

**40th WEDC International Conference, Loughborough, UK, 2017**

LOCAL ACTION WITH INTERNATIONAL COOPERATION TO IMPROVE AND  
SUSTAIN WATER, SANITATION AND HYGIENE SERVICES

**Water sanitation and hygiene status in the neighbourhood  
of Bangladeshi Islamic schools and mosques**

*Mahbub-Ul Alam, F. Yeasmin, S. Sarker, Abu Mohd. Naser, T. Md. N. Huda, H. Ahmed,  
A. Bucher, S. Ali, A. Khan, Md. M. Rahman & L. Unicomb (Bangladesh)*

PAPER 2699

---

*Faith based interventions have been underutilized to improve water, sanitation and hygiene status and offers promise to promote behaviour in the community. Prior to delivering a faith based WASH intervention, we conducted a survey among the neighbouring households of eight Bangladeshi Islamic schools and associated mosques. We randomly selected 192 families from where any male attend mosque and interviewed adult women from that family. At baseline, almost all households used improved water sources and improved toilets. However, toilet cleanliness was poor. Faecal matter was disposed into the environment after emptying the pit/septic tank. Defecation and disposal among children <3years mostly occurred directly in the open which should be improved using behaviour change recommendations. Presence of hand washing agent in the hand washing place was low. Islamic faith based intervention should be designed and delivered in way that can promote hand washing, safe sanitation practices and safe disposal of child faeces.*

---

**Background**

Worldwide there are approximately 2,200 children are dying every day due to diarrheal disease [1]; inadequate water, sanitation and hygiene contributes to 88% of these deaths [2]. While an improvement in water and sanitation infrastructures collectively reduces the diarrhea prevalence by 6% [3], hand washing intervention alone reduces the risk of diarrhoeal disease by 23% [4]. A well designed behaviour change intervention along with water, sanitation and hygiene (WASH) infrastructural improvements could reduce the disease burden. An intervention based on emotional drivers, focusing on school-based events among school children aged 8–13 years demonstrated a 31% ( $p=0.02$ ) improvement in hand washing with soap in the intervention schools compared to the controls [5]. Although faith is considered a powerful tool for attitudinal change to engage with members of the community [6-9], faith based approaches have largely been underutilized in contemporary WASH projects.

Studies show that faith-based programmes can improve health outcomes, when delivered through churches in African American communities [10-12]. Most faith based programmes focused on primary prevention (51%), general health maintenance (26%), cardiovascular health (21%), or cancer (19%) and the reported significant effects include reductions in cholesterol and blood pressure levels, weight, and disease symptoms [13]. Therefore, an intervention based on emotional drivers, specifically a faith based one and deliver that through institutions, will likely change people's behaviour greater than infrastructure development interventions.

Global One UK and icddr,b has conducted a baseline survey to develop an Islamic faith based intervention which will be delivered through mosques and Islamic schools to improve the water, sanitation and hygiene status within the community. We have described the results from the pre-intervention survey here, which will help to design the intervention.

## Methods

### Study design and sites

As part of a cluster randomized trial of an intervention in Bangladesh, Pakistan, Nepal and Indonesia, we randomly selected 20 clusters from all countries. The results from baseline survey in eight Bangladeshi clusters are included in this report. We selected Moulavibazar, Sunamganj, Sylhet (Zakiganj), Sylhet (Bishawnath) from Bangladesh as the study area. We selected eight Islamic schools and their associated mosques in these four areas. All of the selected Islamic schools were located at least 500 meters away from each other.

### Selection of survey respondents

To identify the respondents for the survey, the team visited mosques associated with the Islamic schools on a Friday. A list of adults who attended for Friday prayer and listened to the lectures on regular basis was prepared with the help of the *Imam* (Preacher). Those listed were informed verbally about the study objectives. After that a random number was generated to select respondents from the list. The team then visited households, took written informed consent and interviewed a female adult member. The team selected mother of the youngest child, if there were more than one adult female in the household. In case of refusal, another household was randomly chosen from the list. Thus the team completed the required 24 interviews from each Islamic school area. In total, we have interviewed 192 respondents.

### Data collection

A structured questionnaire was used for the baseline data collection to determine current hygiene practices, facilities and knowledge. The data collector conducted three main tasks to determine hygiene practices, (1) face-to-face interviews (2) spot checks (3) hand washing demonstrations. The data collector also recorded self reported diarrheal and respiratory disease symptoms for children under three years of age. The face-to-face interview provides information on practices, facilities and knowledge; environmental spot checks were used to determine household WASH facilities and hand washing demonstrations were used as a proxy for current practices.

### Data analysis

After completing data collection, the team further checked data validation. Data were analyzed using STATA (version 13). We performed descriptive analysis to determine respondents' characteristics, WASH facilities, practices and knowledge. We calculated means and standard deviations for continuous variables that were normally distributed. We used the WHO/UNICEF Joint Monitoring Program (JMP) definitions for improved water source and improved toilet [14].

## Results

All respondents were adult females with a mean age of 32 years. Among them, 16% had no formal education, 46% completed education from grade one to five and another 32% completed grade six to ten. Among them, 92% were homemakers. Average monthly household income was around 188 USD per month.

Almost all households (93%) had an improved water source for drinking. However, only 37% households had their own water source, the remainder used shared/neighbouring/public sources. The average distance to water source was 24 meter from households and to the nearest toilet was 17 meter. Each household spent around six minutes to collect water from the water source for each water collection. Among them, 77% households stored water for drinking.

Among the households, 75% of them used their own toilet and 51% had an improved toilet. On average, eight persons used one toilet. Twenty percent of toilets had visible faeces on the floor and 36% had visible faeces on the pan. Thirty three percent of toilet's pipes that were connected to a pit or septic tank were visibly broken and stool is visible. When pit/septic tanks filled up, 97% of those households disposed faecal matter into the nearby environment: beside house, river and lake. Moreover, 18% of these households discarded faecal matter within 200 meters of the toilet. Only 12% of <3years old children were reported to defecated in the toilet, whereas 28% used a potty and another 24% defecated inside the house or into a rag/nappy/diaper. Those who used potty and nappy/rag/diaper, 53% of caregivers discarded faeces outside the house openly nearby bushes, river, pond or any other general water body.

Almost all (98%) households had a hand washing place, but only 46% of them had soap placed there. Hand washing places were on average 9 meters away from the kitchen and 10 meters from the toilet. When we asked our respondents to show how they usually wash their hands, 58% used soap and washed both hands, but only 21% used a visibly clean cloth to dry their hands.

Knowledge about benefits of hand washing were high (96%), 98% knew the benefits of using sanitary toilets, and 97% knew about the using improved drinking water sources, suggesting that describing benefits alone will not be effective. However, only a few respondents mentioned as *Imams* or religious leaders as a source of information: 3% mentioned as a source of safe water knowledge, 5% mentioned as a source of hand washing knowledge, and 4% mentioned as a source of sanitary latrine use and faeces disposal knowledge.

## Conclusion

Knowledge among the respondents was high about water, sanitation and hand washing but practices were poor. Islamic faith based intervention should be designed and delivered in way that can promote presence of soap at hand washing place, faecal sludge management, and safe disposal of child faeces. Presence of hand washing facilities in a convenient place should be emphasized in future intervention which could improve the practices. Faecal sludge disposal need urgent attention as almost all of the faecal matter went to the environment. Islamic faith based intervention should be designed and delivered in way that could promote hygiene practices and safe faeces disposal. Under three years aged child defecation practice was not hygienically managed and faeces disposed in the environment. Delivering interventions through mosques and Islamic schools could be an alternative solution to improve these behaviours as people usually didn't get information from *Imams* or religious leaders on WASH facilities and practices.

---

## Acknowledgements

The author/s would like to thanks respondents and data collectors. This study was funded by Global One UK. icddr,b acknowledges with gratitude the commitment of Global One UK to its research efforts. icddr,b is thankful to the Governments of Bangladesh, Canada, Sweden and the UK for providing core/unrestricted support.

---

## References

- Liu L, Johnson HL, Cousens S, Perin J, Scott S, Lawn JE, Rudan I, Campbell H, Cibulskis R, Li M, Mathers C, Black RE; Child Health Epidemiology Reference Group of WHO and UNICEF. Global, regional, and national causes of child mortality: an updated systematic analysis for 2010 with time trends since 2000. *Lancet*. 2012 Jun 9;379(9832):2151-61.
- Prüss-Üstün A., Bos, R., Gore, F. & Bartram, J. 2008. Safer water, better health: costs, benefits and sustainability of interventions to protect and promote health. World Health Organization, Geneva.
- James A. Fuller, Joslyn A. Westphal, Brooke Kenney and Joseph N. S. Eisenberg. The joint effects of water and sanitation on diarrhoeal disease: a multicountry analysis of the Demographic and Health Surveys. *Tropical Medicine and International Health*. volume 20 no 3 pp 284–292 march 2015
- Freeman, M. C., Stocks, M. E., Cumming, O., Jeandron, A., Higgins, J. P. T., Wolf, J., Prüss-Ustün, A., Bonjour, S., Hunter, P. R., Fewtrell, L. and Curtis, V. (2014), Systematic review: Hygiene and health: systematic review of handwashing practices worldwide and update of health effects. *Tropical Medicine & International Health*, 19: 906–916. doi: 10.1111/tmi.12339.
- Biran et al, 2014. Effect of a behaviour-change intervention on handwashing with soap in Nepal (SuperAmma): a cluster-randomised trial. *The Lancet Global Health*. Volume 2, No. 3, e145–e154, March 2014.
- Ali Mohammad Mir, Gul Rashida Shaikh. (2013). Islam and family planning: changing perceptions of health care providers and medical faculty in Pakistan. *Global Health: Science and Practice* 2013. Volume 1. Number 2.
- Farzaneh Roudi-Fahimi (2004). Islam and family planning. Population Reference Bureau. Washington, DC 20009 USA.
- Abdel Rahim Omran, *Family Planning in the Legacy of Islam* (London: Routledge, 1992).
- Seyyed Hossein Nasr, *Ideals and Realities of Islam* (Chicago: ABC International Group, 2000).

- Shelley A. Francis. Joan Liverpool. A Review of Faith-Based HIV Prevention Programs. *J Relig Health* (2009) 48:6–15 DOI 10.1007/s10943-008-9171-4.
- L. R. Yanek, D. M. Becker, T. F. Moy, J. Gittelsohn, and D. M. Koffman. Project Joy: faith based cardiovascular health promotion for African American women. *Public Health Rep.* 2001; 116(Suppl 1): 68–81.
- Mark J. DeHaven, Irby B. Hunter, Laura Wilder, James W. Walton, and Jarett Berry. Health Programs in Faith-Based Organizations: Are They Effective? *American Journal of Public Health* June 2004: Vol. 94, No. 6, pp. 1030-1036. doi: 10.2105/AJPH.94.6.1030.
- WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation. Secondary WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation 2015. <http://www.wssinfo.org/definitions-methods/watsan-categories/>.
- 

### Contact details

*Mahbub-Ul Alam is a Research Investigator at Environmental Interventions Unit of icddr,b with particular interests in urban and rural sanitation, faecal sludge management and waste management.*

Mahbub-Ul Alam  
EIU, IDD, icddr,b  
Tel: +8801818585465  
Email: [mamhbubalam@icddr.org](mailto:mamhbubalam@icddr.org)  
www: <http://www.icddr.org>

Farzana Yeasmin  
EIU, IDD, icddr,b  
Tel: +8801770345469  
Email: [fyeasmin@icddr.org](mailto:fyeasmin@icddr.org)  
www: <http://www.icddr.org>

---