



# Assessment of the Personal Hygiene Practices among Primary Schools Children, Sudan: A Cross-Sectional School-Based Study

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## Research Article

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## Abstract

The importance of school health has acknowledged across countries since the beginning of the 20th century. Good personal hygiene now forms part of the primary health prevention strategy, and this is effective in reducing morbidity and mortality in children. The current study conducted to assess the personal hygiene practices among primary school children. An observational descriptive cross-sectional facility-based study conducted among 276 pupils during the period from January to February 2016, they were interviewed using a designed pre-tested questionnaire. The study showed that (55.4%) of school's children keeping their hair clean, (76.1%) brushing their teeth daily, (60.1%) pruning their nails, (66.3%) taking daily bath, (77.2%) wearing clean clothes, (47.1%) taking bathing after playing, and all children among study population wearing shoes while coming to school. The boys showed better hand hygiene practices before eating rather than the girls (39.3% & 37.6%), respectively. Statistically, no significant association observed between practices of personal hygiene among study group and educational level of their mothers, and the statistical association observed between (cleaning hair, trimming nails, washing hands after using the toilet) and gender variable ( $P < 0.05$ ). The results of the current study revealed that a large number of primary school pupils had good personal hygiene. It was also evident that good personal hygiene practices manifested in girls than in boy's ones.

**Keywords:** Personal Hygiene; School Children; Khartoum State; Sudan

## Introduction

Personal hygiene aims to promote standards of personal cleanliness within the setting of the condition where people live [1]. Personal hygiene includes bathing, clothing, washing hands after toilet, care of nails, feet, and teeth; spitting, coughing, sneezing, personal appearance, and healthy habits inculcation in the young people [2,3]. Personal hygiene training should start at a very young age and should continue

through school-age [4,5]. Also, it recognized that improved personal hygiene is effective in preventing transmission of many diseases [6-9]. According to the World Health Organization (WHO), about two million people every year die due to diarrheal diseases [10]. The majority of deaths occur among children under the age of five years [11]. Hygiene practices prevent or minimize disease and the spreading of disease. The microbial growth due to germs may lead to various infectious diseases among children [12,13]. Since

the beginning of the 20th century, the importance of school health has been recognized across countries [14]. The condition of school health may be worse in communities with poor socio-economic conditions and deteriorated living situations [15,16].

Good personal hygiene is now part of the primary health prevention strategy; it has been proven effective in reducing childhood morbidity and mortality [17,18]. School is the place where health education granted about crucial aspects of hygiene, environment, and sanitation, as well as social customs [19,20]. UNICEF has published extensive material on school sanitation and hygiene intended at facilitating that learners be agents of change as they live in the community. It achieved by evaluation of the hardware aspects, such as the physical infrastructure, sanitation facilities at schools and the availability of safe water [21]. Based on the Multiple Indicator Cluster Survey (MICS) in Sudan 2014, only (32.9%) of Sudanese household members used a non-shared improved sanitation facility [22], and that means two-third of people living in worse sanitation condition. Therefore, this current study aimed to assess the personal hygiene practices among primary school Sudanese children to explore their health status and distinguish their personal hygiene practices.

## Materials and Methods

### Study Design

A school-based cross-sectional quantitative study conducted among primary school children in the peripheral site of Karari locality, Omdurman city, Khartoum state, Sudan to assess personal hygiene practices among school children. The study included students from class one to class eight during the period from January to February 2016.

### Sampling Technique

Systematic randomizing sampling design employed as the sampling method where the number of students from the registry data of school taken as the study population (891), and dividing by sampling frame size (276), then randomly selected starting point by listing number from 1 to 10 and used fixed periodic interval (3) to obtain desired sample size. The sample size based on a total of the population has calculated according to the Slovin formula and the sample size estimates (276) participants, and all covered by study with full a structured questionnaire.

### Method of Data Collection

A pilot study involving ten students was carried out at the school understudy to test the reliability and validity of the questionnaire. The designed questionnaire was

modified, based on the results of the pilot study. The group of students who tested in the pilot study excluded from the total study sample. Before data collection, an appointment with the school's director and school teachers took place to introduce them to how they can help students to fill out the questionnaire. Data were collected using a structured pre-tested questionnaire with the participation of school teachers and reviewed by the researcher which includes the socio-demographic variables such as (age group, sex, etc) and other variables such as (clean of hands, brushing teeth, bathing, etc).

### Data Analysis

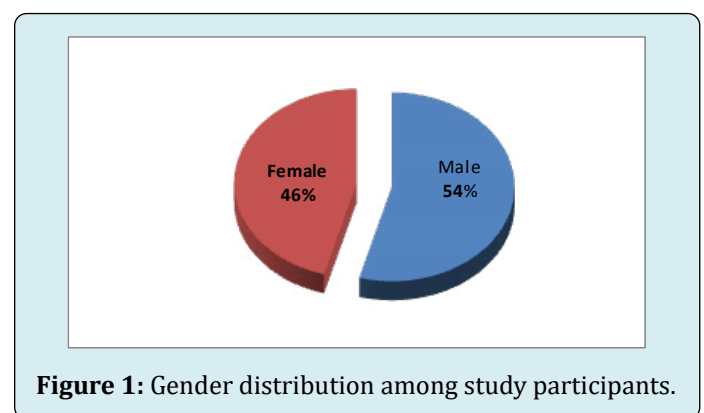
Analysis of data carried using statistical package for social sciences (SPSS) version 23. The data presented in tables and figures as frequency and percentage. The difference between variables checked using the Chi-Square test, and the Probability value less than 0.05 ( $p < 0.05$ ) considered significant.

### Ethical Considerations

The study protocol reviewed and approved by the Public Health Research Board, University of El Imam El Mahdi, and White Nile State, Sudan.

### Results

The demographic and socioeconomic characteristics variables of the primary school children who participated in this study as follows; Two hundred and seventy-six primary school children enrolled in the present study. Boys were 150 (54.3%) and the girls are 126 (45.7%) as shown in Figure 1.

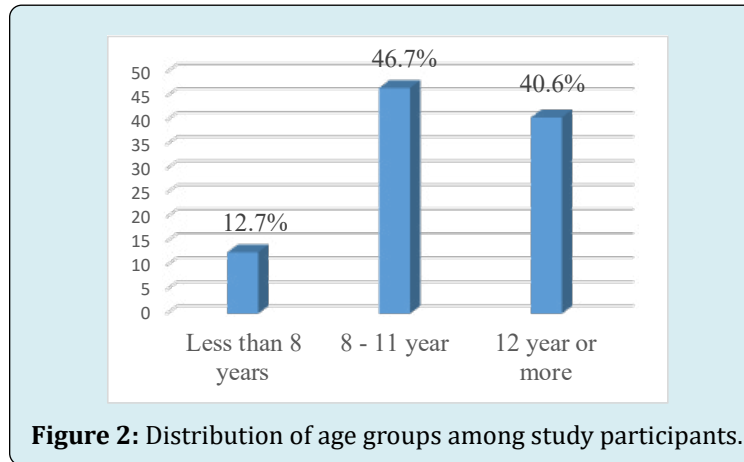


**Figure 1:** Gender distribution among study participants.

An estimate of maternal and household illiterate were (17%) and (8%) respectively. (12.7%) of children age was less than eight years, (46.7%) from 8-11 years, and (40.6%) is more than 12 years as expressed in Figure 2. The distribution of personal hygiene practices among study

subjects presented in Table1. Statistically, no significant association observed between practices of personal hygiene among study group and educational level of their mothers. The Association between wearing clean clothes and

different demographic variables was explained in Table 2. The statistical association observed between (cleaning hair, trimming nails, washing hands after using the toilet) and gender variable ( $P < 0.05$ ).



Indicator	Always (M/F)%	Frequently(M/F)%	Sometimes(M/F)%	Never(M/F)%	*P-Value
Daily Brushing	112(74.7)/98(77.8)	20(13.3)/17(13.5)	17(11.3)/11(8.7)	1(0.7)/0(0.0)	0.709
Cutting Nails	94(62.7)/ 72(57.1)	49(32.7)/34(26.9)	7(4.7)/18(14.3)	0(0.0)/2(1.6)	0.015
Wear Clean Clothes	112(74.7)/101(80.2)	29(19.3)/23(18.3)	7(4.7)/2(1.6)	2(1.3)/0(0.0)	0.263
Daily Bathing	99(66)/ 84(66.7)	42(28)/40(31.7)	9(6)/ 2(1.6)	0(0.0)/0(0.0)	0.159
Cleaning Hair	86(57.3)/ 67(53.2)	49(32.7)/33(26.2)	14(9.3)/9(7.1)	1(0.7)/17(13.5)	<0.001
Washing Hands After Toilet	50(33.3)/ 65(51.6)	34(22.7)/31(24.6)	59(39.3)/23(18.3)	7(4.7)/7(5.6)	<0.001
Washing Hands Before Eating	108(72)/ 104(82.5)	27(18)/16(12.7)	14(9.3)/6(4.8)	1(0.7)/0(0.0)	0.169

**Table 1:** Distribution of personal hygiene practices among study subjects (n= 276).

M- Male, F- Female, %- percent, \* $p < 0.05$  was considered statistically significant.

Variables	Wear Clean Clothes				Total (%)	*P-Value
	Always (%)	Frequently (%)	Sometimes (%)	Never (%)		
<b>Education Of Child-Mother</b>						
Graduate	54(19.7)	13(4.8)	8.0(2.8)	1.0(0.3)	76(27.6)	0.233
Basic/Secondary School	125(45.3)	19(6.8)	9.0(3.4)	0.0(0.0)	153(55.5)	
Illiterate	33(11.9)	11(3.9)	3.0(1.1)	0.0(0.0)	47(16.9)	
<b>Occupation Of Household</b>						
Work	190(69)	49(17.7)	9(3)	1(0.3)	249(90)	0.12
Not Work	23(8.7)	3(1)	0	1(0.3)	27(10)	
<b>Number Of Family Members</b>						
Less Than 6 Members	38(14)	14(5.4)	2(0.6)	0(0.0)	54(20)	0.181
6 Members	43(15.4)	3(1)	1(0.3)	1(0.3)	48(17)	
More Than 6 Members	132(48)	35(12.7)	6(2)	1(0.3)	174(63)	

**Table 2:** Association Between Wearing Clean Clothes and Different Demographic Variables (n= 276).

(%) - percent, \* $p < 0.05$  considered statistically significant

## Discussion

The demographic and socioeconomic characteristics variables of the primary school children who participated in this study as follows; Two hundred and sixty-seven primary school children enrolled in the present study. Boys were 150 (54.3 %) and the girls are 126 (45.7%). An estimate of maternal and household illiterate were (17%) and (8%) respectively. (12.7%) of children, age was less than eight years, (46.7%) from 8-11 years, and (40.6%) are more than 12 years old. This study finds that 76.8% always washing their hand before eating, 41.7% always washing hand after toilet, 55.4% always clean their hair, 66.3% always have daily bathing, 77.2% always wearing clean clothes when they come to school, 76.1% always brushing their teeth daily, 60.1 % always cutting their nails, 47.1% always bathing after playing and all study group wearing shoes when they come to school. The current study showed that the children who were always washing their hands with soap before eating were (76.8%), while (0.4%) never wash their hands with soap before eating; (41.7%) of student were washed their hand with soap after using the toilet and it is a little percent due to lack of facilities and hygienic materials beside the toilets. Comparing to study conducted by Arikan, 2014 "(94.2%) reported that they are washing their hands with soap after using the toilet and (75.1%) reported that they are washing their hands with soap before the meals" [8]. Current study showed that (55.4%) of school's children keeping their hair clean, (76.1%) brushing their teeth daily, (60.1%) pruning their nails, (66.3%) taking daily bath, (77.2%) wearing clean clothes, (47.1%) bathing after playing, and all children among study population wearing shoes while coming to school. These observations indicate that hygienic practices for all the indicators of personal hygiene were not corrupt but it needs more effort to encourage students for more hygienic practices. A study conducted in India indicated that (94.23%) of primary school children washed their hands after visiting the toilet and (84.62%) washed their hands before eating, and this is more than what mentioned in the current study. Also (48.08%) combed their hair, (50%) brushed their teeth, (76.92%) trimmed their nails, (42.31%) took a daily bath, (55.77%) wore shoes, and only (12.5%) wore clean clothes [15]. Also, a study conducted in Ghana found that only (5%) washed their hands before eating. None of the respondents washed hands after the toilet, with (7%) washing their hands after eating [23]. Another study carried out in Ethiopia showed, only (36.2%) of students who washed their hands reported using soap after defecation [24]. Well, the study took place in Bagdad showed that (56%) of student washing their hands before eating and (91%) after using the toilet [25].

In the present study, girls showed better hand hygienic practices than boys before eating (83% & 72%) respectively,

in the other hand, girls indicated healthier hands practices after using the toilet (51.6%) compared with (33.3%) for boys because the girls give more attention to their appearance and also help mothers cooking at home; for that, they keep hands clean. In the study conducted in northern India, the girls had better handwashing practices than the boys before eating at home (70.4% vs. 56.3%), as well as at school (92.6% vs. 79.6%) [11]. In the present study, (0.4%) of pupils had poor hands hygiene before eating and (5.1) after using the toilet. Another study conducted in India 2013, it was found that (65.9%) of girls had good personal hygiene compared to boys (60.5%), and about (28.8%) of boys had poor personal hygiene, compared to girls (25.5%) [14]. The statistical association observed between cleaning hair, trimming nails, washing hands after using toilet and gender ( $P < 0.05$ ) and this is due to the continued interest of girls in their appearance and their stay at home for more extended periods rather than boys, therefore, they have more care to themselves. Statistically, there is no significant association observed between personal hygiene practices among primary school children and the educational level of their mothers.

## Limitation of the Study

The limitation of this current study is that it did not cover several schools due to inadequate material resources and lack of funding.

## Conclusion

This study aimed to assess the personal hygiene practices among primary school children. This result revealed that a large number of primary school pupils had good personal hygiene. It was also evident that good personal hygiene practices manifested in girls than in boy's ones.

## Competing Interests

The authors declare that they have no competing interests.

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