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Original Research Article

Assessment of need of effective health education programme for improvement of personal hygiene among adolescent girl students in a slum area of Kolkata: a school based intervention study

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ABSTRACT

Background: Personal hygiene aims at healthy living by maintaining cleanliness of the body. Adolescent girls being in the period of active growth and development are the ideal candidates to impart proper knowledge which in turn create a correct attitude followed by practice and it would be carried to next generation. The study aimed to assess the effectiveness of a health education programme in improving the knowledge, attitude and practice of personal hygiene among the adolescent girls in a slum area of Kolkata, West Bengal, India.
Methods: A quasi-experimental study was conducted in two government Bengali medium secondary schools located in a slum area of Kolkata, West Bengal, India. First a baseline survey with the help of a predesigned pretested questionnaire and checklist was done to find out the socio-demographic information and existing K.A.P of personal hygiene of the students. This was followed by an intervention phase of 6 months during which weekly lecture and demonstration classes were taken in the study school. Impact of intervention was assessed by application of post-test questionnaire. Both the schools were followed for another 3 months to establish the sustainability of the programme.
Results: There was statistically significant improvement in the mean scores of K.A.P of personal hygiene from the pre-test level to post-test level among the students of study school as compared to control school, though there was a significant decline in the mean scores at 9 months than 6 months revealing want of sustainability of the programme.
Conclusions: Regular revision and reinforcement should be done to increase the effectiveness of a health education programme to improve personal hygiene and thereby resulting in a healthy living.

Keywords: Adolescent girls, Health education, Intervention, Slum, Personal hygiene

INTRODUCTION

Hygiene is defined as the science of health encompassing all the factors which contribute to healthy living and has two aspects-personal and environmental.[1] It aims to promote standards of personal cleanliness within the setting of the condition where people live which includes bathing, clothing, washing hands after toilet, care of nails, feet and teeth.[2,3] Approximately 1.5 million under five children die from diarrhea due to lack of sanitation, hygiene and unsafe water.[3] Slum children are more prone to the effects of poor personal hygiene due to overcrowding, lack of safe water, improper sanitation. Poor environmental conditions along with wrong knowledge, attitude and practice of personal hygiene exaggerate related morbidities like diarrhea, worm infestation, respiratory infections, malnutrition, anemia, vitamin deficiency etc.[4] Adolescence is the period of growth and development. Habits inculcated in this period will be carried to the next generation as adolescent girls

are the future mothers.[5] With entrance to adult age the habits become relatively permanent. Thus, schools can be an effective institution for developing healthy practices.[6]

With this background, the present study had been conducted to assess the impact of a health education programme on the knowledge, attitude and practice of personal hygiene among adolescent girl students in a Government secondary school situated in a slum area of Kolkata, West Bangal, India.

METHODS

A non-randomized before and after trial with control was conducted during the period of May 2012-April 2013, in two government secondary girls' school situated in slum area under Kolkata, West Bengal, India, municipal corporation ward 132, one being study and the other being control school.

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. Due to the lack of information about K.A.P score in personal hygiene in this locality, a pilot study was conducted among the students of another school of same locality.

The pilot study (in 50 students) resulted in a K.A.P score with mean (SD)-30.04 (14.09). If the health education would increase the mean score in the intervention group at least by 5 points, the minimum required sample size with 80% power and 95% level of significance would be 93 (intervention group) and 185 (control group). It was decided to incorporate twice the participants in the control group compared to intervention group. Assuming 10% drop-out during the follow-up, 103 and 204 school children would be needed for the study.

Two schools were selected purposively from the list of government, vernacular (Bengali) medium, secondary girls' schools of Behala west circle, Kolkata district with better feasibility of work, matching the predetermined sample size and situated at a distance from each other so that percolation of messages could be prevented between the students of these two schools during the intervention phase. All the students of class V-VIII, attending the school during the study period were the study population. Students of class IX and class X were not included in the study due to examination and academic constraints.

Students whose guardians did not give consent, newly admitted students in-between the study period, children having serious illness at the beginning of the study or suffering from any chronic debilitating illnesses were excluded from the final analysis, though intervention was given to them in the study school. Thus, a total of 108 and 219 students were included in the study school and control school respectively. The drop-out rate was 9.26% in the study school and 10.05% in control school.

The study tools consisted of consent forms, information sheets, school registers, a predesigned, pretested schedule in vernacular to record the socio-demographic and economic information, knowledge, attitude and practice of the students regarding personal hygiene practices, dietary habits and check list for recording unhealthy practices regarding personal hygiene and dietary habits, soap-water and toothpaste-brush for demonstration class. 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 presence of experts. They also decided the content validity of 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 knowledge, attitude and practices 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 knowledge, attitude, and practice (assessed through questionnaire + checklist) of personal hygiene being 20, 20 and 64. Knowledge and attitude had been categorized as poor (0-5), average (6-10), good (11-15) and very good (16-20); whereas practice as poor (0-16), average (17-32), good (33-48) and very good (49-64).

During the pre-intervention phase (May 2012- June 2012), a baseline survey had been conducted in both the schools regarding socio-demographic information, and K.A.P of personal hygiene with the help of the parents and class teachers. For class-V the questionnaire was filled up through interviewing the students as the students were unable to fill in the questionnaires as elicited during pretesting. For the rest of the classes (VI-VIII) the questionnaire was self-administered and the answers were collected after the stipulated time of 1 hour. During the intervention phase (July'12-December'12) in the study school weekly lecture and demonstrations were conducted regarding personal hygiene in each class was supplemented by charts and colorful posters. The teaching content and materials were formulated beforehand and training of all the teachers was done.

The lectures and demonstrations were repeated in the 1st and 3rd week of each month in each class for 6 consecutive months by the researcher, whereas the 2nd and 4th week the classes were taken by the class teachers after proper training. Application of the same questionnaire was done in January 2013 to reassess K.A.P of personal hygiene in both the schools. The students of both the schools were followed up for a

period of 3 months post intervention and same questionnaire was applied to both in April 2013. The students of the control school received health education only once, in the month of April 2013. The teaching contents were handed over to the teachers of both schools for future use. Data were entered in SPSS version 20.0 and analyzed subsequently.

RESULTS

Table 1: Socio-demographic characteristics (n=327).

Variable	Study school (n=108) No (%)	Control school (n=219) No (%)	Total No (%)	Test of significance
Religion				
Hindu	77 (71.3)	151 (68.9)	228 (69.7)	χ^2 =0.189, df=1 p=0.664
Muslim	31 (28.7)	68 (31.1)	99 (30.3)	
Type of family				
Nuclear	44 (40.7)	92 (42.0)	136 (41.6)	χ^2=0.048, df=1 p=0.827
Joint	64 (59.3)	127 (58.0)	191 (58.4)	
Age*				
10	11 (10.2)	18 (8.2)	29 (8.9)	
11	29 (26.9)	54 (24.7)	83 (25.4)	
12	27 (25.0)	52 (23.7)	79 (24.2)	χ^2=1.289, df=5 p=0.936
13	25 (23.1)	57 (26.0)	82 (25.1)	
14	14 (13.0)	35 (16.0)	49 (14.9)	
15	2 (1.8)	3 (1.4)	5 (1.5)	
Mean age (SD)	12.07 (1.266)	12.21 (1.249)	12.17 (1.255)	
Education of father				
Illiterate	12 (11.1)	21 (9.6)	33 (10.1)	
Below primary	28 (25.9)	44 (20.1)	72 (22.0)	
Primary	24 (22.2)	58 (26.5)	82 (25.1)	χ^2 =5.397, df=6 p=0.494
Middle	21 (19.4)	54 (24.7)	75 (22.9)	
Secondary	12 (11.1)	21 (9.6)	33 (10.1)	
Higher secondary	6 (5.6)	17 (7.8)	23 (7.0)	
Graduate and above	5 (4.6)	4 (1.8)	9 (2.8)	
Education of mother				
Illiterate	13 (12.0)	17 (7.8)	30 (9.2)	
Below primary	30 (27.8)	53 (24.2)	83 (25.4)	
Primary	19 (17.6)	53 (24.2)	72 (22.0)	χ^2=4.168, df=5 p=0.526
Middle	22 (20.4)	54 (24.7)	76 (23.2)	
Secondary	17 (15.7)	29 (13.2)	46 (14.1)	
Higher secondary	7 (6.5)	13 (5.9)	20 (6.1)	
Social class (modified prasad scale 2012)				
Class I (PCI- >=Rs/3900)	2 (1.9)	3 (1.4)	5 (1.5)	
Class II (PCI -Rs/ 1950-3899)	3 (2.8)	2 (0.9)	5 (1.5)	χ^2=8.536, df=4 p=0.074
Class III (PCI-Rs/ 1170-1949)	13 (12.0)	10 (4.6)	23 (7.0)	
Class IV (PCI- Rs/ 585-1169)	42 (38.9)	102 (46.6)	144 (44.0)	
Class V (PCI- <Rs/585)	48 (44.4)	102 (46.6)	150 (45.9)	
Classes attended by the students				
Five	35 (32.4)	56 (25.6)	91 (27.8)	χ^2 =2.487, df=3 p=0.478
Six	29 (26.9)	56 (25.6)	85 (25.9)	
Seven	24 (22.2)	54 (24.7)	78 (23.9)	
Eight	20 (18.5)	53 (24.2)	73 (22.3)	
Place used for defecation and micturition				
Own sanitary latrine	10 (9.3)	10 (4.6)	20 (6.1)	χ^2 =3.071, df=2 p=0.215
Community sanitary latrine	53 (49.1)	120 (54.8)	173 (52.9)	
Open field	45 (41.7)	89 (40.6)	134 (40.9)	
Place used for bathing				
Own bathroom in the house	9 (8.3)	11 (5.0)	20 (6.1)	χ^2=1.463, df=2 p=0.481
Community bathroom	43 (39.8)	94 (42.9)	137 (41.9)	
Road side tap/tube-well/well	56 (51.9)	114 (52.1)	170 (51.9)	

* in completed years.

A quasi experimental study had been conducted in two government secondary girls' schools located in a slum area of Kolkata, West Bangal, India. Regarding the socio-demographic characteristics, most of the students in study and control school belonged to Hindu religion (69.7%), joint family (58.4%), age group of 10-12 years (58.5%) with parents being educated up to primary level (57.2% and 56.6%), low socio-economic class (89.9%). Most of the fathers of the students (19.9%) of both the schools were engaged in small scale business, whereas majority (62.4%) of the mothers was home-makers. Majority (52.9% and 51.9%) of the students in both the schools used community latrine and roadside tap/tube well/well for taking bath. There was no statistically significant difference in the socio-demographic profile of the students of the study and control schools (Table 1).

Table 2: Scores obtained by students of study school at baseline, post intervention and at follow up regarding knowledge, attitude and practice of personal hygiene (n=108).

Category of marks obtained	Knowledge			Attitude			Practice		
	Baseline NO (%) n =108	Post intervention NO (%) n =104	Follow up NO (%) n =98	Baseline NO (%) n =108	Post intervention NO (%) n =104	Follow up NO (%) n =98	Baseline NO (%) n =108	Post intervention NO (%) n =104	Follow up NO (%) n =98
poor	50 (46.3)	0 (0.0)	0 (0.0)	46 (42.6)	0 (0.0)	0 (0.0)	48 (44.4)	0 (0.0)	0 (0.0)
average	48 (44.4)	18 (17.3)	32 (32.7)	52 (48.1)	17 (16.3)	34 (34.7)	37 (34.3)	41 (39.4)	45 (45.9)
good	10 (9.3)	47 (45.2)	48 (49.0)	10 (9.3)	47 (45.2)	50 (51.0)	23 (21.3)	24 (23.1)	43 (43.9)
Very good	0 (0.0)	39 (37.5)	18 (18.4)	0 (0.0)	40 (38.5)	14 (14.3)	0 (0.0)	39 (37.5)	10 (10.2)

In most of the students obtained poor score regarding knowledge (46.3%) and practice (44.4%), whereas most of them attained average score in attitude questions (48.1%). At post intervention (6 months) and follow up (9 months) improvement in knowledge had been shown by majority of the students scoring above average marks (82.7% and 67.4% respectively). There was improvement in attitude also. Majority scored above average marks at post intervention and follow up (83.7% and 65.3% respectively). Regarding practice of personal hygiene most of the students in study school obtained above average marks at 6 months and 9 months (60.6% and 54.1%) respectively (Table 2).

Table 3: Comparison of mean scores of knowledge, attitude and practice among the students of study school and control school at baseline, post intervention and follow up (n=98 and 197).

School	Knowledge mean (SD)			Test of sig.*	Attitude mean (SD)			Test of sig.*	Practice mean (SD)			Test of sig.*
	Baseline	6m	9m		Baseline	6m	9m		Baseline	6m	9m	
Study (n=98)	6.12 (3.030)	14.13 (3.128)	12.49 (3.474)	F=2221.606, df=1.523, p=0.000	6.12 (3.012)	14.18 (3.094)	12.15 (3.338)	F=1645.167, df=1.677, p=0.000	22.10 (8.140)	40.43 (12.485)	34.34 (11.703)	F=1463.622, df=1.293, p=0.000
Control (n=197)	6.48 (3.116)	6.34 (3.086)	6.43 (3.146)	F=3.548, df=1.192, p=0.036	6.40 (3.216)	6.26 (3.122)	6.39 (3.148)	F=4.116, df=1.855, p=0.020	20.06 (7.524)	18.66 (5.694)	18.69 (5.801)	F=189.984, df=1.889, p=0.000

* Repeated Measures ANOVAs followed by post hoc test (Bonferroni); ** Data followed normal distribution.

Impact of health education programme had been assessed by comparing mean scores of knowledge, attitude and practice at 3 levels (baseline, post intervention and follow up) among the students of study school. The result revealed that there was statistically significant increase in the mean score of knowledge, attitude and practice from baseline to post intervention i.e. at 6 months (p=0.000) and baseline to follow up i.e. at 9 months (p=0.000);

though there was a significant drop of mean scores at follow up than the post intervention level (p=0.000).

Whereas in case of control school, there is statistically significant drop of mean scores of knowledge, attitude and practice at 6 months and 9 months than the baseline level (p=0.000) (Table 3).

When mean scores of knowledge, attitude and practice were compared between two schools, it was found that though there was no significant difference of mean scores at baseline level between study and control schools, unpaired t test showed the difference of mean to be significant at 6 months and at 9 months between the study and control schools (p<0.05) (Table 4).

Table 4: Comparison of mean scores of knowledge, attitude and practice between study and control school at baseline, post intervention and follow up.

School	Knowledge			Attitude			Practice		
	Baseline (n), Mean(SD)	Post intervention (n), Mean(SD)	Follow up (n), Mean(SD)	Baseline (n), Mean(SD)	Post intervention (n), Mean(SD)	Follow up (n), Mean(SD)	Baseline (n), Mean(SD)	Post intervention (n), Mean(SD)	Follow up (n), Mean(SD)
Study	108; 6 (2.926)	104; 14.09 (3.169)	98; 12.49 (3.474)	108; 6(2.973)	104; 13.94 (3.165)	98; 12.15 (3.338)	108; 20.60 (8.614)	104; 39.46 (12.877)	98; 34.24 (11.703)
Control	219; 6.22 (3.095)	209; 6.18 (3.188)	197; 6.43 (3.146)	219; 6.16 (3.179)	209; 6.11 (3.148)	197; 6.39 (3.148)	219; 18.65 (7.856)	209; 17.96 (5.480)	197; 18.69 (5.801)
Test of significance	t=(-0.626), df=325, p=0.532 CI=(-0.927 to 0.480)	t=20.715, df=311, p=0.000 CI=(7.518-8.661)	t=15.041,df=293, p=0.000 CI=(5.266-6.851)	t=(-0.424), df=325, p=0.672 CI=(-0.875 to 0.565)	t=20.708,df=311, p=0.000 CI=(7.092-8.582)	t=14.524,df=293, p=0.000 CI=(4.986-6.549)	t=(1.492),df=325, = p=0.137 CI= (-0.621 to 4.519)	t=14.988, df=311, p=0.000 CI=(18.667-24.332)	t=11.329,df=293, p=0.000 CI=(12.844-18.265)

*Equality of variances was assumed by Levene's test of equality

DISCUSSION

The current study intended to assess the impact of health education programme on personal hygiene among the adolescent girl students of a Government school in a slum area of Kolkata. Like the present study significant deficiencies in knowledge regarding healthy living had been found in a study in United States among the elementary, secondary and above students.[7] An intervention study by Ilika AL et al done among primary school children in Anambra state Nigeria revealed consistent result with the present study.[8] Though the significant drop in K.A.P of personal hygiene at follow up was not found in the study by Ilika AL et al.[8]

Results of a study in rural Panipat involving 60 students of age group 8-10 years corroborated the current study finding in the way that in both there were significant improvement in mean scores of knowledge and practice of personal hygiene at the post intervention level than the pre test scores.[9] Another longitudinal study by Biswas AB et al among children (10-14 years) in Burdwan District, West Bengal revealed consistent results with the study under discussion.[9] Regarding knowledge, the mean score at the pre-action assessment gradually increased at 9 months, but there was a significant decline between 6-month and 9-months scores corroborating the current study finding. The mean score on attitude had statistically significant increases at 3, 6, and 9 months, though the decline in the mean score of attitude at 6 months to 9 months was not significant. But the present study showed a significant drop of attitude score at 9 months than 6-months level. In the assessment of practice, the mean pre-action score had statistically significant increases in the follow-up period. Unlike the present study the decline between 6 and 9 months was not statistically significant.[9]

This declining trend showing the lack of sustainability of health education programme was also supported by other studies.[2,10]

The decline of mean scores of knowledge, attitude and practice of personal hygiene in the control school might have resulted from the percolation of wrong health messages from students who were academically better and creating mastery over others. This attitude of influencing others with their thoughts had resulted in a worsen condition than the pre-action level in the control school.

CONCLUSION

The current study, most probably, the first one of its kind which had been conducted in two Government secondary schools in a slum area under Kolkata Municipal Corporation and included exclusively the adolescent girls. The baseline survey revealed a significant deficiency of K.A.P of personal hygiene which established the urgent need of an effective health education programme to tackle this issue. Adequate knowledge brings an appropriate attitude which in turn leads to correct practice. Adolescent girls being in the period of active growth and development and having a relatively receptive mind could be a changing agent in the family and later community. The present study revealed that with simple means of health education in schools the K.A.P of personal hygiene could be improved and thereby decreasing related morbidities. There was statistically significant improvement of K.A.P scores at post intervention and follow up level than the baseline among the students of study school as compared to control school establishing the effectiveness of the health education programme. But significant declining trend at 9 months also showed the need of sustainability of this programme. This topic should be included in the academic syllabus and school teachers should take active part in changing the behavior of the students by regular revision and reinforcement. Periodical contact classes should also be arranged for active involvement of the parents which in turn would result in a better behavioral change of the children.

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REFERENCES

1. Park K. Text Book of Preventive and Social medicine. 23rd ed. Jabalpur, India, M/S Banarsidas Bhanot publishers; 2002:46.
2. Mukherjee A, Sinha A, Taraphdar P, Halder D, Sinha D, Sinha M. Effectiveness of an educational intervention on personal hygiene among school children in slum area of Kolkata, India. J Dental Med Sci. 2014:13(12):13-7.
3. Towards total sanitation and hygiene: a challenge for India, Country paper series, New Delhi, 2003. Available at http://www.mdws.gov.in/sites/default/files/CountryPaperonSanitationOct2003.pdf. Accessed 20 March 2017.
4. Prasad RK. School health, Ind J Com Med. 2005:30(4):109-10.
5. Park K. Text Book of Preventive and Social medicine. 23rd ed. Jabalpur, India, M/S Banarsidas Bhanot publishers; 2002:593.
6. Kundu N. Understanding of Slums-case studies for the global reports on human settlements 2003. Urban slum reports, the case of Kolkata, India. Available at http://www.ucl.ac.uk/dpu-projects/Global_Report/pdfs/Kolkata_bw.pdf.
7. Hilleboe HE, Larimore GW, Sliepcevich EM. Status of school health education in U.S.A. Intern J Health Educ. 1965;8(2):72-7.
8. Ilika AL, Obionu CO. Personal hygiene practice and school-based health education of children in Anambra State, Nigeria. Niger postgrad Med J. 2002;9(2):79-82.
9. Biswas AB, Roy AK, Sen AK, Biswas R. A study of the impact of health education imparted to school children on their knowledge, attitude and practices in regard to personal hygiene. Ind J Pub Health. 1990;34(2):87-92.
10. Champakam S, Santhamadhavan S, Balasurbamanian SC. An assessment of the teaching of nutrition in elementary schools in Hyderabad. J Nutrit Dietet. 1967;4:41-50.

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