Social Impediments of Personal Hygiene Practices Among Females in Rural Faisalabad, Punjab Pakistan

Paris Zaka Ullah* | Zahira Batool† | Muhammad Shabbir‡

Vol. V, No. II (Spring 2020) | Pages: 53 – 60

Abstract

Good quality personal hygiene is imperative for both health as well as social reasons. It involves keeping your hands, head and body clean so as to prevent the illness and spread of germs. The present study attempts to find out various social impediments which influence personal hygiene practices of women. The respondent of the study was women from rural Faisalabad. The survey research design was carried out, and the interview schedule was adopted as a data collection tool. Sample of 400 rural women was taken using a convenient sample technique. As a result, women have been shown to be extremely conscious of social impediments to personal hygiene. In addition, it has been found that there is a strong correlation between social impediments and personal hygiene practices. The study emphasizes the importance of good personal hygiene, and rural women’s practices in preserving their personal hygiene; therefore, these social impediments need to be addressed.

Key Words: Social Impediments, Women, Hygiene, Public Health, Practices, Cleanliness

Introduction

Hygiene is the principle of cleaning, and any activity aimed at maintaining health and preventing the spread of disease (Sax et al., 2009). However, it should be noted that the term “cleanliness” is not the same as “hygiene”. Hygiene is much more than just cleanliness, as cleanliness often means removing dirt, waste or unnecessary stuff from the surface of objects using detergents and other required equipment. There are various types of hygiene behavior, which have a major impact on water and sanitation-related disease transmissions, such as Personal Hygiene, Water hygiene, Toilet hygiene, Food hygiene and Domestic and environmental Hygiene. (Kendall, L. and Snel, M, 2016).

Hygiene is about human behavior; changing hygiene practices means changing behavior. Research indicates that behavioral improvement does not automatically arise due to knowledge of the possible negative impacts of practice (e.g. knowledge that is not washing hands can have health implications); it also depends on the context, values, behaviors and resources of individuals and societies.

Nevertheless, the availability of better drinking water supply and sanitation services promotes the practice of good personal hygiene, which alone is not sufficient to substantially reduce morbidity and mortality rates. Good personal hygiene practices are of vital importance because they have a greater effect on the health of a community and ensure the use and maintenance of the hygienic facilities (Cairncross, S., Shordt, K., Zacharia, S., & Govindan, B. K., 2005).

Diarrhoea is mostly caused by a lack of safe drinking water, sufficient sanitation, and hygiene. Numbers of interventions are effective in preventing diarrheal diseases, and encouraging hygiene should be accessible to everyone (Cairncross and Valdmanis, 2006).

*PhD Scholar, Department of Sociology, GC University Faisalabad, Punjab, Pakistan.
†Professor, Department of Sociology, GC University Faisalabad, Punjab, Pakistan.
‡Assistant Professor, Department of Sociology, GC University Faisalabad, Punjab, Pakistan.
Email: drmshabbir@gcuf.edu.pk
The current study provides a comprehensive analysis of the hygiene knowledge, practices and barriers to these practices. Few published research on social impediments to personal hygiene focusing on the local female population. The impediments to personal hygiene of this target group in rural Faisalabad need to be identified. The results can also provide important and valuable facts establishing for policy and planning initiatives on the personal hygiene of rural women. The findings of the study will serve as guidelines for further studies.

**Major Objective of the Study**

The aim of the current study was to identify the various social impediments/ factors which influencing personal hygiene practices among women of rural Faisalabad, Punjab.

**Literature Review**

Personal hygiene is much important to maintain health and to avoid the health-related issues. Many social researchers focused on overcoming the issue of unhygienic practices and suggesting a number of policy measures. Angus, Kontos, Dyck, McKeever and Poland (2005) concluded that the concept of personal hygiene is widely used in medical and public health practices. It implies keeping our bodies and clothes clean. It’s described as a requirement for self-promoting sanitary practices. Personal hygiene knowledge and practice are important in all of our daily activities. The public health strategic goals of personal hygiene also include prevention of orally transmitted diseases, esthetic values and social impacts.

Vivas et al., (2010) indicated that in less developed countries, personal hygiene is very poor. Good practices of personal hygiene are prerequisites for forming a healthy community. Cooper, (2018) examined that Poor Hygiene in Pakistan is indeed a problem including low hand washing rates and bad water storage habits. UNICEF’s 2015 study shows that there are inequalities between rural and urban areas, across quintiles of income and across districts within Punjab, Pakistan. UNICEF (2015) states that these inequalities need to be resolved to achieve universal sanitation. In rural areas, open defecation is higher than in urban areas of Punjab (25 percent rural & 10 percent urban in Punjab).

Michael et al., (2020) indicated that females are normally deprived of the resources available in low- and middle-income countries, particularly when it comes to menstrual hygiene issues. In this context, poor knowledge of personal hygiene, lack of formal school guidance, inadequate financial capital and insufficient water and sanitation facilities are identified as being the key reasons for poor personal hygiene practices. According to Hutton & Bartram (2008), one of the 17 Sustainable Development Goals (SDGs), Clean Water and sanitation positioning at 6, is the two major goals o is to halve the proportion of people without access to sanitation by 2015. Nevertheless, research reveals that forty per cent of the total population of the world still lack access to sanitation.

Bosch, Hommann, Rubio, Sadoff, and Travers (2001) indicated that nearly 1.3 billion citizens in the developing world do not have access to enough amounts of clean water, and almost 3 billion people do not have reasonable means of disposal. An estimated 10,000 people are dying from water- and sanitation-related diseases every day, and thousands more suffer from a variety of chronic diseases. The burden of inadequate water and sanitation facilities primarily falls on the poor. Badly supported by the formal sector, the poor make their own plans, often insufficient, to meet basic survival needs and are unable to follow good hygienic practices. Most fetch water from long distances or end up having to pay premium prices for very limited quantities of water to water vendors. The overwhelming need for adequate water and sanitation facilities for the poor takes on even greater importance when considering the links to other dimensions of poverty. Diseases related to water and sanitation put significant pressures on healthcare services.

Ferguson and Mulwafu (2004) studied that Non-governmental organizations (NGOs) implement most of the hygiene initiatives, and rarely the government. Despite advocating for water sanitation and Hygiene (WASH), there are not enough government programs launched through related ministries to improve hygiene practices. O'Loughlin, Fentie, Flannery and Emerson (2006) studied that lack of facilities, including soap, water and insufficient cleanliness facilities could be two of the key reasons why girls do not wash their hands.
Huq and Tasnim (2008) explored another factor which may affect the practice of hygiene among babies is the lower stage of maternal education. In this research education of the mother was low as the education of the father, respectively. In the country of Ethiopia, the mother is usually family's primary caregiver and is therefore responsible with teaching good health and hygiene practices to her children. A poorly educated mother may have less awareness of teaching proper hygiene standards to her children, resulting in higher infection and disease levels among her children. Taking these observations into account, hygiene teaching, and activity-based health education programs should be launched for siblings and especially for mothers.

Shah, Khan, Kanwal and Bernstein (2016), analyzed that increasing community perception and educational resources are critical in bringing about improvements in hygiene behaviour, and also in countering misconceptions that water is safe to drink if it is clear and smells not.

**Material and Methods**

Universe for the present research comprised of all the villages of district Faisalabad, Punjab Province. Eight villages of district Faisalabad were selected through convenient sampling strategy as a target area, and all the women residing these villages was the population of this research. A woman was the respondent as the topic is associated with personal hygiene practices of women. Multistage sampling technique was used for the selection of the sample. At first, a simple random sampling technique was applied while choosing 2 towns (Samundri Town and Tandlianwala Town) from 8 towns of District Faisalabad. Further, 2, 2 union councils were selected through simple random sampling technique from each of these two selected towns. At the next stage, 2, 2 villages were selected from each of the 4 union councils by applying the simple random sampling technique. In this way, 8 villages were selected, and 400 respondents (50 from each town) were taken from these villages by using Solvin formula. Secondly, convenient sampling technique was applied in selecting the respondents from these villages. Being a female researcher, I prefer convenient sampling method to select respondent because it was much difficult to move in the rural areas for any female. For quantitative method, a well-structured Interview Schedule was developed, and data analysis was done by applying Statistical Package for Social Sciences (SPSS) because both descriptive and inferential statistics are applied for analysis and testing of hypotheses.

**Results and Discussions**

Uni-variant and multi-variant analysis results are shown below, supported by table representation. The objective of the study was to identify the different social impediments/barriers which influencing personal hygiene practice among rural women in district Faisalabad, Punjab. Total of 400 female respondents was included in this study.

**Table 1.** Respondent’s thinking about there is some Social Impediments which Influence Personal Hygiene Practices.

| Response | F  | %  |
|----------|----|----|
| Yes      | 397| 99.3|
| No       | 3  | 0.8|
| Total    | 400| 100.0|

Table 1 depicted the responses of respondent’s thinking about social impediments which influence personal hygiene practices of rural women. In the present study, findings revealed that almost all the respondents think that there are some social barriers which affect their practices of personal hygiene. Exact frequency and percentage are given in the table. These findings are the same as the findings reported in the previous study by (Appiah-Brempong, Harris, Newton, & Gulis, 2018) Many factors influence personal hygiene practice, including developmental level, cultural background, socioeconomic status, personal habits and health status.
Table 2. Respondents’ Opinion about Social Impediments Influencing Personal Hygiene Practices. n = 400

| Social Impediments                                                                 | SD | Disagree | No Opinion | Agree | SA | Mean | S. D  |
|-----------------------------------------------------------------------------------|----|----------|------------|-------|----|------|-------|
| Lack of knowledge on hygiene affects your personal hygiene practices negatively    | 3  | 0.8      | 5          | 1.3   | 6  | 1.5  | 105   | 26.3 | 281 | 70.3 | 4.64 | .653 |
| Financial constraints can prove to be a barrier in practicing personal hygiene     | 2  | 0.5      | 4          | 1.0   | 8  | 2.0  | 112   | 28.0 | 274 | 68.5 | 4.63 | .628 |
| Lack of gender equality affects personal hygiene practices in a negative way       | 6  | 1.5      | 11         | 2.8   | 18 | 4.5  | 98    | 24.5 | 267 | 66.8 | 4.52 | .828 |
| Lack of education affects one’s personal hygiene practices                         | 3  | 0.8      | 9          | 2.3   | 17 | 4.3  | 93    | 23.3 | 278 | 69.5 | 4.58 | .744 |
| Lack of parental education acts as a barrier in practicing personal hygiene        | 4  | 1.0      | 9          | 2.3   | 19 | 4.8  | 94    | 23.5 | 274 | 68.5 | 4.56 | .773 |
| Lack of role model in family can prove to be a barrier in practicing personal hygiene | 6  | 1.5      | 8          | 2.0   | 21 | 5.3  | 105   | 26.3 | 260 | 65.0 | 4.51 | .810 |
| Irregular water supply affects your personal hygiene practices negatively           | 4  | 1.0      | 9          | 2.3   | 23 | 5.8  | 99    | 24.8 | 265 | 66.3 | 4.53 | .788 |
| Poor sanitation acts as a constraint in practicing personal hygiene                | 4  | 1.0      | 4          | 1.0   | 23 | 5.8  | 110   | 27.5 | 259 | 64.8 | 4.54 | .738 |
| Poor health seeking behavior can prove to be a barrier in practicing personal hygiene | 4  | 1.0      | 14         | 3.5   | 18 | 4.5  | 111   | 27.8 | 253 | 63.3 | 4.49 | .819 |

Table 2 shows that a large majority of 96.6% of respondents believed that a lack of knowledge of hygiene had a negative impact on personal hygiene practices. Current results supported by Rajesh Kumar et al. stated that 71.3 percent of respondents claimed that complete information relating to personal/individual hygiene practices is of the utmost importance for the implementation of personal hygiene practices. (Oyibo, 2012) Reported that this result coincides with UAE and India research but in contrast with Egypt findings. This inconsistency in the score of knowledge could be because of differences in family choices, social and cultural disparities and a physiological higher want for female hygiene.

Most of the rural women also considered financial constraints as a barrier to practising personal hygiene. This result is stated in harmony by (Ngorima, Nkuna, & Manase, 2008) which showed that the respondents in the inferior rank in community had a bad lower hygiene activity as compared to the respondents in the upper and middle class.

(Garriga & Foguet, 2013) Argued that because of poverty, it is difficult for communities to use the only soap available to a family for hand washing. Likewise, the handwashing facilities that are used during a toilet visit are usually temporary and are constructed from products that are not durable.

Another 91% of respondents reported that lack of gender equality hampered practices of personal hygiene. Women and girl’s participation is key to successful water and sanitation projects. (Montgomery & Elimelech, 2007) It has been concluded that women in developing countries bear the bulk of the responsibility of bringing,
using and securing water. They do have the greatest responsibility for environmental sanitation and safety and home hygiene. (Greed, 2011) reported that there is a lack of gender inclusion in planning and designing.

Out of the total, 93% of respondents said lack of education responsible for practising poor personal hygiene. The outcome of another study by (Odonkor, Kitcher, Okyere, & Mahami, 2019) suggested lower education was the most important obstacle to personal/individual cleanliness from the point of view of the respondent. This is followed by lethargy and has no time for such activities. (Ahmadu et al., 2013) observed that personal hygiene can be improved in educating individual in communities.

The majority, 92% of Rural women, felt the lack of parental education presented as an obstacle to personal hygiene practice. (Aslam & Kingdon, 2012) Parental literacy and household income have been found to play a crucial role in assessing rural women's hygienic rates. (Mangal, Kumar, Varghese, & Chauhan, 2019) also demonstrated that parental literacy and per capita monthly income of family were positively correlated with women's personal hygiene practice scores.

Maximum respondents, i.e. 91 percent of respondents reported that the lack of a role model in the family proved a barrier to the practice of personal hygiene. According to the study (ALBashtawy, 2015) the main sources of knowledge on individual hygiene were teachers and family, as found in Jordan and Columbia. This finding demonstrated that the parents play an important role in conveying personal hygiene knowledge and practices in child's early life and could be a role because clean people behave as motivation for children.

A large majority of 91 percent of rural women believed that irregular water supply was the main cause of personal hygiene practice. (Murthy, 2017) In 2012 report presenting 2010 estimates that the MDG target to reduce the population by 50 percent without access to safe drinking water was met by the world, but these global estimates mask regional disparities and access inequalities between urban and rural populations. In 2015, 663 million people used improved water supplies (compared to 1.3 billion in 1990), while since 1990, 2.6 billion people have gained access to quality water.

Poor sanitation is responsible for reduced personal hygiene practices said 92% of respondents. Similarly, in the study done by (Berendes, Sumner, & Brown, 2017) it was shown that latrines are non-existent in a most rural village. People used to dump excreta near sources of water, which polluted water. 91% of rural women believed that poor health-seeking behavior was the main barrier in practising personal hygiene. (Das, Biswas, & Raza, 2017) Most of the respondents (65 percent) did not use soap and water after defecation, and 31 percent used water alone, and 4 percent used ash/soil water for handwashing. (SarkinGobir & SarkinGobir, 2017) Contended that most respondents had no knowledge of personal hygiene and practiced open defecation, leading to severe health problems. Therefor appropriate hand washing procedure needs to be performed by women to minimize the risk of microbial spread as highlighted by some studies; the majority of respondents had no knowledge of personal hygiene and practice open defecation, leading to serious health problems.

**Testing of Hypotheses**

**Hypothesis 1:** Higher the Knowledge about Personal Hygiene, more Personal Hygiene Practices

| Knowledge | Personal Hygiene Practices | Total |
|-----------|---------------------------|-------|
|           | Low | Medium | High |      |
| Low       | F   | %     | F    | %    | f    | %    | f | % |
| Medium    | 177 | 93.2  | 7    | 3.7  | 6    | 3.2  | 190 | 100.0 |
| High      | 36  | 31.0  | 75   | 64.7 | 5    | 4.3  | 116 | 100.0 |
| Total     | 221 | 55.3  | 87   | 21.8 | 92   | 23.0 | 400 | 100.0 |

χ² value = 515.70 d.f = 4 p = 0.000**
Gamma (λ) value = 0.979 p = 0.000**
** = Highly Significant
Above table displays a significant \( \chi^2 = 515.70, p = .000 \) association knowledge about personal hygiene and personal hygiene practices. Gamma statistic \( (\lambda = -0.979, p = .000) \) showed a significant and positive relation among the variable (knowledge and practices of personal hygiene). It means, if there is more knowledge about personal hygiene practices then their had more personal hygiene practices. Study outcome conformed that if the study population had less knowledge, then their practices are low (93.2%), medium (3.7%) and high (3.2%) level personal hygiene practices, on the other side of the respondents had more knowledge about personal hygiene practices then they had low (8.5%), medium (5.3%) and high (86.2%) level personal hygiene practices. So, the hypothesis “Higher the knowledge about personal hygiene, more personal hygiene practices” is accepted. This was a very promising result, similar to the study carried out by (Vivas et al., 2010), which recorded good level of awareness in Angolela, Ethiopia affecting personal hygiene practices among 52 per cent. The preceding results were similar to studies conducted by (Omidvar & Begum, 2010), which revealed that knowledge and attitude regarding hygiene affected personal hygiene.

**Hypothesis 2:** Higher the Education Level of Respondent, Better the Personal Hygiene Practices

### Table 4. Relation Among Education of the Study Population and their Personal Hygiene Practices

| Education level | Personal hygiene practices | Total |
|-----------------|----------------------------|-------|
|                 | Low | Medium | High   |
| Illiterate      | 61  | 82.4   | 8      | 10.8 | 5     | 4.9   | 74    | 100.0|
| Up to 8         | 111 | 91.0   | 6      | 4.9  | 5     | 4.1   | 122   | 100.0|
| 9-12            | 40  | 34.2   | 68     | 58.1 | 9     | 7.7   | 117   | 100.0|
| 13- above       | 9   | 10.3   | 5      | 5.7  | 73    | 83.9  | 87    | 100.0|
| Total           | 221 | 55.3   | 87     | 21.8 | 92    | 23.0  | 400   | 100.0|

\( \chi^2 \) value = 400.48 df = 6 \( p = .000 ** \)

\( \text{Gamma (} \lambda \text{) value} = 0.817 p = .000 ** \)

** = Highly significant

Above table revealed a significant \( \chi^2 = 400.48, p = .000 \) association among education level of the study population and their personal hygiene practices. Gamma statistic \( (\lambda = 0.817, p = .000) \) showed a significant and positive relationship among the variable (education and personal hygiene practices variables). It tells that majority of the educated population had more personal hygiene practices as compared to an illiterate population. It is clear from the above findings illiterate population were having low (82.4%), medium (10.8%) and high (6.8%) level practice of personal hygiene, on the other side highly qualified (13- above years of education) population had low (10.0.3%), medium (5.7%) and high (83.9%) level personal hygiene practices. So, the hypothesis “Higher the education level of the respondent, better the personal hygiene practices” is accepted. (Joshi, Prasad, Kasav, Segan, & Singh, 2014) Concluded that a significant relationship \( (P \leq 0.001) \) exists between rural women's qualifications and personal hygiene practices.

**Conclusion**

Personal Hygiene has long been a significant topic in global public health. Personal hygiene deficiency disease has been described as a significant public health concern, and people often affected are rural women. These were due to poor knowledge of personal hygiene and their practices. Significant \( \chi^2 = 515.70, p = .000 \) association was observed towards the knowledge about personal hygiene and personal hygiene practices while the Gamma value \( (\lambda = -0.979, p = .000) \) expressed the positivity among the relationship of different variable like knowledge and practices of personal hygiene. It means more knowledge towards personal hygiene practices push the women towards more personal hygiene practices. On the other hand, study results show lower knowledge towards personal hygiene importance; then their practices are low (93.2%), medium (3.7%) and high (3.2%) level personal hygiene practices, on the other side of the respondents had more knowledge about personal hygiene practices then they had low (8.5), medium (5.3%) and high (86.2%) level personal hygiene practices. The
preceding results were similar to studies conducted by (Omidvar & Begum, 2010), which revealed that knowledge and attitude regarding hygiene affected personal hygiene. A significant ($\chi^2 = 400.48, p = .000$) association among education level of the study population and their personal hygiene practices. Gamma statistic ($\lambda = 0.817, p = .000$) showed a significant and positive relationship among the variable (education and personal hygiene practices variables). It tells that majority of the educated population had more personal hygiene practices as compared to an illiterate population. It is clear from the above findings illiterate population were having low (82.4%), medium (10.8%) and high (6.8%) level practice of personal hygiene, on the other side highly qualified (13-above years of education) population had low (10.0.3%), medium (5.7%) and high (83.9%) level personal hygiene practices. Joshi, P. 2014 also did the study on the same field and concluded that a significant relationship ($P \leq 0.001$) exists between rural women's qualifications and personal hygiene practices. Based on the study's results, it can be inferred that most respondents possessed strong knowledge about social impediments. They claimed there are various social impediments that affect rural women's personal hygiene practices. The study revealed that diverse factors such as lack of education, financial restrictions, gender inequality, lack of clean water, inadequate sanitation facilities and poor health-seeking behavior posed serious threats to the successful implementation of women's personal hygiene practices in rural Faisalabad, Punjab. There was a statistically significant association between social impediments and personal hygiene practices for women. This means that the barriers need to be resolved for effective personal hygiene practices if we are to understand the benefits of personal hygiene practices.

Recommendations
Based on the results of the descriptive and inferential analysis, the researcher recommends the following important recommendation:

- Awareness campaigns among growing children and parents towards the importance of personal hygiene should be launched.
- It is suggested based on the results that for improving parental literacy combined with economic empowerment of rural families will play a crucial role in enhancing our rural women's personal hygiene.
- Student training in personal hygiene education and practice will be carried out with the active participation of parents and teachers. By providing proper water and sanitation facilities, dustbins, toilet doors with locks, privacy, personal hygiene can be improving.
- Different organization (governmental and non-governmental) should be active in providing women's personal hygiene-related facilities.
References

Ahmadu, B. U., Rimamchika, M., Ibrahim, A., Nnanubumom, A. A., Godiya, A., & Emmanuel, P. (2013). State of personal hygiene among primary school children: a community based cohort study. Sudanese Journal of Paediatrics, 13(1), 38.

ALBashtawy, M. (2015). Personal hygiene in school children aged 6–12 years in Jordan. British Journal of School Nursing, 10(8), 395-398.

Appiah-Brempong, E., Harris, M. J., Newton, S., & Gulis, G. (2018). A framework for designing hand hygiene educational interventions in schools. International Journal of Public Health, 63(2), 251-259.

Aslam, M., & Kingdon, G. G. (2012). Parental education and child health—understanding the pathways of impact in Pakistan. World Development, 40(10), 2014-2032.

Budhathoki, C. B. (2019). Water Supply, Sanitation and Hygiene Situation in Nepal: A Review. Journal of Health Promotion, 7, 65-76.

Das, S. R., Biswas, C., & Raza, A. M. (2017). Awareness Regarding Personal Hygiene among Patients Attending in a Upazilla Health Complex of Bangladesh. Religion, 45(11), 10.

Garriga, R. G., & Foguet, A. P. (2013). Unravelling the linkages between water, sanitation, hygiene and rural poverty: the WASH poverty index. Water Resources Management, 27(5), 1501-1515.

Gomm, R. (2008). Social research methodology: A critical introduction: Macmillan International Higher Education.

Greed, C. (2011). Planning for sustainable urban areas or everyday life and inclusion. Proceedings of the Institution of Civil Engineers—Urban Design and Planning, 164(2), 107-119.

Joshi, A., Prasad, S., Kasav, J. B., Segan, M., & Singh, A. K. (2014). Water and sanitation hygiene knowledge attitude practice in urban slum settings. Global Journal of Health Science, 6(2), 23.

Karn, R. R., Bhandari, B., & Jha, N. (2011). A study on personal hygiene and sanitary practices in a rural village of Mornag District of Nepal. Journal of Noble Medical College, 1(2), 39-44.

Mangal, N., Kumar, D., Varghese, K., & Chauhan, M. (2019). A cross sectional study on personal hygiene among rural school students in southern Rajasthan. International Journal of Community Medicine and Public Health, 6(6), 2646.

Mihelcic, J. R., Fry, L. M., Myre, E. A., Phillips, L. D., & Barkdoll, B. D. (2009). Field guide to environmental engineering for development workers: Water, sanitation, and indoor air.

Montgomery, M. A., & Elimelech, M. (2007). Water and sanitation in developing countries: including health in the equation: ACS Publications.

Ngorima, E., Nkuna, Z., & Manase, G. (2008). Addressing rural health and poverty through water sanitation and hygiene: Gender perspectives.

Odonkor, S. T., Kitcher, J., Okyere, M., & Mahami, T. (2019). Self-assessment of hygiene practices towards predictive and preventive medicine intervention: a case study of university students in Ghana. BioMed research international, 2019.

Omidvar, S., & Begum, K. (2010). Factors influencing hygienic practices during menses among girls from south India-A cross sectional study. International Journal of Collaborative Research on Internal Medicine & Public Health, 2(12), 0-0.

Organization, W. H. (2015). Improving nutrition outcomes with better water, sanitation and hygiene: practical solutions for policies and programmes.

Oyibo, P. (2012). Basic personal hygiene: knowledge and practices among school children aged 6-14 years in Abraka, Delta State, Nigeria. Continental Journal of Tropical Medicine, 6(1), 5.

SarkinGobir, Y., & SarkinGobir, S. (2017). Open defecation, a threat to public health and sustainable development goals: a case study of Gwadabawa Local Government, Sokoto state, Nigeria. Inter. J. Med. Biosci, 1(1), 28-37.

Supply, W. U. J. W., & Programme, S. M. (2014). Progress on drinking water and sanitation: 2014 update: World Health Organization.

Vivas, A., Gelaye, B., Aboset, N., Kumie, A., Berhane, Y., & Williams, M. A. (2010). Knowledge, attitudes, and practices (KAP) of hygiene among school children in Angolela, Ethiopia. Journal of preventive medicine and hygiene, 51(2), 73.