondents; 95.5% (298/312) acknowledged the importance of using soap during hand washing (Table 2).

Table 1. Possession of hand washing facilities at household level

Variable	Frequency (N = 312)	Percentage (%)
Availability of HWF at household level		
• Yes	123	39.4
• No	189	60.6
Type of HWF	<i>n</i> = 123	
• Tippy taps	104	84.6
• Oxfam buckets	9	7.3
• Handwashing bags	1	0.8
• Bush proof hand washing containers	9	7.3
Location of HWF	<i>n</i> = 123	
• Next to toilet	117	95.1
• Next to kitchen	1	0.8
• Next to house	3	2.5
• Other ¹	2	1.6
Availability of water in HWF water storage container	<i>n</i> = 123	
• Yes	110	89.4
• No	13	10.6
Presence of soap at HWF	<i>n</i> = 123	
• Yes	74	60.2
• No	49	39.8
Number of people using the HWF	<i>n</i> = 123 ($\mu = 7.5, \sigma = \pm 3.6$)	
• 1–7	75	61.0
• 8–16	46	37.4
• Above 16	2	1.6
Main reason for absence of HWF at household	<i>n</i> = 149	
• HWF broke down	38	25.5
• Lack of materials	66	44.3
• No latrine	31	20.8
• Other ²	7	4.7

Other¹ included; inside latrine and within the compound.

Other² included; reluctant to put the HWS and HWS still under construction.

3.7. Attitudes about hand washing

Majority of the respondents; 43.3% (135/312) and 41.7% (130/312) strongly agreed that there was a need to wash hands before feeding and hand washing was important for child development, respectively. Overall, there was a generally positive attitude towards hand washing among most participants (Table 3).

However, despite the majority of positive attitudes exhibited by the study respondents, one of the key informants noted some behaviours which are not consistent with the good attitude, as can be observed in the quote below:

[...] I think the communities are not practicing well, they are not putting it into practice to our expectations like we go back to do our assessment, we find tippy-taps we gave to them are not installed, they don't even put water into the jerry can meaning they do not use the facilities how they should [...]. (Key Informant I)

Nonetheless, one key informant noted some good behaviour, which is attributable to positive attitude. He revealed that exemplary neighbours who actively participated in these promotional programs were a major motivator for the non-participating neighbours to also take part in these programs. This can be seen in the quote below:

Table 2. Knowledge about hand washing

Knowledge variables	Frequency (N = 312)	Percentage (%)
Critical times of hand washing*		
• After visiting the toilet	282	90.4
• Before handling food	234	75.0
• After handling food	208	66.7
• After cleaning babies bottom	145	46.5
• Other ¹	29	9.3
• Do not know	12	3.9
Primary purpose of hand hygiene*		
• Reduce germs on hands	98	31.4
• Keep hands clean	52	16.7
• Keep nails clean	12	3.9
• Keep hands smooth	14	4.5
• Avoid diseases	231	74.0
• Do not know	4	1.3
Human faeces contain germs		
• Yes	303	97.1
• No	4	1.3
• Do not know	5	1.6
Human urine contains germs		
• Yes	261	83.6
• No	22	7.1
• Do not know	29	9.3
Poor hand washing causes diseases		
• Yes	302	96.8
• No	8	2.6
• Do not know	2	0.6
Water is only adequate for hand washing		
• Yes	89	28.5
• No	217	69.6
• Do not know	6	1.9
Necessity to wash hands with soap		
• Yes	298	95.5
• No	13	4.2
• Do not know	1	0.3
Importance of using soap*	n = 298	
• Personal care	128	43.0
• Attraction	11	3.7
• Freedom from germs	244	81.9

*- Multi-response variable

Other¹ included; after doing dirt generating activities and after touching money.

[...] if the neighbour did the correct hand washing, it motivates other households to do likewise ... (**Key Informant II**).

Key informants suggested the need for engagement of community leaders who guide the community to come up with rules which act to reinforce positive practices in the reluctant communities who are not willing to participate in these programs. For example:

[...] My recommendation would be to maximize engagement of the leaders, the refugee leaders for instance, such that they can be in position to put rules that will govern the use of hand washing at household level in such a way that if someone does not have the facilities a condition must be put in place for such a person to meet a certain deadline[...] (**Key Informant III**)

Table 3. Attitudes about hand washing

Attitude variable	Frequency (N = 312)	Percentage (%)
No need for soap if hands are washed well with water only		
• Strongly agree	35	11.2
• Agree	69	22.1
• Neutral	33	10.6
• Disagree	149	47.8
• Strongly disagree	26	8.3
Only need to wash hands with soap if they are dirty or smell bad		
• Strongly agree	74	23.7
• Agree	182	58.3
• Neutral	11	3.5
• Disagree	44	14.1
• Strongly disagree	1	0.3
Washing hands before feeding is important		
• Strongly agree	122	39.1
• Agree	135	43.3
• Neutral	19	6.1
• Disagree	36	11.5
Hand washing with soap requires effort		
• Strongly agree	42	13.5
• Agree	123	39.4
• Neutral	45	14.4
• Disagree	99	31.7
• Strongly disagree	3	1.0
Hand washing with soap is important for child development		
• Strongly agree	91	29.2
• Agree	130	41.7
• Neutral	43	13.8
• Disagree	46	14.7
• Strongly disagree	2	0.6

Further, they also suggested the need for frequent follow up for the households to mitigate the barrier of community reluctance to participate in the hand washing promotion programs, as can be seen in the quote below:

[...] being as close as possible to these people, like partners. They need you to be behind them so much that every time they don't forget. If you come for an activity like WASH once in a month, the reluctance among the households will arise and so partners should be very close to them to make follow-ups (**Key Informant I**)

They also suggested that rewarding active participants of the hand washing promotion programs would be a way of motivating many of households to participate in such programs:

Appreciating outstanding active households with simple rewards like saucepans would be a good way of motivating other households to actively participate in these programs (**Key Informant IV**)

3.8. Availability and accessibility factors related to soap and water

A public tap; 65.7% (205/312) was the most common main water sources with most of the water sources, 85.9% (268/312) being within a distance of 500 m. Majority of the households, 97.1% (265/312) obtained their soap from a retail shop. However, only 2.6% (7/312) reserved soap for hand washing as a high priority (Table 4).

Table 4. Availability and accessibility factors related to soap and water

Variable	Frequency (N = 312)	Percentage (%)
HH main water source		
• Own tap	3	1.0
• Borehole	104	33.3
• Public tap	205	65.7
Distance to main water source		
• Within 500 m	268	85.9
• 1 to 2 km	44	14.1
Litres of water obtained per day		
• ≤10 l	205	65.7
• >10 l	107	34.3
Soap use in the HH		
• Yes	273	87.5
• No	39	12.5
Main source of soap		
• Retail shop	265	97.1
• NGO donations	8	2.9
Highest priority use of soap		
• Laundry	225	82.4
• Washing dishes	18	6.6
• Bathing	22	8.1
• Hand washing	7	2.6
Ready soap availability at critical times of hand washing		
• Yes	153	56.0
• No	120	44.0
Main reasons for soap unavailability at critical times of hand washing		
• High cost of soap	83	69.2
• Not available in area shops	2	1.7
• Not available in the house	58	48.3
Alternatives used in absence of soap		
• Ash	79	65.8
• Mud	3	2.5
• Nothing	41	34.2
Motivating factors		
• Water accessibility	77	48.4
• Soap affordability	23	14.5
• Ease access to soap and water	61	38.4

3.9. Bivariate analysis of motivators and barriers to participation in hand washing promotion programs

With reference to Table 6, participants who had never attended school were 33% less likely to participate in hand washing promotion programs than those who had attended school (CI = 0.17–0.61; P-value = 0.00). In addition, those who had stayed in the camp for more than 3 years were also 40% less likely to participate in the promotional programs than their counterparts (CI = 0.17–0.81; P-value = 0.01)

Households who had 6 to 10 members and those with more than 10 members had 2.67 (CI = 1.27–5.62; P-value = 0.01) and 2.63 (CI = 1.03–6.73; P-value = 0.04) times the odds of engaging in promotional programs than those households with 1 to 5 members, respectively (See Table 5).

3.10. Multivariate analysis of motivators and barriers to participation in hand washing promotion programs

With reference to Table 6, participants who had never attended school were 30% less likely to participate in hand washing promotion programs than those who had attended school (CI = 0.15–0.60; P-value = 0.001). In addition, those who had stayed in the camp for more than 3

Table 5. Bivariate analysis of motivators and barriers to participation in hand washing promotion

Variables	Participation in HWP programs				Crude Odds Ratios (COR) at 95% Confidence Interval (CI)	P-values
	Yes (n = 61)		No (n = 251)			
	F	%	F	%		
Gender • Female • Male	41 20	67.2 32.8	180 71	71.7 28.3	1.00 1.24 (0.68–2.26)	0.49
Marital status • Single • Married	19 42	31.1 68.9	81 170	32.3 67.7	1.00 1.05 (0.58–1.93)	0.87
School attendance • Yes • No	45 16	73.8 26.2	120 131	47.8 52.2	1.00 0.33 (0.17–0.61)	0.00*
Age (years) • 18–36 • 37–55 • Above 55	44 14 3	72.1 23.0 4.9	181 54 16	72.1 21.5 6.4	1.00 1.07 (0.54–2.09) 0.77 (0.22–2.76)	0.85 0.69
Number of HH members • 1–5 • 6–10 • >10	10 40 11	16.4 65.6 18.0	86 129 36	34.3 51.4 14.3	1.00 2.67 (1.27–5.62) 2.63 (1.03–6.73)	0.01* 0.04
Duration of stay • ≤3 years • >3 years	53 8	86.9 13.1	178 73	70.9 29.1	1.00 0.39 (0.17–0.81)	0.01*
Diarrhoea episode in the last 30 days • Yes • No	30 31	49.2 50.8	99 152	39.4 60.6	1.00 0.67 (0.38–1.18)	0.17
HP demonstrated building HWS • Yes • No	53 8	86.9 13.1	164 42	79.6 20.4	1.00 0.52 (0.19–1.41)	0.20
HP demonstrated hand washing • Yes • No	56 5	91.8 8.2	176 30	85.4 14.6	1.00 0.59 (0.26–1.33)	0.21

*. Variable significant (P-value < 0.05), HP = Health Promotion

Table 6. Multivariate analysis of motivators and barriers to participation in handwashing promotion programs

Barriers and motivators associated with participation in HW promotion programs	Crude Odds Ratios (COR) at 95% Confidence Interval (CI)	Adjusted Odds Ratios (AOR) at 95% Confidence Interval (CI)	P-values
Gender			
• Female	1.00	1.00	
• Male	1.24 (0.68–2.26)	1.56 (0.77–3.13)	0.22
Number of HH members			
• 1–5	1.00	1.00	
• 6–10	2.67 (1.27–5.62)	3.06 (1.35–6.93)	0.01*
• >10	2.63 (1.03–6.73)	2.92 (1.04–8.17)	0.04*
Duration of stay			
• ≤3 years	1.00	1.00	
• >3 years	0.39 (0.17–0.81)	0.39 (0.17–0.93)	0.03*
School attendance			
• Yes	1.00	1.00	
• No	0.33 (0.17–0.61)	0.30 (0.15–0.60)	0.001*
Age (years)			
• 18–36	1.00	1.00	
• 37–55	1.07 (0.54–2.09)	1.21 (0.56–2.61)	0.63
• Above 55	0.77 (0.22–2.76)	1.13 (0.27–4.62)	0.87
Diarrhoea episode in the last 30 days			
• Yes	1.00	1.00	
• No	0.67 (0.38–1.18)	0.60 (0.32–1.13)	0.12
HP demonstrated building HWS			
• Yes	1.00	1.00	
• No	0.52 (0.19–1.41)	0.53 (0.19–1.45)	0.21
HP demonstrated hand washing			
• Yes	1.00	1.00	
• No	0.59 (0.26–1.33)	0.61 (0.18–2.07)	0.43

*- Variable significant (P -value < 0.05), HP = Health Promotion

years were also 40% less likely to participate in the promotional programs than their counterparts (CI = 0.17–0.93; P -value = 0.03).

Households who had 6 to 10 members and those with more than 10 members were more 3.06 (CI = 1.35–6.93; P -value = 0.01) and 2.92 (CI = 1.04–8.17; P -value = 0.04) times more likely to engage in promotional programs than those households with 1 to 5 members, respectively (See Table 6).

4. Discussion

4.1. Participation in hand washing promotion activities

The study findings revealed low participation in hand washing promotion activities, as only 19.6% (61/312) of the study respondents had participated in the hand washing promotion programs within the settlement. This can probably be attributed to the fact that majority, 65.7% were receiving less than 10 l of water daily for their entire household needs. This might have probably led to their lack of participation, since limited access (less than 10 l daily per household) to water hinders effective participation in hand washing promotion (Spiegel et al., 2010). This finding is in agreement with the study by Ayiga and Nick (2015) in the nearby Nyumanzi Refugee Settlement Camp in Adjumani District, Uganda, which also reported poor levels of participation of refugees in hand washing

promotion activities. However, this finding is similar to another study in Ethiopia (Husain et al., 2015), where the level of participation in hand washing promotion was high among the refugees.

The differences in findings between these studies (in Uganda and in Ethiopia) could be attributed to differences in study settings, with the Ethiopian setting being more urbanized than the current study setting. However, it can also be attributed to the fact that the study in Ethiopia (Husain et al., 2015) was conducted among internally displaced persons whereas in the current study all the refugees were foreign. Possibly their native nationality in the Ethiopian case enabled them to have better opportunities of accessing adequate water supply, which could have improved their chances of participation in hand washing promotion activities, which was not the case in the current study.

Hence, it is important for government, NGOs, and other stakeholders in the WASH area, to put in more effort to promote hand washing activities in Rhino Camp and other low resource settings so as to improve the participation of refugees in those areas in order to reduce the chances of outbreaks of diarrhea and other diseases.

4.2. Use of hand washing facilities

The finding revealed that a high percentage of household members used hand washing facilities, which could possibly be attributed to the existence of several NGOs which are promoting hand washing activities in the area. The findings are in agreement with the study by Biran et al. (2011) in Thailand, Ethiopia and Kenya which also reported good access to hand washing stations.

4.3. Barriers and motivators to participation in hand washing promotion

According to the results from multivariate analysis, the barriers to participation in hand washing promotion included: having never attended school, and having stayed in the camp for more than 3 years. Possibly having not acquired formal education made it hard for them to appreciate the need for participating in hand washing promotion activities, as was also reported in the study by Grayson et al. (2009). Further, having stayed in the camp for long (more than 3 years), could have made them to become complacent when it comes to participating in hand washing promotion. This finding is supported by Marie-Rosette et al. (2017) who also reported that staying in camps for long has a negative relationship with participating in hand washing promotion. However, it disagrees with Scobie et al. (2017) who reported that people who spend longer time in refugee camps are expected to be exposed to hand washing promotion activities and would have adopted good hygiene practices (Scobie et al., 2017). But this is not always the case in refugee camps. Hence, these findings illustrate the need for hand washing promoters to lay more emphasis on supporting people who stay in refugee camps for long times, to continue embracing good hand washing promotion activities.

According to the results from multivariate analysis, the promoters for participation in hand washing promotion included: having some formal education level, and having six or more household members. Education causes empowerment of persons, thereby making them have better perceptions regarding issues of health nature (Grayson et al., 2009). Similarly, having big family or household size (six or more) could have enabled them to participate in hand washing promotion activities because lack of participation is likely to have greater negative consequences to big families than small ones. This finding, however, is disputed by Madhur and Rana (2016) who reported no association between family size and hand washing practices. The differences in findings could be attributable to differences in study settings.

5. Conclusion

Despite the high presence of hand washing facilities, participation in hand washing promotional activities is low among the refugees in Rhino Camp, and this is attributable to having never attended school, and having stayed in the camp for more than 3 years. Among the few who participate, the participation in hand washing promotional activities is mainly attributable to having some formal education, and having big family size of six or more members.

Acknowledgements

The authors do acknowledge supports rendered by the management/leadership of Rhino Camp towards the successful completion of this study. We also acknowledge the support rendered by Uganda Martyrs' University, Faculty of Health Sciences in being very pivotal towards completion of this research.

Funding

The authors received no direct funding for this research.

Author details

Frank Namara¹
E-mail: nbrfrank@gmail.com
Kizito Omona²
E-mail: kizitoomona@gmail.com
ORCID ID: <http://orcid.org/0000-0003-2962-0919>
Scovia Mbabazi²
E-mail: komona@umu.ac.ug
¹ Department of Public Health, Uganda Red Cross Society, Kampala, Uganda.
² Faculty of Health Sciences, Uganda Martyrs University, Kampala, Uganda.

Cover image

Source: Author.

Citation information

Cite this article as: Barriers and motivators to participation in hand washing promotion programs at household level among refugees in Rhino Settlement, Arua District _ Uganda, Frank Namara, Kizito Omona & Scovia Mbabazi, *Cogent Medicine* (2020), 7: 1757184.

References

- Ayiga, I., & Nick, G. (2015). *Prevalence and factors associated with diarrhoea among children under five years in Nyumanzi Refugee Settlement Camp Adjumani District, Uganda*. <https://www.ncbi.nlm.nih.gov/pubmed/24914003>
- Biran, A., Jenkins, M. W., Dabrase, P., & Bhagwa, I. (2011). Patterns and determinants of communal latrine usage in urban poverty in Bhopal, India. *Tropical Medicine and International Health*, 16(7), 854–862. <https://doi.org/10.1111/j.1365-3156.2011.02764.x>
- Curtis, V. A., Danquah, L. O., & Aunger, R. V. (2009). Planned, motivated and habitual hygiene behaviour: An eleven country review. *Health Education Research*, 24(4), 655–673. <https://doi.org/10.1093/her/cyp002>
- Fewtrell, L., Kaufmann, R. B., Kay, D., Enanoria, W., Haller, L., & Colford, J. M. (2005). Water, sanitation, and hygiene interventions to reduce diarrhoea in less developed countries: A systematic review and meta-analysis. *Lancet Infectious Diseases*, 5(1), 42–52. [https://doi.org/10.1016/S1473-3099\(04\)01253-8](https://doi.org/10.1016/S1473-3099(04)01253-8)
- Freeman, M. C., Stocks, M. E., Cumming, O., Jeandron, A., Higgins, J. P., & Wolf, J. (2014). Hygiene and health: Systematic review of hand washing practices worldwide and update of health effects. *Tropical Medicine and International Health*, 19(8), 906–916. <https://doi.org/10.1111/tmi.12339>
- Grayson, M. L., Melvani, S., Druce, J., Barr, I. G., Ballard, S. A., Johnson, P. D., Mastorakos, T., & Birch, C. (2009). Efficacy of soap and water and alcohol-based hand-rub preparations against live H1N1 influenza virus on the hands of human volunteers. *Clinical Infectious Diseases*, 48(3), 285–291. <https://doi.org/10.1086/595845>
- Hershey, C. L., Doocy, S., Anderson, J., Haskew, C., Spiegel, P., & Moss, W. J. (2011). Incidence and risk factors for Malaria, pneumonia and diarrhea in children under 5 in UNHCR refugee camps: A retrospective study. *Conflict and Health*, 5(1), 24. <https://doi.org/10.1186/1752-1505-5-24>
- Humanitarian Innovation Fund (HIF). (2013). Gap Analysis in Emergency Water, Sanitation and Hygiene Promotion. Humanitarian Innovation Fund. <https://www.elrha.org/wp-content/uploads/2015/06/1.-Research-ToR-Handwashing.pdf>
- Humanitarian Innovation Fund (HIF). (2016). 'Hand washing' WASH in Emergencies Problem Exploration Report. Humanitarian Innovation Fund. <https://www.elrha.org/wp-content/uploads/2016/01/Handwashing-WASH-Problem-Exploration-Report.pdf>
- Husain, F., Hardy, C., Zekele, L., Clatworthy, D., Blanton, C., & Handzel, T. (2015). A pilot study of a portable hand washing station for recently displaced refugees during an acute emergency in Benishangul Gumuz Regional State, Ethiopia. *Conflict and Health*, 9(1). <https://doi.org/10.1186/s13031-015-0053-6>
- Madhur, B., & Rana, K. (2016). Hand washing practices among mothers of children under 5 Years of age in rural areas of Kamrup District, Assam. *Indian Journal of Basic and Applied Medical Research*, 5(3), 687–694. https://www.researchgate.net/publication/307368259_Hand_washing_practices_among_mothers_of_children_under_5_Years_of_age_in_rural_areas_of_Kamrup_District_Assam
- Marie-Rosette, N., Candide, T. N., Olushayo, O., Nyamusore, J., Ayodeji, I., Vedaste, N., Lakruwan, D., & Rusanganwa, A. (2017). Knowledge, attitude and practice of hygiene and sanitation in a Burundian refugee camp: implications for control of a Salmonella typhi outbreak. *The Pan African Medical Journal*, 28(Suppl 1), 54. <https://doi.org/10.11604/PAMJ.SUPP.2017.28.1.2486>
- Nannyonga, B. (2012). The dynamics causes and possible prevention of hepatitis E outbreaks. *PLoS ONE*, 7(7), 411–435. <https://doi.org/10.1371/journal.pone.0041135>
- Oxfam. (2010). *Guidelines for Public Health Promotion in Emergencies*. <https://policy-practice.oxfam.org.uk/our-work/humanitarian/public-health>
- Peal, A. E. (2010). *Hygiene Sanitation and Software: An Overview of Approaches*. <https://www.ncbi.nlm.nih.gov/pubmed/24221135>
- Scobie, H. M., Phares, C. R., Wannemuehler, K. A., Nyangoma, E., Taylor, E. M., & Fulton, A. (2017). Use of Oral Cholera Vaccine and Knowledge, Attitudes, and Practices Regarding Safe Water, Sanitation and Hygiene in a Long-Standing Refugee Camp, Thailand, 2012–2014. *PLoS Neglected Tropical Diseases*, 11(7), e0005810. <https://doi.org/10.1371/journal.pntd.0005810>
- Spiegel, P. B., Checchi, F., Colombo, S., & Paik, E. (2010). Health-care needs of people affected by conflict: Future trends and changing frameworks. *Lancet*, 375(9711), 341–345. [https://doi.org/10.1016/S0140-6736\(09\)61873-0](https://doi.org/10.1016/S0140-6736(09)61873-0)
- Teshale, E. H. (2010). Evidence of person-to-person transmission of hepatitis E virus during a large outbreak in northern Uganda. *Clinical Infectious Diseases*, 50(7), 1006–1010. <https://doi.org/10.1086/651077>
- UNHCR. (2016). *Monthly refugee statistics update. Uganda: UNHCR*. <https://www.unhcr.org/2016>
- UNHCR. (2018). [online]. Retrieved January 03, 2018, from <http://www.unhcr.org/afr/figures-at-a-glance.html>
- Vujcic, J., Blum, L., & Ram, P. K. (2014). Strategies & Challenges to Handwashing Promotion in Humanitarian Emergencies; Key informant interviews with agency experts. University of Buffalo. <http://globalhandwashing.org/wp-content/uploads/2015/03/Hand-hygiene-in-emergencies-experts-perspectives-University-at-Buffalo-report.pdf>
- WSSCC. (2009). Geneva: Water Supply and Sanitation Collaborative Council. [online]. Retrieved January 10, 2018, from <http://www.wsscc.org>



© 2020 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format.

Adapt — remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.

Cogent Medicine (ISSN: 2331-205X) is published by Cogent OA, part of Taylor & Francis Group.

Publishing with Cogent OA ensures:

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

Submit your manuscript to a Cogent OA journal at www.CogentOA.com

