

## Original Article

# State of personal hygiene among primary school children: A community based cohort study

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## ABSTRACT

Good personal hygiene in primary school children could be effective towards preventing infectious diseases. This work examined personal cleanliness of primary school children in Banki based on the following variables: bathing, state of uniforms, hair, nails and oral hygiene. One hundred and fifty primary school children in Banki community were selected using the cluster random sampling method. Analysis of variance was used to compare means and to test for significance of data, and coefficient of correlation to investigate the relationship between cleanliness and age of subjects. There were 87 (58 %) boys and 63 (42 %) girls in a ratio of 1.4:1. Ninety six (64 %) pupils belong to low socioeconomic class. Whereas, 53 (35.3 %) were found within 11-13 years age group, the overall mean age was 9 years (Standard deviation [SD] was 2.2), 95 CI (7.0 - 11.0) years. Comparing means for the different categories of personal hygiene, there was significant difference ( $F= 61.47$ ,  $p < 0.0001$ ). General personal cleanliness in our participants improved with age,

and a positive significant correlation was observed between age and personal cleanliness in ( $r = 0.971$ ,  $p = 0.026$ ). In conclusion, significant number of primary school pupils in Banki community had good personal hygiene, which was observed to be directly proportional with age. Therefore, all efforts towards quality health education on personal hygiene as a means of primary prevention of illnesses in primary school pupils should be sustained.

## Key words

Personal hygiene; Primary school children; Banki; Nigeria.

## INTRODUCTION

Personal hygiene is a public health tool that is used for disease prevention and health promotion in individuals, families and communities. Winslow in 1920 observed that personal hygiene can be improved by educating individuals in communities on basic tips of achieving personal cleanliness through their organized efforts and informed choices

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[1]. Cleanliness in individuals in communities can reduce threats especially by communicable diseases, thereby improving the overall health of a community based on population health analysis [1]. The focus of good personal hygiene is to prevent diseases, injuries and other health conditions through surveillance and the promotion of healthy behavior in aspects relevant to human health. It may prevent health problems from happening or re-occurring by implementing educational programs, developing policies, administering services, and conducting research [2]. Good personal hygiene now forms part of primary health prevention strategy, this has been found to be effective by reducing morbidity and mortality in children [3]. One important tool that could be used to reduce child mortality from communicable diseases may be health education especially to pupils in primary schools [4].

Personal hygiene, which is also referred to as personal care, includes the following: bathing, hair, nail, foot, genital and dental cares, and washing of clothing among others. Grooming is caring for fingernails and hair, examples of these activities would be barbing of hairs and trimming of fingernails. Health education being taught to primary school pupils may improve their personal hygiene and overall wellbeing of these children. This in turn would ensure punctuality to school resulting in better academic performance. This work identified personal cleanliness of primary school children in Banki using parameters as bathing, state of uniforms, hair, nails and oral hygiene. To our knowledge, limited data exist on this subject in developing countries like Nigeria and no such study has been done before in Borno state.

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## Materials and Methods

### Study Area

The study was carried out at Banki community of Bama local council in collaboration with the University of Maiduguri Teaching Hospital (UMTH), Borno state,

Nigeria. Apart from being the largest health facility in the area, UMTH serves as a referral centre for the six North-Eastern States and neighboring countries of Chad, Cameroon and Niger Republics.

### Ethical Considerations

The study protocol was authorised by the Bama local government authority, medical research and ethics committee of the UMTH, and principals of the chosen schools. Consent was sought from the parents/care givers of our participants. The approval was on the agreement that anonymity must be maintained, best practices be ensured, and that every finding would be treated with utmost confidentiality and for the purpose of this research only. All work was performed according to the international guidelines for human experimentation in clinical research [5].

### Study design/ Sampling Technique/ Study Population

The study was a cross-sectional randomized descriptive study of primary school pupils from three different primary schools in Banki. Fifty pupils were selected from each primary school. Primary schools were selected using simple random sampling methods, whereas the pupils that participated in this study were enrolled using the cluster random sampling method. Children were requested to obtain permission from their parents or guardian to participate in the study.

The minimum sample size was determined using a statistical formula that compares mean and standard deviation of two populations of children from similar study at effect size of 0.2, alpha levels at 0.05 and power at 90%. [4, 6]. This equalled 105; however, 40% of this was added to maximize power. Therefore, the study population comprised of 150 primary school pupils. Participation in this study was voluntary. A child was eligible for participation in the study if he/she has met the following study inclusion criteria: (i) had no known underlying mental illness, (ii) had no known underlying learning difficulties. Pupils, who

did not obtain parental consent or personally refused to participate in the study or did not return their consent forms, were excluded from the study.

A semi structured questionnaire completed by parents/subjects was used to obtain information on: age of pupils, parental education and occupation. Child socioeconomic class (SEC) was determined by Oyedeji scoring [13] criteria using the education and occupation of their parents. Reliability of the questionnaire was assured by one investigator administering the questionnaire to all participants. Validity of the questionnaire was guaranteed by conducting a pilot study among five randomly selected children. An in-depth interview/inspection was used to generate data on the hygiene of our study group. These included bathing, state of uniforms, hairs, nails and oral hygiene. The main variable studied was the relationship between personal cleanliness and health education of these primary school pupils. Other variables that were studied were age, sex and socioeconomic class of the participants.

## Data Analysis

Means and standard deviations (SD) were calculated for the different categories of personal hygiene,

which included bathing, state of uniforms, hair, nails and oral hygiene. Percentages and 95% confidence interval of the mean were calculated. Analysis of variance (ANOVA) was used to investigate the effect of mean among pupils in the different categories of personal hygiene. Correlation coefficient was used to investigate the relationship of pupils that were clean relative to their age. Statistical analysis was performed using statistical package for social science (SPSS) statistical software version 16, Illinois, Chicago USA. Statistical significance was defined as a p value <0.05.

## RESULTS

The demographic and SEC variables of the primary school pupils who participated in this study are shown in Table 1. One hundred and fifty primary school pupils were enrolled in the present study. Boys were 87 (58 %) and the ratio of boys to girls was 1.4:1. All 150 (100 %) of the study participants are being taught health education in school as part of educational curriculum. Ninety six (64 %) pupils belong to low SEC, and 57 (38 %) were found within 11-13 years age group. Overall mean age was 9years (SD 2.2), 95 CI (7.0-11.0) years.

Table 1 - Sex, socioeconomic class and age group distribution of the study group

Parameters	Frequency	Percentage (%)
<b>Sex of pupils</b>		
Boys	87	58.0
Girls	63	42.0
<b>Socioeconomic class</b>		
High	54	36.0
Low	96	64.0
<b>Age group (years)</b>		
5-7	45	30.0
8-10	52	34.7
11-13	53	35.3

Personal hygiene in relation to age of the subjects was demonstrated (Table 2). The mean comparison of the different categories of personal hygiene was significant ( $F= 61.47, p < 0.0001$ ). General personal

cleanliness and neatness in our study population improved with age. A positive significant correlation was observed between age and personal cleanliness in our participants ( $r = 0.971, p = 0.026$ ).

Table 2 - Relationship between age and personal hygiene of the study group

Personal hygiene of primary school pupils					
Age (years)	Clean/neat (%)	Dirty uniform/ unkempt hair (%)	Poor oral hygiene (%)	Unkempt nails (%)	Total (%)
5-7	25 (16.6)	5 (3.4)	9 (6.0)	6 (4.0)	45 (30.0)
8-10	40 (26.7)	3 (2.0)	5 (3.3)	4 (2.7)	52 (34.7)
11-13	46 (30.7)	2 (1.3)	3 (2.0)	2 (1.3)	53 (35.3)
Total (%)	111 (74.0)	10 (6.7)	17 (11.3)	12 (8.0)	150 (100)
Mean (SD)	37 (14.7)	3.33 (1.5)	5.67 (3.1)	4 (2)	-

SD = Standard deviation.

## DISCUSSION

Most of our study population had good personal hygiene. They had their bath, and also had clean uniforms, well groomed nails, kempt hair and good oral hygiene. This observation may not be unconnected with health education being taught to these children in schools. These children were taught basic activities of daily living which included regular bath and mouth washing, washing of their clothes including uniforms, cutting of overgrown nails and hairs. To ensure that the pupils adhere and attend utmost personal cleanliness, regular inspection was adopted by the schools. Similar findings were observed by authors elsewhere, where health education was found to be an effective tool in achieving cleanliness in children [4]. Generally, the context in which an individual

lives is of great importance for his health status and quality of life. It is increasingly recognized that health is maintained and improved not only through the advancement and application of health technology, but also through simple disease preventive measures like personal hygiene [2,3,7].

Personal hygiene has been taught to families and is now being taught in schools through health education [8]. The elementary form of it is the one taught in primary schools. Some colleagues have argued on the importance of a child's SEC as a contributor [8]. Parents that are enlightened on habits that promote good personal hygiene will relay same to their siblings and those that are affluent use their resources to ensure optimum hygiene of their wards. Based on rational reasoning, their argument would hold, however, health

education that promotes quality personal hygiene may stand out as most important determinant of personal hygiene [4]. This further explains why the majority of our study group, which belongs to low SEC, had good personal hygiene.

Of note is that age contributed to personal hygiene in present study; children that are advanced in age had better personal hygiene. This might be related to developmental adaptability of children as they increase in age. Ability to comprehend and apply basic personal hygiene tips would be improved in older compared with younger children. This concurs with observations of another study [10]. It is believed that personal hygiene in older children depends also on active, passive, and assisted cues they observed from people and adopt in an integrated manner [10]. They are also able to do personal hygiene practices such as bathing and washing of hands with soap; brushing of teeth and many others better than their younger counterparts.

Nevertheless, caution may be needed in generalizing the results of the current study since only a small group of children residing in Banki community have

participated. Moreover, the findings may be attributed to a range of unproven causes such as cultural and religious beliefs. It is recommended that larger number of schools and more children should be included in future studies of this kind so as to obtain a representative cross-section of children in Borno state.

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## CONCLUSION

The results of current study revealed that a large number of primary school pupils in Banki community who were taught basic personal hygiene tips had good personal hygiene. It was also evident that good personal hygiene practices were exhibited in older children than in younger ones. This data suggest the need for quality health education on personal hygiene as a mean of primary prevention of illnesses in primary schools.

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