

Knowledge, attitude and practice of personal hygiene and its predictors: A school-based study among adolescent girls in an urban slum

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Received: June 19, 2017; Accepted: July 06, 2017

ABSTRACT

Background: Personal hygiene plays a pivotal role in maintaining proper health. Adolescent girls being the future mothers are the subjects to be considered for improvement of personal hygiene and dietary habits. **Objectives:** The study was conducted to assess the status of knowledge, attitude, practice (KAP) of personal hygiene, dietary habits and to find out its predictors among school going adolescent girls in a slum area of Kolkata. **Materials and Methods:** A school-based cross-sectional study was conducted in a Government Secondary Girls' school situated in a slum area of Kolkata. A total of 327 adolescent girls of Class V-VIII were included by complete enumeration method and interviewed with a predesigned, pretested questionnaire along with a checklist to assess KAP of personal hygiene and dietary habits after taking informed consent from their guardians. **Results:** The mean age of the participants was 12.17 ± 1.255 years. Regarding the knowledge of personal hygiene and dietary habits, majority or near majority had correct knowledge of proper care of hair (94.8%), covering of mouth during coughing or sneezing (43.43%), care of nails (46.79%), hand washing (66.36%), necessity of daily bathing (64.53%), and wearing clean clothes (62.39%). Most of them had proper attitude to care of hair (96.9%), covering of mouth during coughing or sneezing (59.3%), cleansing of mouth after feeding (47.4%), hand washing (90.8%), necessity of daily bathing (62.7%), and daily changing of undergarments (60.9%). However, these knowledge and attitude were not reflected in their practices. Multivariate analyses revealed religion, socioeconomic status, type of family and parental education were significant predictors of status of personal hygiene. **Conclusion:** Continuous health education and behavioral change communication programs are needed to lift up the proper practices of basic personal hygiene of adolescent girls to bring them up to a healthy society.


KEY WORDS: Adolescent; Female; Hygiene; Poverty Areas; School

INTRODUCTION

Hygiene is derived from "Hygeia" - the goddess of health in Greek mythology. It is defined as the science of health and embraces all factors which contribute to healthful living.^[1]

Personal hygiene includes bathing, clothing, washing hands after toilet, care of nails, feet and teeth. The aim of personal hygiene is to promote standards of personal cleanliness within the setting of the condition where people live. Every year approximately 1.5 million under-five children die from diarrhea due to unsafe water, lack of sanitary, and hygiene.^[2]

The slum children are more vulnerable to the diseases arising out of poor personal hygiene practices such as diarrhea, worm infestation, spread of respiratory infections, inadequate nutrition leading to anaemia, malnutrition, and vitamin deficiency as a result of overcrowding, low socioeconomic status, inadequate water supply and lack of sanitary.^[3]

Access this article online	
Website: http://www.ijmsph.com	Quick Response code
DOI: 10.5455/ijmsph.2017.0617706072017	

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Adolescent girls will become future mothers in the community. Practices of any kind inculcated in them will pass on to the next generation and will influence the future community.^[4] Schools are often the first contact point where children learn healthy habits from teachers or other kids. Approximately 6.3 lakh schools in India cater to one of the largest groups of school going children including both primary and upper primary schools.^[5] Despite the fact that these simple personal hygiene practices can go in preventing a lot of diseases this topic has been neglected both in daily life and in literature. Researches were done to assess the status of personal hygiene among primary school children in slum area of Kolkata,^[6,7] while studies on adolescent girls in this issue of immense importance are still in wanting.

With this backdrop, this study aimed to assess the knowledge, attitude, and practice (KAP) of personal hygiene, dietary habits and factors influencing the same among the adolescent girls of a Government school in a slum area of Kolkata.

MATERIALS AND METHODS

A cross-sectional study was conducted in a Government secondary girls' school situated in slum area of Behala West circle of Kolkata district. The school was selected purposively with the study period of 2 months (May-June 2012). Secondary school was undertaken for this study as students of primary schools were not able to respond properly to the questionnaire prepared.

Institutional ethical clearance was obtained from Institutional Ethics Committee of All India Institute of Hygiene and Public Health and necessary permissions from respective authorities were obtained before conducting the study. Informed consent was taken from guardian of every student through parent-teacher meeting explaining the need and methods applied and undisclosed of identity in the study.

All the students of Class V-VIII, attending the school during the study period were the study population. Guardians not giving consent or students studying in Class IX and X were excluded from the study due to examination and academic constraints. Thus, a total of 327 students of Class V-VIII were included in this study by complete enumeration method.

The study tools consisted of consent forms, information sheets, school registers, a predesigned, pretested schedule in vernacular to record the sociodemographic and economic information, KAP of the students regarding personal hygiene practices, dietary habits and checklist for recording unhealthy practices regarding personal hygiene and dietary habits. The questionnaire was first prepared in English. Then, it was translated into Bengali by a linguistic expert keeping semantic equivalence. To check the translation, it was retranslated back into English by two independent researchers who were

unaware of the first English version. Face validity of each item had been checked from previous researches in the presence of experts. They also decided the content validity of the each domain. Reliability was checked by test-retest method ($r = 0.9$). Pretesting followed by pilot testing was done. Necessary corrections and modifications were made accordingly. The final schedule consisted of 20 questions each to assess KAPs regarding personal hygiene and dietary habits respectively making a total of 60 questions all together. Scores were allotted for each item with maximum attainable score in KAP (assessed through questionnaire + checklist) of personal hygiene being 20, 20 and 64.

Statistical Analysis

Data were entered in SPSS version 20.0 and analyzed subsequently. Odds ratios (univariate regression) were calculated to predict the strength of association between the dependent and the independent variables. Multivariate logistic regression had been done to find out the strength of association between dependent variable and the independent variables after adjusting for all the independent variables. All the independent variables which were significantly associated with dependent variable in univariate regression or having biological plausibility to be associated with dependent variable, were entered in the multivariate logistic model (LINK FUNCTION=LOGISTIC) using enter method. Hosmer-Lemeshow test was done to check model fitness ($P > 0.05 =$ good fit). Nagelkerke R^2 (a pseudo R^2) value had been mentioned in each model to demonstrate the proportion of variability of the dependent variable explained by the predictor variables.

RESULTS

Majority of the students belonged to the age group 10-12 years (58.5%), Hindu religion (69.7%), joint family (58.4%), and social Class IV and V according to Modified Prasad Scale 2012 (89.9%). Most of the fathers (57.2%) and mothers (56.6%) of the students had completed their education up to primary level. Majority of the participants (53.7%) belonged to Class V and VI. Number of students gradually reduced in the higher classes. A huge number of the students (52.9%) used community latrine. However, a significant number of students (40.9%) also used to go for open field defecation and micturition. More than half of the study population (51.9%) used roadside tap/tube well/well for taking bath.

Regarding the knowledge of personal hygiene and dietary habits, majority or near majority had correct knowledge of proper care of hair (94.8%), covering of mouth during coughing or sneezing (43.43%), care of nails (46.79%), hand washing (66.36%), necessity of daily bathing (64.53%), and wearing clean clothes (62.39%). They did not show adequate knowledge regarding care of teeth, wearing shoes and taking fruits and vegetables in the regular diet (Table 1).

Majority had proper attitude to care of hair (96.9%), covering of mouth during coughing or sneezing (59.3%), cleansing of mouth after feeding (47.4%), hand washing (90.8%), necessity of daily bathing (62.7%) and daily changing of undergarments (60.9%). They did not show adequate attitude regarding bad effects of nose picking, use of safety pin for cleansing ear, worm infestation as a result of sweets and chocolates consumption, use of ash for cleaning teeth, taking fruits, vegetables and animal proteins in regular diet, intake of extra salt with cooked food, and effects of regular consumption of oily foods (Table 2).

Regarding the practices, none of the students used separate comb or separate towel to dry their body. Most (53.8%) of the students were found with uncombed or unclean hair. Majority (53.8%) of students either rarely or never used shampoo or soap to wash hair in a month. Students brushing their tooth in the morning only were 82.9%, while 99.7% did not brush their teeth both in the morning and at the night. Only 27.2% of them use toothpaste and toothbrush daily for cleansing theirteeth, while other means such as toothpowder, neem stem, ash and mud were also frequently used. Halitosis was found among 76.1%, while 62.4% had stained tooth. Long and dirty nails were found in 89.3% of the students. Only 43.7% of the students used soap and water daily after defecation, while others were using only water, ash, mud etc.

Majority (87.5%) did not wash their hands before taking food, while majority (67.6%) used to take bath daily, but 51.68% and 57.2% did not change their undergarments and uniform daily. Most of them (82%) were not found to use handkerchief during observation. Students consuming green leafy vegetables in <3 days per week were 62.7%, while 79.5% were not eating any kind of fruits in a week. Extra salt with the served meal was consumed by 75.6%. Majority (49.8% and 88.7% respectively) of them were taking animal proteins 1-3 days per week and not taking any milk or its products at all indicating poor dietary habits.

Model 1 and 2 revealed students of Muslim religion, studying in Class V and VI, belonging to joint family and social Class V (lower socioeconomic status) and with low maternal educational background had statistically significant higher odds of poor knowledge and attitude regarding personal hygiene and dietary habits after adjusting for other variables in multivariate logistic model.

Model 3 and 4 showed Muslim students, belonging to joint family and social Class V (lower socioeconomic status) and with low parental educational background had statistically significant higher odds of poor practices and overall poor KAP of personal hygiene and dietary habits (Table 3).

Table 1: Distribution of students according to correct response regarding knowledge of personal hygiene and dietary habits ($n=327$)

Knowledge regarding personal hygiene and dietary habits	Total correct response n (%)
Why it is necessary to clean & comb our hair daily?	310 (94.8)
Why it is necessary to keep our eyes clean?	68 (20.795)
What will you do if dust particle enters into eyes?	117 (35.78)
Coughing or sneezing without covering our mouth and nose cause which of the following problems?	142 (43.43)
Cleansing ear with pencil or pen or stick can cause which of the following?	113 (34.57)
Which event does not occur if teeth are not brushed regularly?	0 (0.0)
With which of the following tooth brushing is best done?	26 (7.95)
At which time of the day one should brush his/her teeth?	31 (9.48)
How does regular cleaning and trimming of nails help us?	153 (46.79)
Whether hand washing is required before each feeding?	217 (66.36)
With which of the following hand washing is best done after passing stool?	79 (24.16)
How does washing hands before eating help us?	69 (21.1)
Which of the following diseases occurs due to not bathing daily?	211 (64.53)
Which of the following diseases can be prevented by wearing clothes after regular cleansing?	204 (62.39)
What will happen if somebody walks barefooted in the road regularly?	2 (0.61)
How does regular consumption of fruits and vegetables not help us for being healthy?	5 (1.53)
Which of the following foods contains high amount iron?	70 (21.4)
Which of the following diseases spreads due to eating food on which fly sits or eating openly displayed food and cut open fruits from the roadside?	108 (33.03)
Regular intake of junk foods or oily foods can cause which of the following?	50 (15.3)
What do you mean by iodized salt?	50 (15.3)

Table 2: Distribution of students according to correct response regarding attitude to personal hygiene and dietary habits ($n=327$)

Attitude regarding personal hygiene and dietary habits	Total correct response n (%)
Regular cleansing of hair keeps hair healthy and prevents diseases of scalp	317 (96.9)
Not cleansing eyes in the morning with clean water keeps eyes healthy	92 (28.1)
During irritation of eyes rubbing our eyes with fingers prevents infection	105 (32.1)
Covering our mouth and or nose with handkerchief/hands while coughing/sneezing will prevent spread of infection	194 (59.3)
Nose pricking with fingers helps us to clear the nasal passage and improves breathing	10 (3.1)
Cleansing of ear is best done with safety pin	21 (6.4)
Cleansing mouth is not required after each feeding	155 (47.4)
Daily brushing of teeth in the morning after waking up from sleep causes toothache	103 (32.0)
Eating sweets or chocolates in large amount increases worm infestation in abdomen	0 (0.0)
Cleansing of teeth is best done with ash	25 (7.6)
Occasionally cutting nails with teeth prevents diseases of abdomen	62 (19.0)
Cleaning hands with ash and water better prevents diseases like diarrhea than soap-water	70 (21.4)
Hand washing every-time before eating prevents diseases of abdomen like diarrhea	296 (90.8)
Daily bathing is injurious to health	205 (62.7)
Daily changing of undergarments and wearing clean cloths is not required to be healthy	199 (60.9)
Eating vegetables and fruits regularly is injurious to health	15 (4.6)
Daily intake of junk foods or open food from roadside place instead of home-made food in Tiffin helps us to protect ourselves from diseases	113 (34.6)
Regular intake of animal proteins like egg, fish, chicken etc., increases chances of enteric diseases	10 (3.1)
Intake of extra salts with served food during meals improves digestion of food	4 (1.2)
Oily foods/foods with high fat content (like butter, ghee, mutton) should be consumed daily in huge amount to keep our skin healthy	18 (5.5)

DISCUSSION

A school-based cross-sectional study had been conducted among 327 adolescent girl students in a Government Secondary Girls' School in a slum area of Kolkata. The mean age of the participants was 12.17 ± 1.255 years. Regarding the knowledge of personal hygiene and dietary habits, majority had correct knowledge of proper care of hair (94.8%), covering of mouth during coughing or sneezing (43.43%), care of nails (46.79%), hand washing (66.36%), necessity of daily bathing (64.53%) and wearing clean clothes (62.39%), though they did not show adequate knowledge regarding care of teeth, wearing shoes and taking fruits and vegetables in regular diet. Most of them had proper attitude to care of hair (96.9%), covering of mouth during coughing or sneezing (59.3%), cleansing of mouth after feeding (47.4%), hand washing (90.8%), necessity of daily bathing (62.7%) and daily changing of undergarments (60.9%), though they did not show adequate attitude regarding bad effects of nose picking, use of safety pin for cleansing ear, worm infestation as a result of sweets and chocolates consumption, use of ash for cleaning teeth, taking fruits, vegetables and animal proteins in regular diet, intake of extra salt with cooked food and effects of regular consumption of oily foods. However, these knowledge and attitude were not reflected in their daily practices. Multivariate analyses revealed religion,

socioeconomic status, type of family and parental education were significant predictors of status of personal hygiene.

A study by in Bangladesh^[8] revealed children had good knowledge on few indicators on personal hygiene, but their practice was inadequate. In their study, 75% children were aware about wearing shoes during latrine use, washing hands with soap after defecation. Majority (80%) mentioned about washing hands with soap before meal, though 50% of them did not wash hands with soap before meal and after defecation. Taking open food, using open place for defecation and use of latrine without shoes were quite prevalent. The current study showed similar findings with the above study. Another study by Oyibo^[9] showed consistent result with the present study that high level of knowledge related to basic personal hygiene exhibited by the children was not totally reflective of their practices. Vivas et al.^[10] found in their study conducted in Ethiopia that 99% students reported hand washing before meal but only 36.2% reported using soap, while in the current study majority (87.5%) were not used to wash their hands before taking food. A school-based study among primary school children in a slum of Kolkata by Deb et al.^[6] showed more or less similar results with the present study, though the study population was different in both. The results of a study in a tribal school of Wardha District^[11] was at par with the current study, might

Table 3: Determinants of KAP of personal hygiene and dietary habits - bivariate and multivariate analyses (n=327)

Variable (n)	Model 1			Model 2			Model 3			Model 4		
	Poor knowledge* n (%)	OR (CI)	AOR (CI)	Poor attitude** n (%)	OR (CI)	AOR (CI)	Poor practice*** n (%)	OR (CI)	AOR (CI)	Poor KAP**** n (%)	OR (CI)	AOR (CI)
Religion												
Muslim (99)	79 (79.8)	7.5 (4.3-13.1)	4.8 (3.9-34.4)	79 (79.8)	8.7 (4.96-15.4)	6.4 (5.09-55.7)	89 (89.8)	20.1 (9.8-40.9)	14.5 (4.5-133.2)	89 (89.8)	18.8 (9.3-38.5)	9.2 (3.8-46.2)
Hindu (228)	79 (34.6)	1	1	71 (31.1)	1	1	70 (30.7)	1	1	73 (32.0)	1	1
Class												
V and VI (176)	123 (69.9)	7.7 (4.7-12.6)	3.8 (2.1-14.3)	115 (63.5)	6.2 (3.8-10.1)	4.3 (3.1-36.4)	88 (50.0)	1.1 (0.7-1.7)	0.58 (0.13-2.5)	96 (54.5)	1.5 (0.9-2.4)	1.2 (0.507-10.421)
VII and VIII (151)	35 (23.2)	1	1	35 (23.2)	1	1	71 (47.0)	1	1	66 (43.7)	1	1
Type of family												
Joint (191)	137 (71.7)	13.9 (7.9-24.4)	12.4 (7.5-26.9)	137 (71.7)	24 (12.5-46.1)	10.5 (6.5-63.5)	127 (66.5)	6.4 (2.9-14.8)	2.6 (1.3-12.3)	110 (57.6)	2.2 (1.1-5.6)	1.8 (1.1-11.2)
Nuclear (136)	21 (15.4)	1	1	13 (9.6)	1	1	32 (23.5)	1	1	52 (38.2)	1	1
Age of the student (continuous)	-	1.8 (1.5-2.2)	1.2 (0.4-5.7)	-	1.55 (1.3-1.9)	0.7 (0.2-3.07)	-	0.8 (0.6-0.9)	0.43 (0.01-5.805)	-	0.9 (0.8-1.07)	0.56 (0.3-7.5)
Education of father												
Up to below primary (105)	81 (77.1)	6.4 (3.7-10.8)	0.6 (0.1-2.7)	81 (77.1)	7.48 (4.4-12.8)	0.58 (0.12-2.8)	92 (87.6)	16.37 (8.03-22.5)	7.7 (1.7-17.9)	101 (96.2)	66.6 (23.5-88.8)	14.7 (1.07-20.2)
Primary and above (222)	77 (34.7)	1	1	69 (31.1)	1	1	67 (30.2)	1	1	61 (27.5)	1	1
Education of mother												
Up to below primary (113)	92 (81.4)	9.8 (5.6-17.1)	2.07 (1.2-15.4)	92 (81.4)	11.8 (6.7-20.6)	4.9 (2.16-14.9)	107 (94.7)	55.6 (23.05-83.8)	17.5 (9.4-35.8)	108 (95.6)	64 (24.7-85.2)	23.3 (11.07-44.5)
Primary and above (214)	66 (30.8)	1	1	58 (27.1)	1	1	52 (24.3)	1	1	54 (25.2)	1	1
Social class												
Class V (150)	122 (81.3)	17.06 (9.8-29.6)	6.6 (1.2-35.7)	122 (81.3)	23.2 (13.03-41.2)	6.4 (1.1-36.4)	129 (86.0)	30.1 (5.9-44.3)	11.9 (7.4-26.1)	113 (75.3)	7.98 (2.3-46.0)	3.57 (1.7-34.6)
Up to Class IV (177)	36 (20.3)	1	1	28 (15.8)	1	1	30 (16.9)	1	1	49 (27.68)	1	1
Hosmer Lemeshow test P value	0.058			0.614			0.544			0.623		
Nagelkerke R ²	0.414			0.523			0.543			0.487		

KAP: Knowledge, attitude practice, AOR: Adjusted odds ratio, OR: Odds ratio, CI: Confidence interval, *Poor knowledge score - (<median i.e., 6), **Poor attitude score - (<median i.e., 6), ***Poor practice score - (<median i.e., 18), ****Poor total KAP score - (<median i.e., 30)

be due to the reason that both were conducted in backward area. Hilleboe et al.^[12] in USA and Mukherjee et al.^[7] in Kolkata both had also found similar major deficiencies in the health knowledge which corroborated well with our study. The causes behind improper practices irrespective of having good knowledge of basic personal hygiene among adolescent girls might be due to the effect of family practices, taboos, false perceptions gained from society and economic constraints. Sociodemographic variables were also important predictors of KAP of personal hygiene as shown by multivariate analyses. As shown by Mukherjee et al.^[7] KAP scores were higher among higher age group students and the students of the higher classes. Parental literacy status, occupation and per capita monthly income of the families influenced the knowledge score. This finding was consistent with the current study might be because both the studies were done in slum area of Kolkata, though the study population were different.

The current study might be the first one of its kind which involved the adolescent girls as study population to assess the status of KAP of personal hygiene in an urban slum. This study had been conducted in only a single school situated in a slum area of Kolkata. It might be extended to all the schools situated in slums of Kolkata involving the adolescent boys also as study population to get a better scenario of the issue. Considering limitations of this study community-based studies involving the school dropouts and married adolescents should also be done. Further researches including interventional studies are needed to improve the practical application of the knowledge acquired by the girls for their good health.

CONCLUSION

This study revealed knowledge regarding personal hygiene was relatively adequate among the school going adolescent girls of a slum area of Kolkata. However, this knowledge was not always put up to correct attitude and practices which were more needed to prevent related morbidities and thereby betterment of health. Behavioral change programmes, health education through Information, Education and Communication, role play will play a vital role in shaping the child's behavioral practice as childhood is the time of imparting good habits which will be carried to the next generation.

ACKNOWLEDGMENTS

The authors acknowledge Dr. G K Pandey the Director and Dr. Aparajita Dasgupta, Head of the Department, Preventive and Social Medicine of All India Institute of Hygiene and

Public Health, for constant cooperation and support to make this study possible.

REFERENCES

1. Park K. Text Book of Preventive and Social Medicine. 23rd ed. Jabalpur, India: M/S Banarsidas Bhanot Publishers; 2002. p. 46.
2. Towards Total Sanitation and Hygiene: A Challenge for India. Country Paper Series, New Delhi; 2003. Available from: <http://www.mdws.gov.in/sites/default/files/CountryPaperonSanitationOct2003.pdf>. [Last accessed on 2017 Mar 20].
3. Raghava PK. School health. Indian J Community Med. 2005;30(4):1-3.
4. Park K. Text Book of Preventive and Social Medicine. 23rd ed. Jabalpur, India: M/S Banarsidas Bhanot Publishers; 2002. p. 593.
5. Karikatt SS. Health Status of Rural Primary School Children: A Cross Sectional Study. Bangalore: Rajiv Gandhi University of Health Sciences; 2003.
6. Deb S, Dutta S, Dasgupta A, Misra R. Relationship of personal hygiene with nutrition and morbidity profile: A study among primary school children in South Kolkata. Indian J Community Med. 2010;35(2):280-4.
7. Mukherjee A, Sinha A, Taraphdar P, Haldar D, Sinha D, Sinha M. Effectiveness of an educational intervention on personal hygiene among school children in slum area of Kolkata, India. IOSR J Dent Med Sci. 2014;13(12):13-7.
8. Hossain MA. A study on knowledge and practice of personal hygiene among school children in rural areas of Bangladesh. American Public Health Association, October 31; 2012. Available from: <https://www.apha.confex.com/apha/140am/webprogram/Paper259938>. [Last accessed on 2017 Mar 20].
9. Oyibo PG. Basic personal hygiene: Knowledge and practice among school children aged 6-14 years in Abraka, Delta state, Nigeria. Continent J Trop Med. 2012;6(1):5-11.
10. Vivas AP, Gelaye B, Aboset N, Kumie A, Berhane Y, Williams MA. Knowledge, attitudes and practices (KAP) of hygiene among school children in Angolela, Ethiopia. J Prev Med Hyg. 2010;51(2):73-9.
11. Dongre AR, Deshmukh PR, Garg BR. The impact of school health education programme on personal hygiene and related morbidities in tribal school children of Wardha district. Indian J Commun Med. 2006;31(2):81-2.
12. Hilleboe HE, Larimore GW, Slipevich EM. Status of school health education in U.S.A. Int J Health Educ. 1965;8(2):72-7.

How to cite this article: Pal J, Pal AK. Knowledge, attitude, and practice of personal hygiene and its predictors: A school-based study among adolescent girls in an urban slum. Int J Med Sci Public Health 2017;6(9):1411-1416.

Source of Support: Nil, **Conflict of Interest:** None declared.