Effect of Personal Hygiene Program on Knowledges and Practices of Mentally Retarded Students at El-Fikrya schools in Minia Governorate, Egypt.

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Abstract

Background: Maintaining personal hygiene behaviors among mentally retarded children enhances their physical and emotional well-being. **Aim**: The present study aimed to evaluate effect of personal hygiene program on knowledges and practices of mentally retarded students at El-Fikreya schools in Minia Governorate. **Design**: Quasi-experimental design was utilized with pre/posttest. **Setting**: The study was conducted in all schools for mentally retarded students in Minia governorate, which were: El-Fikreya school in Minia city, in Matay district and in Malawy district. **Sample**: A convenient sample consisted of 53 mentally retarded girls. **Tools of data collection**: one tool was used: A mentally retarded student's structured interview questionnaire to assess personal hygiene knowledges and self reported practices. **Results**: Mean age of studied students was 12.4 ± 3.2 years, mean Intelligence Quotient (IQ) was 56.9 ± 6.4 score. Their knowledge score and self-reported practices about personal hygiene were improved from 9.4% and 15.1% respectively in pre- program to 43.4% and 71.7% immediately after program and 22.6% &54.7% after one month of program implementation. **Conclusion**: there were improvements of knowledges and self-reported practices about personal hygiene of studied students after educational program. **Recommendation**: sustainable school health education program with active involvement of school teachers should be conducted in each school.

Key Words: Mental retardation, Hygiene, Personal hygiene.

Introduction:

Mentally disabled children are suffering from deficiencies in various abilities specially self-care abilities including personal hygiene. Personal hygiene is the most important one since any failure in this aspect will affect the rest of the other aspects of a child's life. Recently there is an interest in the field of disability by designing effective programs to train people with intellectual disabilities (Kasem & Bo- Dhayaaf, 2017).

Personal hygiene requires the cleaning of all parts of the body (face, hair, body, legs and hands). Personal hygiene which is also referred to as personal care includes all of the following: hair care, nail care, foot care, genital care and dental care (United Nations Children's Fund (UNICEF), 2016).The maintenance of good hygiene is essential for population's health and well-being. Poor hygiene is a risk to public health. Poor hygiene is one of the important behavioral risk factors contributing to the global burden of diseases (Altun et al., 2013).

Personal hygiene is influenced by various factors such as society, family and individual awareness and attitudes concerning hygiene. Most of the health problems affecting school students are preventable by promoting proper hygiene practices through family and adopting good health education (Hazazi et al., 2019). Proper knowledge and practices of personal hygiene plays an important role in avoiding diseases like Diarrhea, Dysentery, Vomiting, Dental caries, Itching problems, Skin diseases etc., (Kumar et al., 2018).

Poor knowledge, practice of and attitudes to personal hygiene such as hand washing play major roles in the high incidence of communicable diseases and therefore has negative consequences for a child's long term overall development (Sarkar, 2013 & Ghanim et al., 2016). Personal hygiene deficiencies have been found to be a serious public health problem and people often affected are school children. These have been attributed to inadequate knowledge of personal hygiene and its practices (Ajay et al., 2018).

The responsibility of local school districts is to educate students with intellectual disabilities in the least restrictive environment. The school nurse collaborates with education staff to promote a safe and accommodating school environment for children with chronic health conditions including disabilities (American Nurses Association & National Association of School Nurses [NASN], 2017; Brook et al., 2015).

Significance of the Study

Inadequate hygiene practices have been estimated to affect 80% of the population globally (Freeman, 2014). Improvements related to sanitation and hygiene could result in the reduction of almost 10% of the total burden of disease worldwide (WHO, 2016). There is need to assess the personal hygiene knowledge and practices of mentally retarded students because they are more likely to engage in practices that may be unfavorable to their health than other groups and thus make them susceptible to hygiene deficiency illnesses.

Furthermore, developing an effective personal hygiene education programs is very essential to increase their basic knowledge. In addition, the findings from this study can also provide basic and useful information for policy formulation and strategic interventions on personal hygiene among disabled school students. The outcome of this study will serve as a guide for further research in this area.

Aim of study

This study aimed to:

- Evaluate effect of personal hygiene program on the knowledge and practices of mentally retarded students at El-Fikreya schools in Minia Governorate.

Research Hypothesis:

1. Knowledges of mentally retarded girls about personal hygiene will be increased after implementation of the personal hygiene program.

Subjects and methods:

Research design:

Quasi experimental design (Pretest & Post-Test) was utilized in this research study.

Setting:

The study was conducted in all schools of mentally retarded students in Minia governorate, which were: El-Fikreya school for mentally retarded pupils in Minia city, El-Fikreya school in Matay district and El-Fikreya school in Malawy district.

Sample and sampling: - a convenient sample consisted of 53 mentally retarded girls in the three previous settings who met the **inclusion criteria**. Total Number was 53.

Inclusion Criteria:

- Female students
- Age ≥ 6years
- Have mild mental retardation (I.Q 50-70)

Exclusion Criteria:

- Autism
- Have speech disorders or other types of disabilities
- Have Attention Deficit Disorder (ADD).

Tools of Data Collection:

Data was collected through using a mentally retarded students structured interview questionnaire that was designed by the researchers to collect data related to participant's knowledge and personal hygiene practices (self-reported practices) based on relevant literature, the tool contents were tested for validity by five experts in community health nursing and community medicine. It consisted of the following 3 parts:

Part I: Included 8 questions related to socio-demographic characteristics of participants.

Part II: It included 6 questions (1 to 6) related to participant's knowledge about personal hygiene and 18questions (7-25) related to participants personal hygiene practices (self -reported practices) included hand washing, oral care, and showering. Scoring system was:

- Personal hygiene knowledge: its questions were recorded into Yes with 2 grades and No with 0 grade and question No. 5 was recorded into complete correct answer with 2 grades, incomplete answer with score 1 and incorrect answer with 0 grade. The total grades were ranged from 0 – 18 and classified as the following scoring: Poor score = less than 50% (less than 9 grades), Fair score= 50-70 % (9 -12 grades) and Good score = more than 70% (> 12 grades).
- Personal hygiene self reported practices: its questions were recorded into Yes or correct answer with 2 grades and No or incorrect answer with 0 grade and the total grades were ranged from 0 – 34 and classified as the following: Unsatisfactory = less than 50% (17 or less) and Satisfactory = equal or more than 50% (≥ 17).

Part III: It included 4 questions (33-36) related to participant's knowledge about menstrual hygiene and 7questions (37-43) related to participant's menstrual hygiene practices (self-reported practices). This part is applied only for mentally retarded girls in puberty stage who have been menstruated. Its scoring was:

- Menstrual hygiene knowledge: its questions were recorded into correct answer with score 2, incorrect answer and don't know with score 0 and the total score was ranged from 0 – 6 and classified as the following: Poor = less than 50% (3 or less), Fair = 50-70 % (3 - 4.1) and Good = more than 70% (> 4.1).
- Menstrual hygiene Practices: its questions were recorded into correct answer with score 2, incorrect answer and don't know with score 0 and the total score was ranged from 0 – 12 and classified as the following: Unsatisfactory = less than 50% (6 or less) and Satisfactory = equal or more than 50% (≥ 6).

Content Validity: The tool was tested for content validity by a jury panel of five experts in the field of community and public health medicine who reviewed the tools for clarity, relevance, comprehensiveness, understanding, applicability and easiness. Based on experts' comments and recommendations; major modifications had been made such as deleting difficult questions. Rephrasing and rearrangements of some sentences was done.

Reliability: Internal consistency of interview questionnaire was assessed with the Cronbach's alpha coefficient after the pilot study done; parts II, III, were 0.60 and 0.062 respectively.

Pilot Study

A pilot study was conducted on 10% of the sample (6) to assess the clarity; reliability and applicability of the study tools; that were included in the study due to the smallest numbers of students.

Procedure:

- The study lasted for 9 months (one academic year); it started at the beginning of September 2017, and was completed by the end of June 2018.
- The program was implemented to the girls in terms of sessions in their usual classrooms in each school by using a variety of teaching methods such as group discussion, demonstration and re-demonstration for hand washing and teeth brushing technique, role play and teaching videos, songs, colored cards.
- The total number of sessions was 8 sessions for each group. This session included 2 theoretical sessions involved introduction of personal hygiene and body hygiene (hair, nose, skin and feet hygiene) and 6 practical sessions, two sessions for hand washing, two sessions for teeth brushing technique and two sessions for menstrual hygiene. Number of sessions per day were two sessions, (one hour for each session).
- All sessions were conducted for each group of participants. Total number of participants were divided into small groups each group included 4-6 students to attend session.

- The researchers attended in the study settings two days per week; Saturday and Monday from 8.00 Am to 1.00 Pm. The researchers started a face to face individual interview; each interview took about 50-60 minutes. Throughout this interview relevant information was recorded in the designed sheet (about 4-5 sheets per day). Data were collected before the implementation of the program for pretest, immediately after and one month after the completion of the program for posttest and follow up.
- The tool was used to collect data and applied to all participants except part III was applied only for mentally retarded girls in puberty stage who have been menstruated.

Ethical Consideration

Research proposal was approved from ethical committee in faculty of Nursing. The purpose of the study, right for privacy, confidentiality and rights to withdraw at any time were explained for girls' caregivers (mothers, teachers) in the previously mentioned setting.

Statistical Design

The collected data was computerized, tabulated, analyzed and summarized by using statistical tests as one way ANOVA and Chi-Square to test research hypotheses by using SPSS version 20. The level of significance was accepted at $P<0.05$ and was considered highly significant when P-value less than or equal 0.01.

Results

Table 1: Distribution of studied students' according to their socio-demographic data (n = 53).

Socio-demographic data of the studied students	no.	%
Age/year		
6 - < 12	9	17.0
12 - < 18	30	56.6
18 – 24	14	26.4
Mean ± SD	12.4 ± 3.2 years	
IQ		
50- < 55	23	43.4
55 - < 60	12	22.6
60- < 65	12	22.6
65 – 70	6	11.4
Mean ± SD	56.9 ± 6.4 score	
Residence		
Urban	23	43.4
Rural	30	56.6
Social class		
Satisfactory	19	35.8
Unsatisfactory	34	64.2
Fathers' Occupation		
Yes	35	66.0
No	10	18.9
Died	8	15.1
Fathers' education		
Illiterate	9	17.0
Primary or Preparatory	21	39.7
Secondary	19	35.8
University	4	7.5
Mothers' Occupation		
House wife	45	84.9
Employee	7	13.2
Died	1	1.9
Mothers' education		
Illiterate	27	50.9
Primary or Preparatory	13	24.5
Secondary	11	20.8
University	2	3.8

Table 1: Shows that 56.6% of studied students their age ranged between 12 < 18years, with mean age 12.4 ± 3.2 years, 43.4% of them their IQ ranged between 50- < 55, with mean 56.9 ± 6.4 score, also 56.6% of students were come from rural area and 64.2% of them had unsatisfactory social class.

Concerning to their fathers occupation, 66% of them have an occupation and 39.7% of them had primary or preparatory education but 84.9% of their mothers were house wives and 50.9% of their mothers were illiterate

Table 2: Distribution of studied students' according to their correct answer of knowledge about personal hygiene (n = 53).

Knowledge about personal hygiene	Pre		Post Immediately		Follow up		P - value
	No.	%	No.	%	No.	%	
Definition of personal hygiene	34	64.2	49	92.5	35	66.0	.000**
Components of personal hygiene:							
Hair care	27	50.9	39	73.6	37	69.8	.03*
Showering	42	79.2	49	92.5	46	86.8	.142 NS
Foot and nail care,	4	7.5	11	20.8	14	26.4	.04*
Genital care	3	5.7	22	41.5	13	24.5	.000**
Dental care	19	35.8	39	73.6	32	60.4	.000**
Importance of personal hygiene	25	47.2	36	67.9	28	52.8	.08 NS
Personal hygiene protects from diseases	22	41.5	40	75.5	31	58.5	.001**
Basic equipment of personal hygiene	12	22.6	22	41.5	20	37.7	.000**

NS= Not statistically significance * means there is statistically significant difference

** means there is highly statistical significant differences.

Table 2: presents that 64.2% of studied students answered correctly about the meaning of personal hygiene in pretest, increased to 92.5% in immediately posttest, while in the follow up was 66.0%.

Showering was the most important aspect or component of personal hygiene as ranked by the studied students, 79.2%,92.5% and 86.8% in pretest, immediately posttest and follow up posttest respectively.

The main sources of information about personal hygiene were parents; 50.9% followed by media &T.V; 17.0%, teachers; 15.1%, no source of information were 13.2% in pretest. In immediately posttest 47.2% of them answered parents, followed by Media &T.V 32.1%, teachers 9.4% and 1.9 % were books and no sources. In follow up 45.3% of them answered parents, followed by Media &T.V 24.5% and teachers 13.2%, figure 1

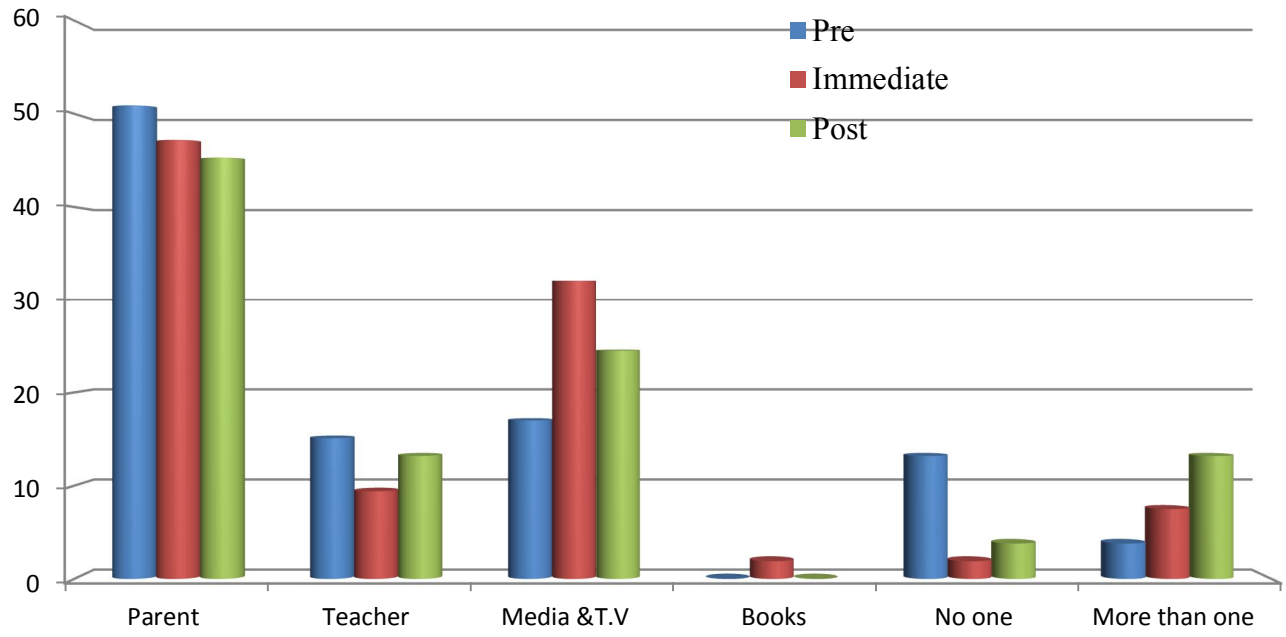

Figure 1: sources of information about personal hygiene

Table 3: Distribution of studied students' according to their correct answer of personal hygienic self-reported practices (n = 53).

Personal Hygienic Self-reported practices	Pretest		Immediately Posttest		Follow up after 1 month		X^2	P – value
	No.	%	No.	%	No.	%		
Wash hands								
Before and after eating	38	71.7	49	92.5	40	75.5	8.060	.02*
After using the toilet	24	45.3	42	79.2	43	81.1	20.014	.000**
After playing	5	9.4	9	17.0	15	28.3	6..411	.04*
Using soap in hand washing	21	39.6	39	73.6	24	45.3	14.083	.001**
Teeth brush								
At morning	7	13.2	31	58.5	23	43.4	23.831	.000**
Before sleeping	9	17.0	15	28.3	26	50.0	13.641	.001**
Gurgling after each meal	16	30.2	38	71.7	20	37.7	20.829	.000**
Teeth brushing daily	13	24.5	31	58.5	27	50.9	13.640	.001**

Personal Hygienic Self-reported practices	Pretest		Immediately Posttest		Follow up after 1 month		X^2	P – value
	No.	%	No.	%	No.	%		
Visiting the dentist every six months	9	17.0	16	30.2	23	43.4	8.774	.01*
Shower number								
Once per day	2	3.8	1	1.9	4	7.5	4.304	.636 NS
Every other day	17	32.1	23	43.4	19	35.8		
Twice per week	22	41.5	18	34.0	22	41.5		
Once per week	12	22.6	11	20.8	8	15.1		
Shower alone	20	37.7	21	39.6	20	37.7	.053	.974 NS
Showering daily	20	37.7	37	69.8	37	69.8	15.041	.001**
Trimming foot nails horizontally	15	28.3	28	52.8	25	47.2	7.143	.03*
Drying the feet after showering	23	43.4	26	49.1	24	45.3	.355	.838 NS
Ears care	22	41.5	32	60.4	32	60.4	5.065	.079 NS
Eyes care	22	41.5	29	54.7	24	45.3	1.969	.374 NS
Hair care	17	32.1	32	60.4	35	66.0	14.083	.001**

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Table 3: demonstrates that 39.6% of studied students uses soap to wash their hands in pretest vs 73.6% of them vs 45.3% of them in immediately and follow up after one month of educational program respectively and 9.4% of them wash hands after playing vs 17.0% of them vs 28.3% of them Immediately and follow up after one month of educational program respectively. Also 37.7% of studied students shower daily in pretest vs 69.8% of them vs 69.8 % of them in immediately and follow up after one month of educational program respectively

Table 4: Distribution of studied students' knowledge regarding menstrual hygiene (n = 28).

Knowledge regarding menstrual hygiene	Pretest		Immediately Posttest		Follow up after one month		X^2	P – value
	No.	%	No.	%	No.	%		
The normal age for menarche								
Less than 12 yrs.	1	3.6	3	10.7	1	3.6	17.445	.008**
12 - 14 yrs.	4	14.3	11	39.3	11	39.3		
More than 14 yrs.	0	.0	5	17.9	4	14.3		
Don't know	23	82.1	9	32.1	12	42.9		
Duration of regular menses								
3-7 days	2	7.1	15	53.6	7	25.0	25.212	.000**
>7 days	4	14.3	9	32.1	8	28.6		
Don't know	22	78.6	4	14.3	13	46.4		
Bathing during menses								
First day	2	7.1	0	.0	1	3.6	23.418	.001**
Last day	12	42.9	7	25.0	9	32.1		
Daily	5	17.9	21	75.0	15	53.6		
Don't know	9	32.1	0	.0	3	10.7		

** means there is highly statistical significant differences

Table 4: shows distribution of participants' knowledge about menstrual hygiene. There was a lack of knowledge regarding to age of menarche and duration of regular menses among 82.1% and 78.6% of participants in pretest respectively, with significant improvement in this knowledge after educational program compared to pretest, $P < 0.01$.

Concerning to time of bathing during menses, 17.9% of them answered correctly "Daily" in pretest, increased to 75.0% in immediately posttest and 53.6% in follow up with significant improvement in knowledge of studied sample after intervention compared to pretest, $P < 0.001$

Table 5: Distribution of studied students related to their total knowledge score about personal hygiene (n = 53).

Total knowledge	Pretest		Immediately Posttest		Follow up after 1 month		X^2	P-Value
	No	%	No	%	No	%		
Personal hygiene knowledge (n = 53).								
Poor	29	54.7	9	17.0	18	34.0	23.481	.000**
Fair	19	35.8	21	39.6	23	43.4		
Good	5	9.4	23	43.4	12	22.6		
Mean ± SD	6.5 ± 3.6		10.5 ± 27		9.0 ± 3.2			

Table 5: demonstrates that 54.7% of studied students' had poor knowledge score about personal hygiene in pretest vs 17.0% of them in immediately post educational program vs 34.0% of them after one month of educational program with highly statistically significance improvements where p-value =0.000.

Table 6: Distribution of studied students related to their total self-reported practices score regarding personal and menstrual hygiene (n = 53), (n = 28) respectively

Total self-reported practices	Pretest		Immediately Posttest		Follow up after 1 month		X^2	P- Value
	No	%	No	%	No	%		
Personal hygiene self-reported practices (n = 53).								
Unsatisfactory	45	84.9	15	28.3	24	45.3	35.889	.000**
Satisfactory	8	15.1	38	71.7	29	54.7		
Mean ± SD	11.9 ± 5.7		19.5 ± 3.8		18.2 ± 3.9			
Menstrual hygienic self-reported practices (n = 28).								
Unsatisfactory	14	50.0	1	3.6	6	21.4	16.381	.000**
Satisfactory	14	50.0	27	96.4	22	78.6		
Mean ± SD	5.7 ± 2.9		8.8 ± 2.1		7.6 ± 2.9			
Practices of tooth brushing techniques(n = 53)								
Unsatisfactory	18	34.0	1	1.6	7	13.2	20.507	.000**
Satisfactory	35	66.0	52	98.1	46	86.8		
Mean ± SD	9.1 ± 1.8		12.9 ± 1.9		11.3 ± 2.4			
Practices of Hand washing technique(n = 53)								
Unsatisfactory	3	5.7	0	.0	0	0	6.115	.05*
Satisfactory	50	94.3	53	100.	53	100.0		
Mean ± SD	9.2 ± 1.9		11.8 ± 1.4		10.7 1.6			

Table 6: demonstrates that only 15.1% of studied students' had satisfactory level of personal hygiene practices in pretest increased to 71.7% of them in immediately post educational program and 54.7% of them after one month of educational program with statistically significance improvements in their self-reported practices. There was highly significant improvement in total self-reported practices score of studied students related to personal hygiene, menstrual hygiene, teeth brushing and hand washing technique after completion of the program compared to pretest total score, P < 0.001.

Table 7: Relation between studied student's knowledge about personal hygiene and their demographic data in pretest, immediately and follow up (n = 53).

Demographic data of students	Knowledge about personal hygiene								
	Pretest			Immediately Posttest			Follow up after 1 month		
	Poor (n = 29)	Fair (n= 19)	Good (n = 5)	Poor (n = 9)	Fair (n=21)	Good (n= 23)	Poor (n= 18)	Fair (n= 23)	Good (n = 12)
Age/year									
6 - < 12	27.6	5.3	.0	44.4	19.0	4.3	27.8	13.0	8.3
12 - < 18	62.1	42.1	80.0	44.4	52.4	65.2	50.0	56.5	66.7
18 – 24	10.3	52.6	20.0	11.2	28.6	30.4	22.2	30.5	25.0
X^2 (P – value)	13.505 (.009)			7.790 (.100)			2.597 (.627)		
IQ									
50- < 55	48.3	42.1	20.0	44.4	52.4	34.8	55.6	43.5	25.0
55 - < 60	31.0	15.8	.0	44.4	19.0	17.4	27.8	21.7	16.7
60- < 65	17.2	26.3	40.0	11.2	19.0	30.4	16.7	26.1	25.0
65 – 70	3.4	15.8	40.0	.0	9.5	17.4	.0	8.7	33.3
X^2 (P – value)	9.933 (.027) *			6.168 (.405)			11.704 (.038) *		
Residence									
Urban	55.2	63.2	40.0	55.6	57.1	56.5	50.0	56.5	66.7
Rural	44.8	36.8	60.0	44.4	42.9	43.5	50.0	43.5	33.3
X^2 (P – value)	.918 (.632)			.007 (.997)			.814 (.666)		
Social class									
Unsatisfactory	64.7	29.4	5.9	23.5	44.1	32.4	44.1	38.2	17.6
Satisfactory	36.8	47.4	15.8	5.3	31.6	63.2	15.8	52.6	31.6

X^2 (P – value)	4.094 (.129)			5.544 (.050) *			4.507 (.105)		
Fathers education									
Illiterate	24.1	10.5	0.0	33.3	9.5	17.4	22.2	13.0	16.7
Primary or reparatory	48.3	26.3	40.0	44.4	47.6	30.4	50.0	39.1	25.0
Secondary	24.1	52.6	40.0	22.2	38.1	39.1	27.8	34.8	50.0
University	3.4	10.5	20.0	0.0	4.8	13.0	.0	13.0	8.3
X^2 (P – value)	8.110 (.230)			5.369 (.497)			4.934 (.552)		
Mothers education									
Illiterate	65.5	31.6	40.0	77.8	47.6	43.5	66.7	43.5	41.7
Primary or reparatory	20.7	31.6	20.0	11.1	38.1	17.4	27.8	26.1	16.7
Secondary	13.8	31.6	20.0	11.1	14.3	30.4	5.6	26.1	33.3
University	0.0	5.3	20.0	0.0	0.0	8.7	.0	4.3	8.3
X^2 (P – value)	10.772 (.034) *			8.757 (.188)			6.324 (.388)		

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Table 7 : shows that there were statistical significant relation between students' total knowledge about personal hygiene and their demographic data related to their age and their mothers education in pretest only where p_value were 0.02 and 0.03 respectively and with I.Q in both pretest and follow up and with social class in immediately posttest only. But there were no statistical significant relation between total knowledge and socio demographic characteristics of the studied sample related to residence and father's education.

Discussion

Personal hygiene means personal care including Hair hygiene, Nasal hygiene, Eye hygiene, Oral hygiene, Hand hygiene, Body Skin hygiene, Personal cloths hygiene etc. The maintenance of personal cloths hygiene is affected by many reasons like personal, social, health, psychological and simply as a way of life (Kumar et al., 2018). Proper knowledge and practices of personal hygiene plays critical role in avoiding communicable diseases and benefit the primary school children to enjoy healthy and productive school life (Ghanim et al., 2016). Lack of knowledge about personal hygiene and poor hygienic practices increases the burden of communicable diseases. Maintaining a good personal hygiene among children helps to improve the quality of life (Hazazi et al., 2018).

Mentally retarded individuals are susceptible to health hazard either as a direct consequence of their disability or due to lack of awareness regarding personal and environmental hygiene. Disabled children are not conscious of personal hygiene at school level. Health education intervention program was very much important to the growing children for their better health and upcoming future

The findings of the current study revealed about two thirds of studied students answered correctly regarding the meaning of personal hygiene in pretest, increased to the majority of them in immediately posttest. From researcher's point of view, this may be due to that the studied students have heard about the term personal hygiene previously from their mothers and from songs and videos about personal hygiene from T.V. The correct answer was increased immediately posttest may be due to effectiveness of the program.

The previous finding was in the same line with study conducted by Ilesanmi (2016) in Ile-Ife, Nigeria, which revealed that the vast majourity of the respondents have answered correctly regarding the meaning of personal hygiene. It was also similar to study conducted by Bastos (2010) in Ikeja, which showed that the vast majority of the respondents answered true to the definition of personal hygiene. Also it was supported by the study of Kumar & Akoijam, (2015) in Manipur, India, in which 100% of the respondents agreed that personal hygiene includes cleaning of the body and clothes.

Showering was the most important aspect or component of personal hygiene as ranked by four fifth of the studied students in pretest, increased to the majority of them in immediately posttest and follow up respectively with significance difference. Showering was the most important component of personal hygiene may be due to cultural, familial and religious beliefs. In Egypt bathing is an important hygienic practice that prevents body odor and irritation of the skin by removing sweat, sebum, and dead skin cells. The risk of lice as well as infections, fungi, scabies, and allergic diseases may emerge on an unwashed body due to dirty skin, clothes, and surroundings. The findings were similar to the study conducted by Ghanim et al., (2016) in Sharjah-UAE who's found that showering was the most important aspect of personal hygiene as ranked by more than three fifths of the students.

The main sources of information regarding personal hygiene in the present study were parents followed by media &T.V and teachers in pretest, immediately posttest and after one month follow up. From researchers's point of view, this may be due to that the studied students were girls who don't inhabits the internal school accommodation, they spent only few hours at school . Most of their times were spent at home in contact with their mothers from whom they may taught personal hygiene behaviors. Also at home they can watch T.V which shows videos and song about personal hygiene, so teachers were not the first source of information about personal hygiene. It was in the same line with Ghanim et al., (2016)

Who's found that parents and teachers were the most common source of knowledge providers about personal hygiene to participants, more than three quarters and less than half respectively.

The present study showed that hand washing practice improved significantly after educational program, $p<0.01$. Using soap for washing hands also significantly increased after educational program. This improvement in hand washing practices may be due to effectiveness of the program.

This previous findings of the present study were similar to the findings of Ghanim et al., (2016) who's found that washing of hands before meals, after using toilets and after playing (73%, 69% and 51% respectively) were the major episodes for washing hands and 71% of participants used soap and water regularly to wash their hands. Also it were similar to Greene et al., (2012) findings in Western Kenya that reported increase in using of soap for washing hands before eating and after defecation and was statistically significant where $p<0.05$, and Riaz & Khan, (2010) in Bangladesh showed increase in knowledge about hand hygiene and was statistically significant where $p<0.01$.

As regards to participants' knowledge about menstrual hygiene, there was a lack of knowledge about age of menarche and duration of regular menses among the majority of participants in pretest, with significant improvement in this knowledge after educational program compared to pretest, $P < 0.01$. This is contradicted with the study conducted by Bhore & Kumbhar (2014) in India which revealed that 72.2% of girls had knowledge about age of menarche, duration and interval in menstrual cycle. This contradiction with the current study might be because those studies were involved normally developed intellectual girls as study population not mentally retarded population.

Mentally retarded adolescents face several psychological pressures associated with growth and maturity. Insufficient mental abilities, decreased intellectual level (low IQ score), poor information and poor educational status of their mothers regarding menarche and menstrual hygiene and lack of discussion with mothers about menstruation. All those factors lead to poor psychological adjustment with menstruation and lack of knowledge about menstruation and menstrual hygiene. This indicates the need for imparting necessary education and information on the anatomy & physiology, interval and duration, meaning and fact related to menarche as well as education to the mother regarding menarche and menstrual hygiene

The main findings of the current study revealed that the knowledge score about personal hygiene increased after health education intervention and was statistically significant, $p<0.05$ where more than half of studied students' had poor knowledge level about personal hygiene in pretest vs less than one fifth of them in immediately post educational program vs more than one third of them after one month of educational program. These findings were similar to the study conducted by Shrestha & Angolkar (2014) in Karnataka, India where improvement in participants' knowledge was statistically significant after intervention. Also this was similar to the study of Greene et al, (2012) in Western Kenya where increase in knowledge was statistically significant after intervention.

There was significant increase in self-reported practices score of studied students after health education intervention ($p<0.05$) which was supported by the study conducted by Siwach M. (2009) in Panipat, India , reported significant increase in knowledge and practice after health education intervention. From researchers's point of view, the improvements in knowledge and practices of the studied students may be due to that the researcher uses a variety of teaching methods which helped the students to understand and acquire basic knowledge and practices about personal and menstrual hygiene. Also may be due to that the program was effective in improving their knowledge and practices score.

There were statistical significant relation between students' total knowledge and total self-reported practices about personal hygiene and their demographic data related to their age, their mothers' education, I.Q and social class. The higher the age, I.Q score, mothers education and social class, the higher level of knowledge. This may be explained that the older age may give more experiences to acquire more knowledge about personal hygiene. The higher I.Q may allow more understanding and acquisition of hygiene knowledge and behaviors. Educated mothers may able to provide their girls with more and accurate hygiene knowledge and practices and act as a source of information for their children.

The findings of the current study was similar to study done by Pal & Pal., (2017) in Kolkata, West Bengal, India, which revealed that students of lower socioeconomic status and with low parental educational background had statistically significant higher odds of poor practices and overall poor Knowledge, Attitude and Practices (KAP) of personal hygiene. Also with the study of Mukherjee et al., (2014) in Kolkata, West Bengal, India, which revealed that KAP of personal hygiene 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

Conclusion

Based up on the findings of this study, it can be concluded that knowledge and self-reported practices about personal hygiene increased after the program and it was statistically significant. Students' age, I.Q, social class and their mothers' education were significant predictors of knowledge score about personal hygiene. Also there was a lack of knowledge and self-reported practices regarding menstrual hygiene with significant improvement in this knowledge after educational program compared to pretest. Students' residence, I.Q and their social class were significant predictors of knowledge score about menstrual hygiene. There was positive effectiveness of personal hygiene program on improvements of general appearance of studied students after the program compared to pretest. Additionally there was positive effectiveness of personal hygiene program on improvement in steps of teeth brushing technique and steps of hand washing procedure of studied students after the program compared to pretest.

Recommendations

1. Sustainable and continuous school health education and training program with the active involvement of school teachers should be conducted in each school that leads to improvement in personal hygiene of school children.
2. Well-developed school-based health and hygiene curricula that promote personal hygiene at home and at school should be established.
3. Additional studies should be done in Egypt using a wider geographic scope and a larger sample size including their mothers in order to produce sufficient and comprehensive information.

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