



Comparative Analysis of Personal Hygiene Practices of Rural and Urban Female Secondary School Students in Obio/Akpor Local Government Area, Rivers State

¹Kpe-Nobana, L. Christiana *²ThankGod, Amaigbani

^{1&2}Department of Human Kinetics, Health and Safety Studies, Ignatius Ajuru University of Education, Rivers State, Nigeria

*Corresponding author: ThankGod, A. E-mail: amaigbani.thankgod@iaue.edu.ng

Abstract

This study compared the personal hygiene practices among female secondary school students in Obio/Akpor Local Government Area of Rivers State. Five research questions and five hypotheses guided the study. Comparative research design was adopted for the study, with a population consisting of 7,000 female students. A sample size of 190 was selected using the simple random sampling technique. Data collection was done using a structured questionnaire titled 'Personal Hygiene Questionnaire (PHQ)', with a reliability coefficient of 0.70. The reliability was tested using Cronbach Alpha. Data analysis was done using mean and z-test at 0.05 level of significance. The result revealed that personal hygiene practices such as oral hygiene ($\bar{X} = 3.36 \pm 0.82$ vs 3.27 ± 0.88); and hand hygiene ($\bar{X} = 3.25 \pm 0.89$ vs 3.11 ± 0.88) were practised more in rural areas than in the urban areas while others, such as cloth hygiene ($\bar{X} = 3.62 \pm 0.53$ vs 3.61 ± 0.56); body hygiene ($\bar{X} = 3.38 \pm 0.86$ vs 3.34 ± 0.94); and menstrual hygiene ($\bar{X} = 3.66 \pm 0.56$ vs 3.32 ± 1.06) were practiced more in urban areas than rural areas. There was no statistically significant difference in the personal hygiene (oral hygiene, hand hygiene, cloth hygiene, body hygiene, menstrual hygiene) practices among female student in rural and urban areas ($p > 0.05$). In conclusion, personal hygiene was practised more in urban areas than in the rural areas, specifically cloth, body and menstrual hygiene. However, the government should organize health education programmes on the body hygiene of the girl child, in the different secondary schools in the State to enhance their personal hygiene practices.

Keywords: Female, Hygiene, Rural, Students, Practices, Urban.

Introduction

The prevention of communicable diseases, is possible through personal hygiene practices. Particularly, in these times when new diseases are emerging like the corona virus disease, personal hygiene practices need to be held with utmost importance to avoid the contraction of diseases and to maintain good health. The United Nations 2012 reported that there are 2.5 billion people who still do not use an improved sanitation facility and a little over one billion practising open defecation. Diarrhoea is the largest cause of under-five mortality globally in developing countries due to poor personal hygiene practices (United Nations, 2012). In Sub-Saharan Africa, 44 per cent of the population use either shared or unimproved facilities or an estimated 26 per cent practise open defecation (World Health Organization [WHO], 2012). Furthermore, up to 60 per cent of the disease burden is related to poor sanitation and hygiene, and more than 250,000 children die every year from sanitation and hygiene-related diseases (Ministry of Health, 2010). Poor personal hygiene is a major problem in developing countries



and remains high risk behaviour among school children. Over 1.9 billion school days could be gained if safe water supply and sanitation are achieved and the incidence of diarrhoeal illness is reduced (United Nations Children's Fund [UNICEF], 2012). Paliwal et al. (2014) stated that, the diseases that arise due to deficiency of personal hygiene remain one of the major public health concerns, particularly in developing countries. In Nigeria, poor personal hygiene was reported by Fehintola et al. (2017) who revealed that, 47 per cent of secondary school girls used cloth as absorbent material during menses while only 20.36 per cent used sanitary pad. Thus, the need to comprehensively investigate personal hygiene practices among female students.

Personal hygiene has been defined and described by authors in diverse ways. Ghose et al. (2012) described personal hygiene as the science of healthy livings and embraces all those day to day activities that contribute to health and wellbeing of an individual. Personal hygiene involves those practices performed by an individual to care for one's body, health and wellbeing through cleanliness. Ahaiwe et al. (2021) noted that, inadequate hygiene practices play major roles in the increased burden of communicable diseases within the developing countries.

The components of personal hygiene include body hygiene (skin care), oral hygiene (oral care), hand washing (hand care), face hygiene, fingernail and toe nail hygiene (nail care), ear hygiene, hair hygiene, foot hygiene, arm pit and bottom hygiene, clothes hygiene and menstrual hygiene eating (Alis et al, 2013). Personal hygiene was broadly classified into five categories by Al-Rijaai et al. (2018): hand hygiene, oral hygiene, cloth hygiene, body hygiene and menstrual hygiene.

Good oral hygiene is an indicator for good body health, poor oral hygiene not only affect the oral cavity but also a risk factor for initiation of many systemic diseases. Oral hygiene is the practice of keeping one's mouth clean by regular brushing of the teeth (dental hygiene) and cleaning between the teeth. It is important that oral hygiene be carried out on a regular basis to enable prevention of dental disease (Darby & Walsh, 2010). Lee and Moon (2011), general guidelines for adults suggest brushing at least twice a day with fluoridated toothpaste: brushing last thing at night and at least on one other occasion. This is because a toothbrush cannot reach between the teeth and therefore only removes about 50 per cent of plaque from the surface of the teeth. To brush or take care of one's teeth, the hand must be used, which makes hand hygiene also of utmost importance.

Hand hygiene has been shown to cut the number of deaths from diarrhoea. According to Bloomfield et al. (2008), hand hygiene is the act of cleaning the hands with or without the use of water or another liquid, or with the use of soap, and for the purpose of removing soil, dirt, and/or microorganisms. Medical hand hygiene pertains to the hygiene practices related to the administration of medicine and medical care that prevents or minimizes disease and the spreading of disease. The main medical purpose of washing hands is to cleanse the hands of pathogens (including bacteria or viruses) and chemicals which can cause personal harm or disease. This is especially important for people who handle food or work in the medical field, but it is also an important practice for the general public. Other personal hygiene practice worth noting is body hygiene.

Body hygiene involves proper washing of clothes to remove dirt so that germs will not lodge on it and cause skin diseases. Body hygiene pertains to hygiene practices performed by an individual to care for one's bodily health and well-being, through cleanliness (Ahaiwe et al., 2021). Motivations for personal hygiene practice include reduction of personal illness, healing from personal illness, optimal health and sense of well-being, social acceptance and prevention of spread of illness to others (Tietjen, 2016). Irish et al. (2014) stated that, personal grooming extends personal hygiene as it pertains to the maintenance of a good



personal and public appearance. Body hygiene is achieved by using personal body hygiene products including: soap, hair shampoo, toothbrushes, tooth paste, cotton swabs, antiperspirant, facial tissue, mouthwash, nail files, skin cleansers, and toilet paper.

Menstrual health and hygiene refers to access to menstrual hygiene products to absorb or collect the flow of blood during menstruation, privacy to change the materials, and access to facilities to dispose of used menstrual management materials (UNICEF, 2019). According to Omidvar and Begum (2014), menstruation is a natural phenomenon among matured females who experience shedding of blood for 1-7 days every month from the age of maturity (10-19 years) until menopause with various aspects such as physiology, pathology and psychology of menstruation found to be associated with health and wellbeing of women; hence it is an important issue concerning morbidity and mortality of female population. Furthermore, menstrual hygiene practice among adolescent female students as noted by Omidvar and Begum (2014) to include: good personal hygiene such as bathing and washing of genital tract, changing of pads regularly, and at night before going to bed; and use of sanitary pad and other absorbent materials.

In Rivers State, female students continue to account for a disproportionate percentage of infections due to poor personal hygiene, their vulnerability in the society, gender issues, and the female's reproductive structure (Oluwole et al., 2020). In the same vein, Magadi (2015) stated that, the peculiarity in the female's structure makes it imperative for her to be more concerned and conscious of personal hygiene than her male counterparts. A study by Fehintola et al. (2017) showed that, 47 per cent of secondary school girls used cloth as absorbent material during menses while only 20.36 per cent used sanitary pad; and about 64 per cent described their response to their first menses as scary, discomforting or emotionally disturbing. However, Das et al. (2015) stated that, poor menstrual hygiene may increase a female's susceptibility to reproductive tract infections (RTI) as several studies have proven that reproductive tract infections are closely related to poor menstrual hygiene. This could even be worse for female secondary school students in the rural areas, due to unavailability and inaccessibility to hygiene materials.

Rural and urban areas have different features which could be explained for the variance in health practices such as personal hygiene among secondary school students. Rani (2017) asserted that the type of residence (rural or urban) significantly influenced hygiene practices, which was better in the urban areas because those who reside in the urban areas have access to materials necessary to practise personal hygiene.

Female secondary school students in Obio/Akpor like their counterparts in other parts of the world are majorly adolescents, in their puberty, experiencing certain body changes which they need to adjust and accommodate with good body maintenance, but some are seen in an unkept state. Some even walk about with blood stains on their uniform skirts, implying that their underwear is already soaked but without concerns for their cleanliness. The mouth and body odour emitting from the body of some is so offensive that even after leaving a particular place, the odour still smells for some minutes. But, some do not even mind using their hands which are already dirty to buy snacks and eat on the road, to the detriment of their health. This scenario might be worse in rural areas where there is inadequate sanitary facilities and materials, even in the urban areas where such facilities are believed to be provided, access is restricted so, students are left to themselves to manage their personal hygiene in whatsoever way they can. Thus, it becomes imperative to investigate such practises among them to be able to inform any intervention aimed at helping them practise such optimally. Hence, this study on comparative analysis of personal hygiene practices among female students in rural and urban areas.



Research Questions

The study provided answers to the following research questions:

1. What is the extent of oral hygiene practice among female secondary school students in rural and urban areas of Obio/Akpor LGA, Rivers State?
2. What is the extent of hand hygiene practice among female secondary school students in rural and urban areas of Obio/Akpor LGA, Rivers State?
3. What is the extent of cloth hygiene practice among female secondary school students in rural and urban areas of Obio/Akpor LGA, Rivers State?
4. What is the extent of body hygiene practice among female secondary school students in rural and urban areas of Obio/Akpor LGA, Rivers State?
5. What is the extent of menstrual hygiene practice among female secondary school students in rural and urban areas of Obio/Akpor LGA, Rivers State?

Hypotheses

The following null hypotheses stated were tested at 0.05 level of significance:

1. There is no significant difference in the extent of oral hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA, Rivers State.
2. There is no significant difference in the extent of hand hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA, Rivers State.
3. There is no significant difference in the extent of cloth hygiene practices between rural and urban female secondary school students in Obio/Akpor LGA, Rivers State.
4. There is no significant difference in the extent of body hygiene practices between rural and urban female secondary school students in Obio/Akpor LGA, Rivers State.
5. There is no significant difference in the extent of menstrual hygiene practices between rural and urban female secondary school students in Obio/Akpor LGA, Rivers State.

Methods

Comparative research design was adopted for the study. The study area is Obio/Akpor Local Government Area of Rivers State, with its headquarters in Rumuodomaya. The local government covers an area of 260 km², located between latitudes 4°45'N and 4°60'N and longitudes 6°50'E and 8°00'E. (National Population Council, 2006). The area is also one of the most populated in Rivers State and has diverse economic and industrial activities which have attracted so many immigrants living together. The vast economic activities in the area have boosted infrastructural development which is seen in the numerous health care facilities as well as numerous educational institutions including tertiary, secondary and primary schools distributed across the Local Government Area. Both mixed and single gender secondary schools are hosted by the Local Government Area, hence, was chosen as the study area.

The study population consisted of 7,000 female students. A sample size of 190 was selected using the simple random sampling to select four schools in Obio-Akpor LGA and the students for the study. Data was collected using a structured questionnaire titled 'Personal Hygiene Questionnaire (PHQ)'. The face and content validity of the questionnaire was ascertained by three public health experts. The reliability was tested using the Cronbach Alpha statistics and a reliability coefficient of 0.70 was obtained. The questionnaire was constructed by the researcher drawing the items from related literatures reviewed. It has six sections A, B C, D, E, and F. Section A elicit data on the socio-demographic data of the



respondents such as location on a contained composed to extract information on oral hygiene on a modified four point Likert Scale of very high extent (4), high extent (3), low extent (2) and very low extent (1) with seven items, Section C was focused on cloth hygiene with seven items, section D on hand hygiene with six items, section E on body hygiene with 11 items and section F on menstrual hygiene with 10 items, all on a modified four point Likert Scale. Data collection was done by a face to face delivery of the questionnaire to the respondents. Analysis was done with the aid of Statistical Package for Social Science (SPSS) version 23 using mean and z-test at 0.05 level of significance. The guide for decision for the research question was based on the criterion mean of 2.50 whereby items with mean less than the criterion mean were said to be practised to a low extent and while items with mean of 2.50 and above are said to be practised to a high extent.

Results

Table 1: Extent of oral hygiene practice among female secondary school students in rural and urban areas of Obio/Akpor LGA

SN	Oral hygiene practices	Rural (N = 95)		Urban (N = 95)	
		\bar{X}	S.D	\bar{X}	S.D.
1	The use of toothbrush and paste at least twice daily	3.56	.53	3.57	.53
2	Tooth brushing daily prevents bad breathe	3.81	.42	3.70	.81
3	Regular cleaning of the mouth and teeth to prevent tooth decay	3.62	.82	3.55	.84
4	Use of mouth wash to keep the mouth fresh	2.96	1.20	2.76	1.16
5	Use of toothpick and dental floss to remove food particles from in-between the teeth	3.43	.73	3.15	.93
6	Used mouthwash whenever needed	2.77	1.23	2.73	1.18
7	Rinsed mouth with water after taking in any food or drink	3.41	.83	3.49	.71
	Grand mean	3.36	0.82	3.27	0.88

Criterion mean = 2.50

Table 1 shows that overall the extent of oral hygiene practice was high in both rural and urban areas but, higher in rural areas ($\bar{X} = 3.36 \pm 0.82$) than in the urban areas ($\bar{X} = 3.27 \pm 0.88$). Thus, the extent of oral hygiene practice among female secondary school students in Obio/Akpor LGA was higher in rural areas than in the urban areas.



Table 2: Extent of hand hygiene practice among female secondary school students in rural and urban areas of Obio/Akpor LGA

SN	Hand hygiene practices	Rural (N = 95)		Urban (N = 95)	
		\bar{X}	S.D	\bar{X}	S.D.
1	Washing of hands with water and soap may prevent disease regularly	3.60	.76	3.57	.79
2	Use of antibacterial liquid soap to wash hands	3.65	.76	3.42	.88
3	Use of hand towel to clean hands after washing	3.12	1.01	2.83	1.01
4	Regular use of hand sanitizer to prevent cross contamination of diseases	2.98	1.15	2.82	1.05
5	Use of hand serviette to dry the hand after wash	2.97	.75	2.87	.73
6	Avoid putting hand into mouth, eye, nose, or ear regularly	3.21	.89	3.18	.85
	Grand mean	3.25	0.89	3.11	0.88

Criterion mean = 2.50

Table 2 shows that overall, the extent of hand hygiene practice was high in both rural and urban areas but, higher in rural areas ($\bar{X} = 3.25 \pm 0.89$) than in the urban areas ($\bar{X} = 3.11 \pm 0.88$). Thus, the extent of hand hygiene practice among female secondary school students in Obio/Akpor LGA was higher in rural areas than in the urban areas.

Table 3: Extent of cloth hygiene practice among female secondary school students in rural and urban areas of Obio/Akpor LGA

SN	Cloth hygiene practices	Rural (N = 95)		Urban (N = 95)	
		\bar{X}	S.D	\bar{X}	S.D.
1	Wears one cloth more than one time before washing it	3.57	.73	3.63	.61
2	Only wears clothes that are clean	3.88	.32	3.86	.37
3	Washed dirty clothes with soap and clean water	4.00	.00	3.95	.20
4	Dried clothes under sun to help destroy germs	3.75	.52	3.78	.43
5	Changed clothing daily	3.63	.73	3.63	.61
6	Washed clothes regularly	3.43	.69	3.25	.74
7	Pressed clothes with iron regularly before wearing them	3.02	.97	3.22	.80
	Grand mean	3.61	0.56	3.62	0.53

Criterion mean = 2.50

Table 3 shows that overall, the extent of cloth hygiene practice was high in both rural and urban areas but, higher in urban areas ($\bar{X} = 3.62 \pm 0.53$) than in the rural areas ($\bar{X} = 3.61 \pm 0.56$). Thus, the extent of cloth hygiene practice among female secondary school students in Obio/Akpor LGA was higher in urban areas than in the rural areas.



Table 4: Extent of body hygiene practice among female secondary school students in rural and urban areas of Obio/Akpor LGA

SN	Body hygiene practices	Rural (N = 95)		Urban (N = 95)	
		\bar{X}	S.D	\bar{X}	S.D.
1	Bathing with clean water and antibacterial soap at least twice daily	3.57	.72	3.40	.81
2	Washing the hair regularly to prevent infection	3.07	1.11	3.01	1.07
3	Using the teeth to cut fingernails or toe nails	2.75	1.29	3.03	1.17
4	Washing of hands after visiting the toilet prevent contamination of food and diseases?	3.33	.89	3.36	.85
5	Use of cotton swabs to clean the ears	3.70	.54	3.73	.56
6	Use of sterilized shaving stick to clear public hairs	3.74	1.03	3.67	.65
7	Keeping the finger nail trimmed/cut	3.47	.87	3.36	.92
8	The use of deodorant or roll-on to refresh the body	3.28	.95	3.25	.97
9	Use of body spray or perfume for a fresh smell	3.48	.92	3.52	.79
10	Use of cotton swabs to clean nose	2.73	1.24	3.15	1.07
11	Use of pomade/cream to keep the body healthy/fresh	3.63	.88	3.75	.63
Grand mean		3.34	0.94	3.38	0.86

Criterion mean = 2.50

Table 4 shows that overall, the extent of body hygiene practice was high in both rural and urban areas but, higher in urban area ($\bar{X} = 3.38 \pm 0.86$) than in the rural area ($\bar{X} = 3.34 \pm 0.94$). Thus, the extent of body hygiene practice among female secondary school students in Obio/Akpor LGA was higher in urban areas than in the rural areas.



Table 5: Extent of menstrual hygiene practice among female secondary school students in rural and urban areas of Obio/Akpor LGA

SN	Body hygiene practices	Rural (N = 95)		Urban (N = 95)	
		\bar{X}	S.D	\bar{X}	S.D.
1	Cleaned vagina during menstruation	3.67	.88	3.85	.48
2	Used an absorbent material (sanitary pad) during menstruation to absorb blood	3.50	1.05	3.86	.49
3	Changed the absorbent material whenever it is soaked	3.28	1.27	3.82	.68
4	Washed hands before cleaning vagina	3.50	1.04	3.91	.31
5	Washed hands with clean water and soap before changing sanitary pad	3.48	.99	3.46	1.04
6	Forgot to wash hands with soap after changing sanitary pad	1.94	1.23	2.33	1.33
7	Washed vagina before changing sanitary pad	3.40	1.01	3.86	.34
8	Washed hands whenever pad is changed	3.47	1.05	3.86	.37
9	Took bathe at least two times a day during menstruation	3.47	1.02	3.81	.51
10	Compulsorily changed pad and panties during menstruation before sleeping at night	3.52	1.05	3.92	.26
	Grand mean	3.32	1.06	3.66	0.56

Criterion mean = 2.50

Table 5 shows that overall, the extent of menstrual hygiene practice was high in both rural and urban areas but, higher in urban areas ($\bar{X} = 3.66 \pm 0.56$) than in the rural areas ($\bar{X} = 3.32 \pm 1.06$). Thus, the extent of menstrual hygiene practice among female secondary school students in Obio/Akpor LGA was higher in urban areas than in the rural areas.

Table 6: Z-test result showing the significant difference in the extent of oral hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA

Group	N	\bar{X}	SD	df	Z-cal	p-value	Decision
Urban	95	3.28	.46	188	1.31*	0.19	H ₀ Not Rejected
Rural	95	3.37	.43				

*Not Significant; $p > 0.05$.

Table 6 shows that there was no significant difference among female secondary school students in urban and rural areas as the p-value of 0.19 is greater than 0.05 ($Z\text{-cal} = 1.31$, $df = 188$, $p > 0.05$). Therefore, the null hypothesis which stated that there is no significant difference in the extent of oral hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA, Rivers State was not rejected.



Table 7: Z-test result showing the significant difference in the extent of hand hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA

Group	N	\bar{X}	SD	Df	Z-cal	p-value	Decision
Urban	95	3.13	.57	188	1.49*	0.13	H ₀ Not Rejected
Rural	95	3.25	.61				

*Not Significant; $p > 0.05$.

Table 7 shows that there was no significant difference among female secondary school students in urban and rural areas as the p-value of 0.13 is greater than 0.05 (Z-cal = 1.49, df = 188, $p > 0.05$). Therefore, the null hypothesis which stated that there is no significant difference in the extent of hand hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA, Rivers State was not rejected.

Table 8: Z-test result showing the significant difference in the extent of cloth hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA

Group	N	\bar{X}	SD	Df	Z-cal	p-value	Decision
Urban	95	3.62	.32	188	0.23*	0.82	H ₀ Not Rejected
Rural	95	3.61	.30				

*Not Significant; $p > 0.05$.

Table 8 shows that there is no significant difference in cloth hygiene between female secondary school students in urban and rural areas as the p-value of 0.82 is greater than 0.05 (Z-cal = 0.23, df = 188, $p > 0.05$). Therefore, the null hypothesis which stated that there is no significant difference in the extent of cloth hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA, Rivers State was not rejected.

Table 9: Z-test result showing the significant difference in the extent of body hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA

Group	N	\bar{X}	SD	df	Z-cal	p-value	Decision
Urban	95	3.38	.38	188	0.66*	0.51	H ₀ Not Rejected
Rural	95	3.34	.41				

*Not Significant; $p > 0.05$.

Table 9 shows that there is no significant difference in body hygiene practice between female secondary school students in urban and rural areas as the p-value of 0.51 is greater than 0.05 (Z-cal = 0.66, df = 188, $p > 0.05$). Therefore, the null hypothesis which stated that there is no



significant difference in the extent of body hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA, Rivers State was not rejected.

Table 10: Z-test result showing the significant difference in the extent of menstrual hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA

Group	N	\bar{X}	SD	Df	Z-cal	p-value	Decision
Urban	95	3.38	.38	188	0.66*	0.51	H ₀ Not Rejected
Rural	95	3.34	.41				

*Not Significant; $p > 0.05$.

Table 10 shows that there is no significant difference in menstrual hygiene practice between female secondary school students in urban and rural areas those in urban and rural areas as the p-value of 0.51 is greater than 0.05 (Z-cal = 0.66, df = 188, $p > 0.05$). Thus, the null hypothesis which stated that there is no significant difference in the extent of menstrual hygiene practice between rural and urban female secondary school students in Obio/Akpor LGA, Rivers State was not rejected.

Discussion

The result showed that the extent of oral hygiene practice was high in both rural and urban areas but, higher in rural areas than in the urban areas; the tested hypothesis showed no statistically significant difference. This finding is not surprising because possibly those at the rural areas have easier access to natural materials used for the care of the teeth like chewing stick than those at the urban areas. The finding of this study is similar to that of Abeer et al. (2016) whose study on practices related to oral health among university students in Saudi Arabia showed good oral hygiene practice. The finding of this study is in keeping with that of Al-Rifaai et al. (2018) whose study on personal hygiene among college students in Kuwait revealed good oral hygiene practice among the students. This similarity might be due to the homogeneity of the study respondents as the both studies were carried out among students. The findings of the study is not in line with that of Reddy et al. (2014) whose study on Oral health practice among the pre-university students of Mysore city revealed a low extent of oral hygiene practice. The findings of the study is at variance with that of Ali et al. (2013) whose study on personal hygiene in children in urban areas of Lahore revealed that the prevalence of personal hygiene practice including oral hygiene was very low (0.67%). This variation could be attributed to the difference in sample sizes, as the present study used a sample size that is twice what was used in the previous study.

The result showed that the extent of hand hygiene practice was high in both rural and urban areas but, higher in rural areas than in the urban areas; the tested hypothesis showed no statistically significant difference. The finding of this study is in keeping with that of Al-Rifaai et al. (2018) whose study on personal hygiene among college students in Kuwait revealed good hand hygiene practice among the students. This similarity might be due to the homogeneity of the study respondents as the both studies were carried out among students. The findings of the study is at variance with that of Alis et al. (2013) whose study on personal



hygiene in children in urban areas of Lahore revealed that the prevalence of personal hygiene practice including hand hygiene was very low (12.08%). This variation could be attributed to the difference in sample sizes, as the present study used a sample size that is twice what was used in the previous study.

The result showed that the extent of cloth hygiene practice was high in both rural and urban areas but, higher in rural areas than in the urban areas; the tested hypothesis showed no statistically significant difference. The finding of this study is in keeping with that of Al-Rifaa'i et al. (2018) whose study on personal hygiene among college students in Kuwait revealed good cloth hygiene practice among the students. This similarity might be due to the homogeneity of the study respondents as the both studies were carried out among students.

The result showed that the extent of body hygiene practice was high in both rural and urban areas but, higher in rural areas than in the urban areas; the tested hypothesis showed no statistically significant difference. The finding of this study is in keeping with that of Al-Rifaa'i et al. (2018) whose study on personal hygiene among college students in Kuwait revealed good body hygiene practice among the students. This similarity might be due to the homogeneity of the study respondents as the both studies were carried out among students. The findings of the study is at variance with that of Alis et al. (2013) whose study on personal hygiene in children in urban areas of Lahore revealed that the prevalence of personal hygiene practice including body hygiene was very low (6.11%). This variation could be attributed to the difference in sample sizes, as the present study used a sample size that is twice what was used in the previous study.

The result showed that the extent of menstrual hygiene practice was high in both rural and urban areas but, higher in rural areas than in the urban areas; the tested hypothesis showed no statistically significant difference. The finding of this study is similar to that of Omidvar and Begum (2014) who noted that good menstrual hygiene such as bathing and washing of genital tract, changing of pads regularly, and at night before going to bed; and use of sanitary pad or other menstrual absorbents. The finding of this study is in consonance with that of Sharma et al. (2013) which showed that, the respondents practiced washing hands after changing pads. The findings of the study is also in line with that of Upashe et al. (2015) which showed that, more of the girls change their pads or clothes three and above times per day; bath daily with soap during menstruation and clean their external genitalia during menstruation with soap and water. The finding of this study is also similar to that of Seenivasan et al. (2016) which showed that, majority of the respondents practiced washing of genitalia during menstruation. This similarity might be due to the homogeneity of the study respondents as the both studies were carried out among students.

Conclusion and Recommendations

Based on the findings of the study, it was concluded that, personal hygiene measures were practices more in urban areas than in the rural areas, specifically cloth, body and menstrual hygiene. Parents should be involved and adequately monitor their female children to ensure proper oral hygiene. The school authority should write to the government to provide adequate hand washing materials for the students, such as special hand washing sink, towel, detergents, steady running water and soap. The school management should always monitor and flog children whose clothes are dirty; this will make inculcate cloth hygiene. Government should organize health education programmes on the body hygiene of the girl child, in the different secondary schools in the State. The school authority should from time to time organize health



talk aimed at enlightening female students on menstrual hygiene practices, this will help to sustain the good menstrual hygiene practice found among them.

References

- Abeer, A.A.I.S., Mohammed, A., Amritha, G., Anna, A., & Ashraf, E. I. M. (2017). Oral health knowledge, attitude and behavior among students of age 10-18 years old attending Jenadriyah festival Riyadh; a cross-sectional study. *The Saudi Journal for Dental Research*, 7(1), 45-50.
- Ahaiwe, C. C., Elendu, R.E., & Nwoke, C.N. (2021). Assessment of personal hygiene amongst pubertal secondary school students of Divine Christian College, Umuamacham, Umueze, Aba, Abia State. *Abia State University Medical Students' Association Journal*, 13(1), 1-7.
- Alis, A., Aktitar, F., Magbool, A., Safi, W.A., Qamar, M.F., & Zaki, M.A. (2013). Personal hygiene and socio-economic status promoted listeriosis in children in urban area of Lahore. *International Journal of Zoology and Research*, 3(2), 9-18.
- Al-Rifaai J.M., Al Haddad A.M., & Qasem J.A. (2018). Personal hygiene among college students in Kuwait: A Health promotion perspective. *Health Education Promotion*, 7, 92.
- Bloomfield, S.F., & Stanwell, S.R. (2009). The hygiene hypothesis and implications for home hygiene. *International Scientific Forum on Home Hygiene*, 43, 88-109.
- Darby, M., & Walsh, M.M. (2010). Procedures Manual to Accompany Dental Hygiene: Theory and Practice. *Journal America Science*, 7(9), 737-47.
- Das, P., Baker, K.K., Dutta, A., Swain, T., Sahoo, S., & Das, B.S., (2015). Menstrual Hygiene Practices, WASH Access and the Risk of Urogenital Infection in Women from Odisha, India. *PLoS One*, 10(6), e0130777.
- Fehintola, F.O., Fehintola, A.O., Aremu, A.O., Idowu, A., Ogunlaja, O.A., & Ogunlaja, I.P. (2017). Assessment of knowledge, attitude and practice about menstruation and menstrual hygiene among secondary high school girls in Ogbomoso, Oyo state, Nigeria. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 6(5), 1726–32.
- Ghose, J. K., Rahman, M. M., Hassan, J., Khan, M. S., & Alam, A. A. (2012). Knowledge and practicing behavior related to personal hygiene among the secondary school students of Mymensingh Sadar Upazilla, Bangladesh. *Microbes and Health*, 1(1), 34-137.
- Irish, L.A. (2014). The role of hygiene in promoting public health: A review of empirical evidence. *Sleep Medicine Reviews. Contemporary Clinical Trials*, 45, 139–45.
- Lee, D.W., & Moon, I.S. (2011). The plaque-removing efficacy of a single-tufted brush on the lingual and buccal surfaces of the molars. *Journal of Periodontal & Implant Science*, 41 (3), 131-4.



- Omidvar, S., & Begum, K., (2014). Factors influencing hygienic practices during menses among girls from south India- A cross sectional study. *International Journal of Collaborative Research on Internal Medicine and Public Health*, 3, 1-7.
- Paliwal, V., Paliwal, C. K., Fatma, N., & Chaturvedi, S. (2014). Personal hygiene habits among school-going children in rural areas of Jaipur, Rajasthan, India. *International Journal of Scientific Research and Reviews*, 3(2), 126-142
- Rani, P. (2017). Practices of Personal Hygiene among Hostel Women in Chandigarh. *International Journal of Research in Social Sciences*, 4, 2249-2496
- Reddy V., Bennadi, D., Gaduputi, S., Kshetrimayum, N., Siluvai, S., & Reddy, C.V. (2014). Oral health related knowledge, attitude and practice among the pre-university students of Mysore city. *Journal of International Society of Preventive & Community Dentistry*, 4(3), 154-158. <http://doi.org/10.4103/2231-0762.142012>.
- Sharma, N., Sharma, P., Sharma, N., Wavare, R.R., Gautam, B. & Sharma, M., (2013). A cross sectional study of knowledge, attitude and practices of menstrual hygiene among medical students in north India. *Journal of Phytopharmacology*, 2(5), 28-37.
- Seenivasan, P., Priya, K.C., Rajeswari, C., Akshaya, C.C., Sabharritha, G., Sowmya, K.R., & Banu, S., (2016). Knowledge, attitude and practices related to menstruation among adolescent girls in Chennai. *Journal of Clinical Science and Research*, 5, 164 - 70.
- Tietjen, L., & Bossemeyer, D. (2016). Infection prevention guidelines for healthcare facilities with limited resources. *International Journal Community Medicine and Public Health*, 4, 4520–6
- United Nations Children’s Fund (2012). *Child Friendly Schools Manual: Water, Sanitation and Hygiene (WASH) in Schools*. UNICEF.
- UNICEF (2019). *Guidance on Menstrual Health and Hygiene*. UNICEF.
- World Health Organization (2012). *Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage*. WHO.
- Zegeye, D. T., Megabiaw, B., & Mulu, A., (2013). Age at menarche and the menstrual pattern of secondary school adolescents in northwest Ethiopia. *BMC Women’s Health*, 9(29), 1472-6874.