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Handwashing Habits before Pandemic COVID-19 in the Chitwan District of Nepal and Implication for COVID-19 Control

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Abstract

The objective of this research was to assess handwashing habits nearly 5 years ago among residents of the Chitwan district of Nepal which might be useful at present to tackle COVID-19 emerging cases. The study had employed descriptive cross-sectional design in Ratnanagar and Kalika municipality. Using simple random lottery method, 40 people each from Tandi and Shaktikhor settlements were chosen. Well-structured questionnaire survey was employed to get data from people, and later analyzed by Chi-Square (χ^2) test. The research had revealed that majority of population were using the soap-water for handwash. Interestingly, a higher number of people were washing hands after toiler visit than before having meals. It was a key finding that handwashing habit should be improved by people after coughing and sneezing as only 12.5% and 5% people living at Tandi and Shaktikhor settlement respectively were washing hands after coughing and sneezing ($p < 0.00001$). Finally, there were no significant differences between the number of people washing hands and the time taken per handwash session as measured interval of 0 - 5, 5 - 10, 10 - 15 or 15 - 20 seconds at both sites which implied that quick handwashing habits were prevailing. In conclusion, reassessment of handwashing habits to make people aware on hand hygiene parameters like total time investment per session, and handwashing frequency per day may be advantageous to tackle the COVID-19 growing cases in Nepal.

Keywords

COVID-19, Toilet, Coughing, Handwash Session, Handwash Frequency

1. Introduction

Hand is an important part of human body. The distal part of forearm including palm, wrist, fingers, and thumb is collectively termed as hand which performs vital role in day to day life. Having said that, it can spread germs like bacteria and viruses too. For the past few decades, research into the evolution of human manipulative abilities has focused on identifying manipulative behavior that are unique to humans compared with other primates, and the morphological features of the human hand that might facilitate these abilities (Tracy, 2015). Hand is again in mainstream media as pandemic terror of Corona Virus Disease (COVID-19) mentions it to the main source bringing into the body from contaminated sources.

Handwash is not a new practice as religious and cultural ways of life. East and middle east countries have always promoted clean hand, clean face, clean body to clean self, someone who is liked by the almighty god or supernatural power. Handwashing has been a central component of personal hygiene, religious, and cultural custom for many years. However, the link between handwashing and health was first made less than two centuries ago by Ignaz Semmelweis, a Hungarian doctor working in Vienna General Hospital who is known as the father of hand hygiene. In 1846, he noticed that the women giving birth in the medical student, doctor-run maternity ward in his hospital were much more likely to develop a fever and die compared to the women giving birth in the adjacent midwife-run maternity ward (GHP, 2017).

Promotion of "Washing Hand" is now a regular feature in mainstream and virtual media and it would be probably the very first and most important base of hygiene and health. Understanding the value of handwashing, WHO celebrates Global Handwashing Day on every October 15. There is no denying to the fact that along with clean water for drinking and proper hand washing alone can save many precious lives from several types of infections and illness (Mathur, 2011). Handwash is one of the cheapest and easiest ways to protect community from various health problems. On other hand, transmission of diarrhoea and respiratory infection due to poor sanitation and hygiene is a persistent challenge in developing countries like Nepal as people often ignore or forget to use this method to maintain overall hygiene (Lee et al., 2017).

Part of problem also lies in the accessibility to adequate water, nature of work that demands dirtying the hand, and above all ignorance to the future disease outbreaks. Various government and non-governmental organisations have been spending billions of dollars in educating and promoting simple changes like hand washing, but outcome has not been satisfactory. Similarly, use of soap for hand wash post toilet visit is common but prior to a meal is unsatisfactory, and for any other purpose led contact with face is negligible. Hardly any percentage of people washes their hands with soap before eating or after coughing and sneezing (SCA and KRC Survey, 2012). The figures in rural and urban area may vary greatly and factors like availability of running water, conscious presence of mind can play a significant role. Therefore, this research was aimed at evaluating and

comparing the hand washing habits in two closely situated, but socio-economically distinct regions of the Chitwan district of Nepal named Tandi of Ratnanagar municipality, and Shaktikhor of Kalika municipality.

Chitwan is one of the developed regions of Nepal with better socio-economic indicators to the rest of Nepal (Open Data Nepal, 2020). Despite that, level of awareness on simple act of hand washing as an early indicator of personal hygiene was not satisfactory several decades back. The consequence of such negligence on overall health, poverty, and probably reduced productivity among residents of two settlements is yet to be evaluated. In addition, probable change of behavior in this current hard time of COVID pandemic is another interesting observation to be examined. Thus, the observation (pre, during, and post) in lineage of COVID-19 threat will be surely helpful in future policy making to control viral pandemic if such disease is highly related to personal hygeine.

2. Method

The research had complied all ethical approval requirements of the Saheed Smiriti Ethical Standard Committee (2015-2016). The ethical approval number was 056/071-072. In addition, the human data collected in this experiment were accordance with Declaration of Helsinki; complying all ethical standards for human material or human data.

The research had employed cross-sectional design. Well-structured questionnaire survey was conducted from 6 December 2015 to 19 December 2015. Using simple random lottery method, two municipalities of the Chitwan district of Nepal were chosen named Ratnanagar and Kalika. Again using simple random lottery method, Tandi and Shaktihor settlements were chosen. Afterwards, houses that fall under 5 KM radius from each settlements were assigned number. Using simple random lottery method again, 40 houses were choosen from each of those two settlements such that 1 house represented 1 sample. People aged below 10, and above 70 were excluded because of their proper concentration and response ability. Similarly, people with acute sickness, mental and physical disablility were also excluded as they may have or require different handwashing practice. Lastly, respondents living at their home were surveyed based on first come first priority basis.

The mean age of people in Tandi and Shaktikhor were 30 ± 12.64 and 35 ± 18.96 years respectively. Besides, sex ratios (male: female) were 1.6:1 in Tandi and 1.2:1 in Shaktikhor. All respondents were coded and entered in SPSS version 20. SPSS output was analyzed in descriptive and cross-sectional analysis. Collected data was summarized in the form such as frequency, percentage, mean and standard deviation. Chi-square ($\chi 2$) test was used to figure out association between places and hand washing habits. Level of significance was measured at $p < 0.05$ (**Figure 1**).

3. Result

As shown in **Figure 2**, majority of people i.e. 85% in Tandi (34 out of 40), and

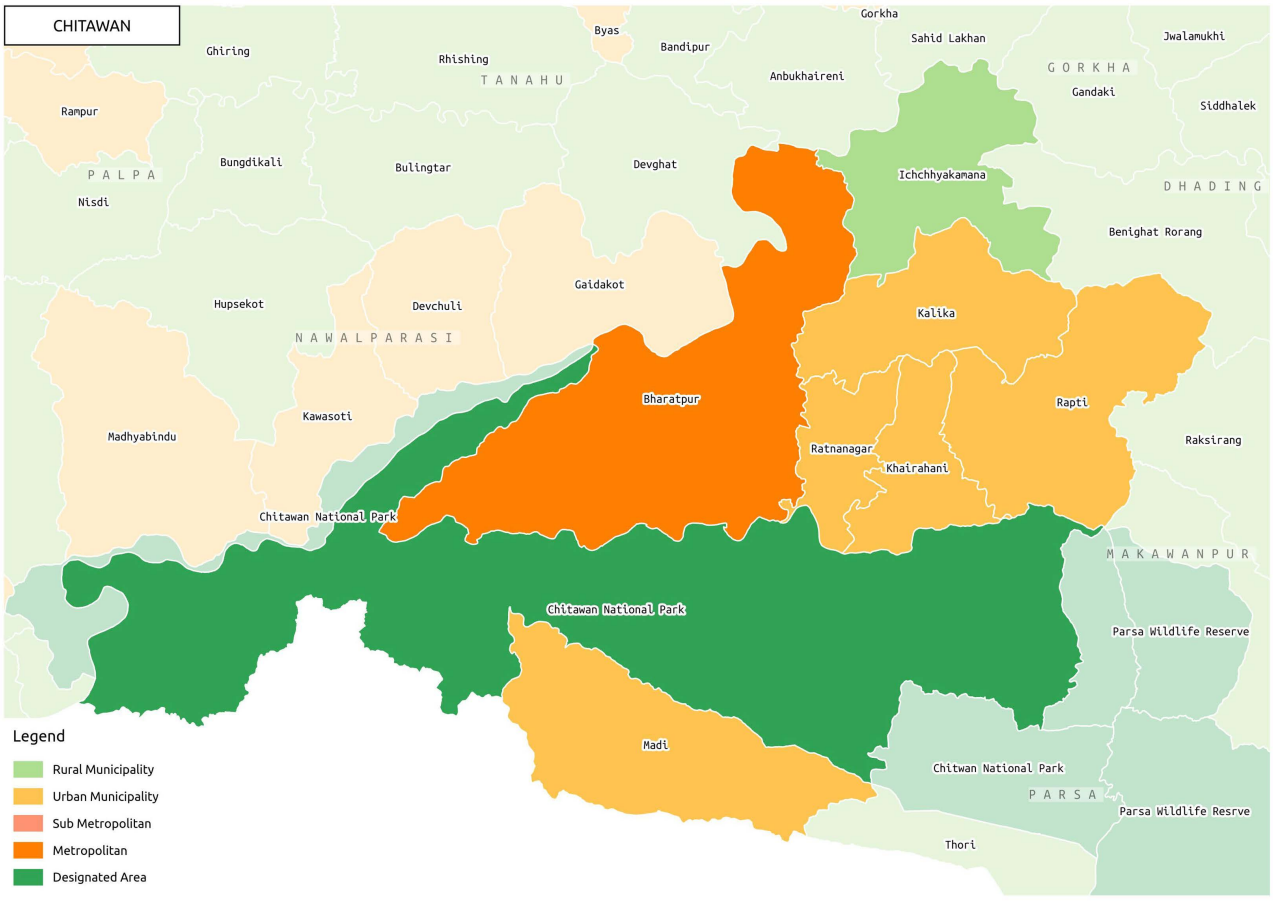

Figure 1. Map of Chitwan district of Nepal featuring Ratnanagar and Kalika Municipality (Image adapted from EHRP Nepal).

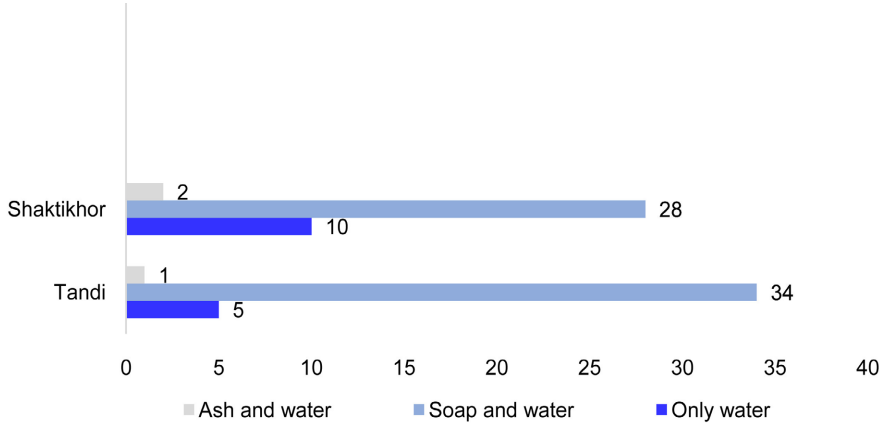

Figure 2. Means of hand wash in Tandi and Shaktikhor.

70% in Shaktikhor (28 out of 40) were using soap-water for hand wash ($p < 0.05$). Following that, more people were using water alone than ash water for hand wash at both study sites which implies that ash is no longer commonly being used in households. Besides, nearly half of population (45%) in Tandi washed their hands 3 to 5 times a day. However, hand washing frequency (1 - 3, 3 - 5 or 5 - 7 times per day) in Shaktikhor was same. Similarly, the time taken by people

per hand wash session 0 - 5, 5 - 10, 10 - 15, or 15 - 20 seconds by was similar at both places. Interestingly, more people were washing hands post toilet visit than before having their meals at both settlements as shown in Figure 3 and Figure 4.

Regarding instilling knowledge on hand wash, parents and friends had prime influence ($p < 0.05$) which was found to be 75% in Tandi (30 out of 40), and 55% in Shaktikhor (22 out of 40) as shown in Figure 5. Afterward, textbook had second most important role in both locations, and digital media found to be least. Only 2.5% people in Tandi (1 out of 40) and 15% people in Shaktikhor (6 out of 40) had acquired knowledge on hand wash through digital media. Surprisingly though, residents in Tandi (Figure 6) had higher education qualification ($p = 0.021$) than Shaktikhor but there were no significant differences between people living at these two locations and hand washing habits.

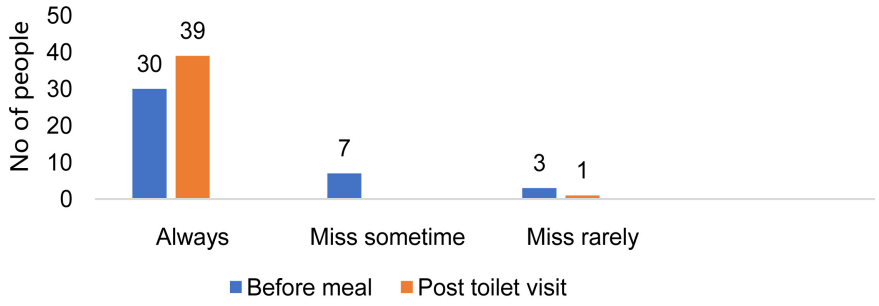

Figure 3. Hand wash by people before meal and post toilet visit in Tandi.

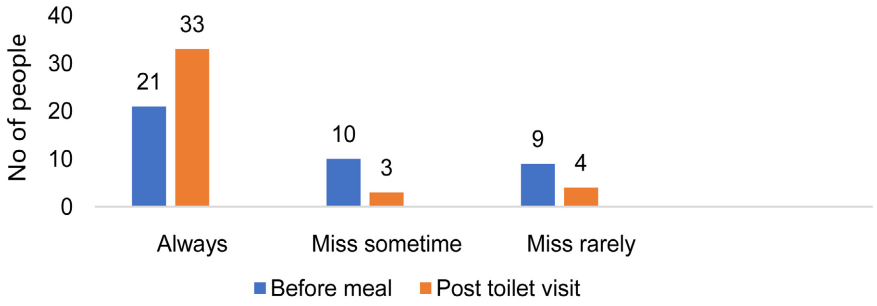

Figure 4. Hand wash by people before meal and post toilet visit in Shaktikhor.

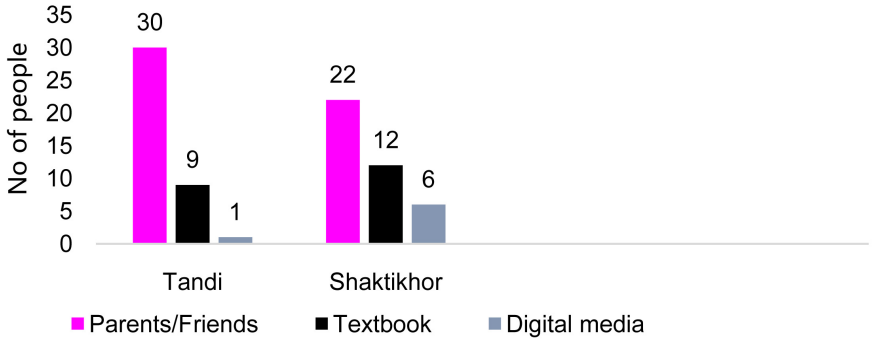

Figure 5. Source of acquiring knowledge on hand wash.

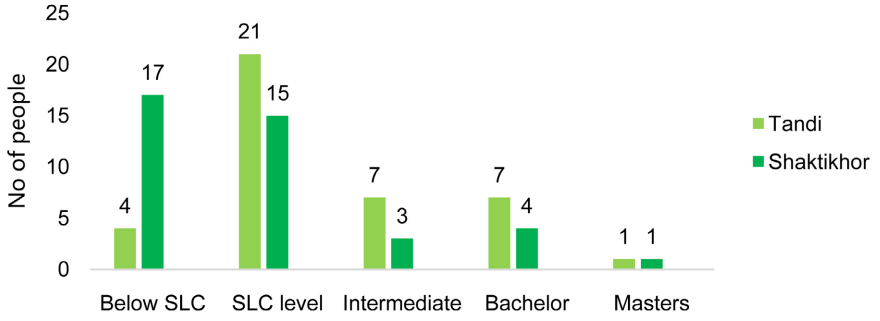

Figure 6. Education level comparison between Tandi and Shaktikhor.

4. Discussion

Tandi is a semi-urban place which falls under the Ratnanagar municipality. Interestingly, Ratnanagar is one of the first municipalities (WASH-RCNN, 2015) in Nepal got declared as "Open Defecation Free." Contrary to this, Shaktikhor was a village lacking most of health facilities which now falls under Kalika municipality. According to the 2011 Nepal census, Ratnanagar municipality had population of 69,851 with 16,070 individual households while Kalika municipality had total population of 42,493 with 9116 households which is further almost 2.5 times larger in area than Ratnanagar. Therefore, the objective of this research was to observe the role of demographic, social, and economic status in hand washing culture in two closely situated, but distinct regions of the Chitwan district of Nepal.

This research revealed that, majority of people had knowledge and culture of hand washing at both locations but people were not doing it properly. Handwash practice is common in the country as shown by other researches. In a study at the Chungwang Village District Committee (VDC) of Dhankuta district of eastern Nepal, 97.4% of the respondents were found to wash their hands with soap or other detergents, and 99.3% of them had sanitizer at their home on observation (Rayamajhi & Budhathoki, 2014). Likewise, majority of people i.e. 65% of respondents in Morang district were using soap water after defecation (Kama, Bhandari, & Jha, 2012). Similarly, significantly higher proportion of people which was 85% people in Tandi and 70% people in Shaktikhor were found to wash their hands with soap water in this research. Despite, there is need for improvement in hand washing frequency and timing at both study sites. This conclusion is further supported by a research published in Wellcome Open Research as people are 36% less likely to get infected from virus when they wash hands 6 to 10 times per day (Schofield, 2020). Furthermore, a research at the University College London highlighted that COVID-19 could get transmitted to people similar mechanism as to the seasonal flu. In addition, Public Health England has also recommended to use soap-water for at least 20 seconds to prevent the spread of coronavirus.

In this research, people who didn't wash their hands before having their meals seemed to be wary in context of post toilet visits. This might have happened due

to psychological effect of fecal debris. In addition, people might have became familiar to disease transmission like diarrhea through fecal-oral route. Researches have shown that germs like Salmonella, E. coli, norovirus can get onto hands after people using the toilet (CDC, 2018). Besides, home is considered as the first school of children where parents and surrounding friend circles teach personal and social value. This might be reason why parents and friends had prime influence on instilling knowledge for hand wash.

Having said that, the Government of Nepal has been trying to expand health services in different parts of the nation to promote personal hygiene and to promote public health. Moreover, 70 types of medicine have already been provided for free of cost in all primary healthcare facilities (HITAP, n.d.). Also, understanding their importance, government, and its sister organisations are playing crucial role on raising awareness for the prevention of diseases transmission through the hand wash. Presently, the Nepal Government should focus on educating Nepalese people on both proper hand washing frequency, and proper timing as quick handwashing might not be sufficient to prevent viral disease transmission like COVID-19.

5. Conclusion and Recommendation

From the time of study to present outbreaks of COVID-19, there are probably some positive changes in the lifestyle of households in both settlements. If not, people should be specially educated on proper hand washing frequency, and timing to effectively combat the hand-born diseases like COVID-19. The availability of information pre, during, and post COVID-19 pandemic could further help formulating policy and approaching in engineering the collective behavioral changes. Furthermore, research during this hard time and after few years when pandemic fever will settle down can help the findings of this research to achieve better impact. In addition, it is highly recommended that overall sample size should be expanded in the future experiment. Surprisingly, as education level and demography were not found to be contributing factor for quick hand washing, the practice comparison of five years before and during pandemic might give hint that permanency of this quick handwashing habit die hard which definitely needs improvement.

Acknowledgements

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Central for Disease Control and Prevention [CDC] (2018, September 17). *Show Me the*

Science—Why Wash Your Hands?
https://www.cdc.gov/handwashing/why-handwashing.html

HITAP International Unit (HIU) (n.d.). *Free Drugs List (FDL) Nepal*.

Karna, R., Bhandari, B., & Jha, N. (2012). A Study on Personal Hygiene and Sanitary Practices in a Rural Village of Morang District of Nepal. *Journal of Nobel Medical College, 1,* 39-44. https://doi.org/10.3126/jonmc.v1i2.7298

Lee, R., Lee, P., & Mbakaya, B. (2017). Hand Hygiene Intervention Strategies to Reduce Diarrhea and Respiratory Infections among Schoolchildren in Developing Countries: A Systematic Review. *International Journal of Environmental Research and Public Health, 14,* Article No. 371. https://doi.org/10.3390/ijerph14040371

Mathur, P. (2011). Hand Washing Saves People from Many Types of Infections and Illness. *Indian Journal of Medical Research, 134,* 611-620.
https://doi.org/10.4103/0971-5916.90985

Open Data Nepal, Government of Nepal (2020). *Chitwan*. Central Bureau of Statistics (CBS).

Rayamajhi, R. B., & Budhathoki, S. S. (2014). A Study on Sanitary and Hygiene Practices in Chungwang VDC of Dhankuta District, Eastern Nepal. *Journal of Chitwan Medial College, 4,* 20-24. https://doi.org/10.3126/jcmc.v4i2.10856

SCA and KRC Survey (2012, October 4-7).

Schofield, C. (2020). *Here's How Many Times a Day You Should Be Washing Your Hands—According to Experts*.
https://www.derryjournal.com/read-this/heres-how-many-times-day-you-should-be-washing-your-hands-according-experts-2859681

The Global Handwashing Partnership (GHP) (2017). *History of Handwashing*.
https://globalhandwashing.org/about-handwashing/history-of-handwashing/

Tracy, K. (2015). Evidence in Hand: Recent Discoveries and the Early Evolution of Human Manual Manipulation. *Philosophical Transactions of the Royal Society B: Biological Sciences, 370,* Article ID: 20150105. https://doi.org/10.1098/rstb.2015.0105

Water, Sanitation and Hygiene Resource Center Network Nepal (WASH-RCNN) (2015, November 22). *Open Defecation Status Update in Nepal*.