

## Knowledge and Practices of Personal Hygiene among 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 assess personal hygiene knowledge and practices of mentally retarded students at El-Fikrya schools in Minia Governorate.*Design:* A descriptive cross sectional design was utilized.*Setting:* The study was conducted in all schools for mentally retarded students in Minia governorate, which were: El-Fikrya school in Minia city, in Matay district and in Malawy district.*Sample:*A purposive sample consisted of 53 mentally retarded girls. *Tools of data collection:*Two tools were used: 1<sup>st</sup> Tool: A mentally retarded student's structured interview questionnaire.2<sup>nd</sup> Tool: Mentally retarded students'Observational checklist for hand washing and teeth brushing technique.*Results:*Mean age of studied students was  $12.4 \pm 3.2$  years, mean Intelligence Quotient (IQ) was  $56.9 \pm 6.4$  score. 54.7% of them had poor knowledge about personal hygiene and 89.3% of them had poor knowledge about menstrual hygiene.84.9% of them had unsatisfactory level of self-reported practices about personal hygiene respectively.*Conclusion:*More than half of studied students had poor knowledge about personal hygiene and the majority of them had poor knowledge about menstrual hygiene. Majority of them had unsatisfactory level of self-reported practices about personal hygiene. *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.

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### I. 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 & Bohayaaf, 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).

It is the responsibility of local school districts 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**).

**Aim of study**

This study aimed to:

- Assess personal hygiene knowledge and practices of mentally retarded students at El-Fikrya schools in Minia Governorate.

**II. Subjects and methods:**

**Research design:**

A descriptive cross sectional research design was used in this study.

**Setting: -**

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

**Sample Size:** - A purposive sample consisted of 53mentally retarded girls in the three previous settings who met the inclusion criteria.Total Number was 53.

**Inclusion Criteria:**

- Female student
- 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 two tools:

**The First Tool:** A mentally retarded students structured interview questionnaire that was designed by the researcher 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 4 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 score 2 and No with score 0 and question No. 5was recorded into complete correct answer with score 2, incomplete answer with score 1 and incorrect answer with score 0. The total score was ranged from 0 – 18 and classified as the following:Poor = less than 50% (less than 9 score), Fair = 50-70 % (9 -12) and Good = more than 70% (> 12).
- Personal hygiene practices:** its questions were recorded into Yes or correct answer with score 2 and No or incorrect answer with score 0 and the total score was 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:**Included 7 statements (26-32) related to objectively observed personal hygiene characteristics (general appearance) of participants. It were recorded into Yes and NO. The correct answer was scored 2 and incorrect answer was scored 0. The total score was ranged from 0 – 14 and classified as the following: Clean appearance = equal or more than 50% (≥ 7) andUnclean appearance less than 50% (< 7).

**Part IV:** 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:

- a. **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).
- b. **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% ( $\geq 6$ ).

**The Second Tool:**

Mentally retarded students'Observational checklist for hand hygiene and for teeth brushing technique that was designed by the researcher to collect data related to participant's hand washing and teeth brushing steps according to (**Jordanian ministry of education, 2015**).Scoring:two (2) points were given to tasks that done correctly, one (1) was given for tasks that done incorrectly and zero (0) was given for tasks that not done. The total practicescore was ranged from 0 – 32 score, then classified into: Unsatisfactory: score less than 50% (less than 16) and Satisfactory: if score equal or more than 50% ( $\geq 16$ ).

**Content Validity:** The tools were tested for content validity by a jury panel of fiveexperts 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 andrearrangements of some sentences was done.

**Reliability:** Internal consistency of interview questionnairewas assessed with the Cronbach's alpha coefficient after the pilot study done;parts II, III, IV and tool 2 were 0.60, 0.062, 0.631 and 0.743 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.

**Procedure:**

- An official letter of the study approval was obtained from the dean of the faculty of Nursing at Minia University to the directors of the previously mentioned schools. Verbal informed consents were obtained from students caregivers (mothers or teachers) because the girls were unable to make decision and give self-dependent consent.The study started at the beginning of September 2017, and was completed by the end of January 2018.The researcher 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). Both two tools were used to collect data and applied to all participants except part IV of the 1st tool 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 in the previously mentioned setting. An oral informed consent was obtained from each girl's caregiver who agreed to participate in the study.

**Statistical Design**

The collected data was computerized, tabulated, analyzed and summarized by using statistical tests to test research hypotheses by using SPSS version 20.

**Limitation of the study**

There were some obstacles which encountered the researcher during carrying out this study included that there was no correct and accurate database about numbers of disabled children in Egypt.

**III. Results**

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

Socio-demographic data of the studied students	no.	%
<b>Age/year</b>		
6 - < 12	9	17.0
12 - < 18	30	56.6
18 – 24	14	26.4
Mean $\pm$ SD	12.4 $\pm$ 3.2 years	
<b>IQ</b>		

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	
<b>Residence</b>		
Urban	23	43.4
Rural	30	56.6
<b>Social class</b>		
Satisfactory	19	35.8
Unsatisfactory	34	64.2
<b>Fathers' Occupation</b>		
Yes	35	66.0
No	10	18.9
Died	8	15.1
<b>Fathers' education</b>		
Illiterate	9	17.0
Primary or Preparatory	21	39.7
Secondary	19	35.8
University	4	7.5
<b>Mothers' Occupation</b>		
House wife	45	84.9
Employee	7	13.2
Died	1	1.9
<b>Mothers' education</b>		
Illiterate	27	50.9
Primary or Preparatory	13	24.5
Secondary	11	20.8
University	2	3.8

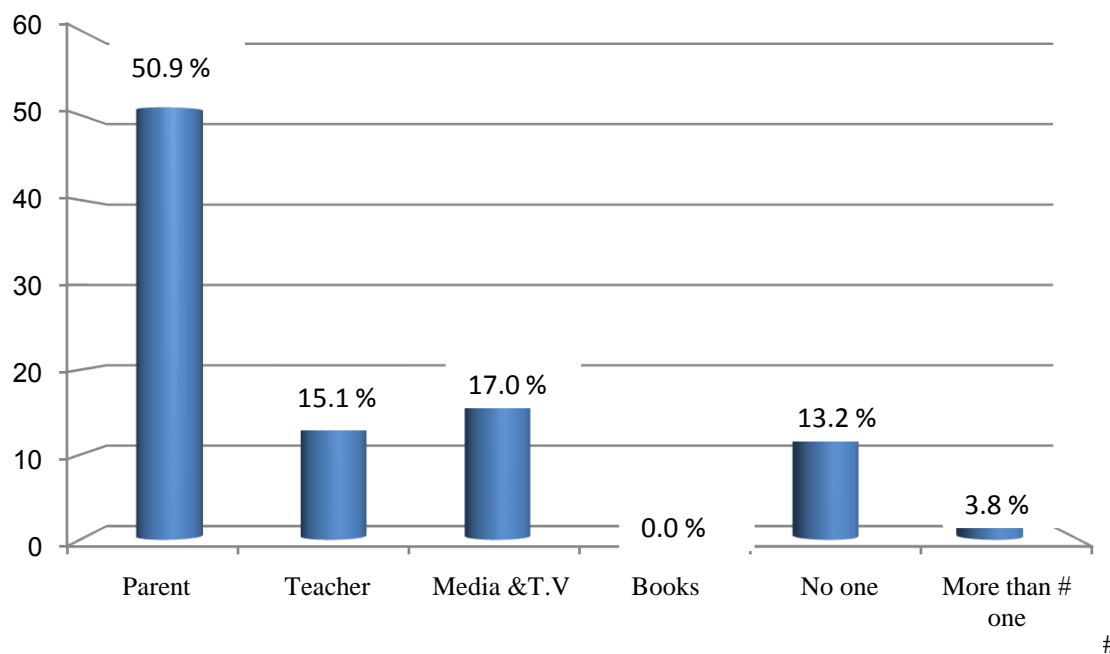
**Table 1:** Shows that 56.6% of studied students their age ranged between 12 < 18 years, with mean age 12.4 ± 3.2 years, 43.4% of them their IQ ranged between 50- < 55, with mean 56.9 ± 6.4 score, also 56.6% of students were come from rural area and 64.2% of them had unsatisfactory social class.

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	No.	%
Definition of personal hygiene	34	64.2
Components of personal hygiene :		
Hair care	27	50.9
Showering	42	79.2
Foot and nail care,	4	7.5
Genital care	3	5.7
Dental care	19	35.8
Importance of personal hygiene	25	47.2
Personal hygiene protects from diseases	22	41.5
Basic equipment of personal hygiene	12	22.6

**Table 2:** Presents that 64.2% of studied students answered correctly about the meaning of personal hygiene. 79.2% of studied students answered that showering was the most important component of personal hygiene. Also 47.2% of them stated that personal hygiene is important, and 41.5% answered that personal hygiene protects from diseases. The main sources of information about personal hygiene were parents 50.9% followed by media & T.V 17.0%, teachers 15.1% and no source of information 13.2%, **Figure 1.**



means their sources were books, teachers, media and T.V.  
**Figure 1: sources of knowledge about personal hygiene (n = 53).**

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

Personal Hygienic Self-reported practices			X <sup>2</sup>	P – value
	No.	%		
<b>Hand washing</b>				
Before and after eating	38	71.7	8.060	.02*
After using the toilet	24	45.3	20.014	.000**
After playing	5	9.4	6.411	.04*
Using soap in hand washing	21	39.6	14.083	.001**
<b>Teeth brushing</b>				
At morning	7	13.2	23.831	.000**
Before sleeping	9	17.0	13.641	.001**
<b>Gurgling after each meal</b>				
Teeth brushing daily	13	24.5	13.640	.001**
Visiting the dentist every six weeks	9	17.0	8.774	.01*
<b>Showering number</b>				
Once per day	2	3.8	4.304	.636 NS
Every other day	17	32.1		
Twice per week	22	41.5		
Once per week	12	22.6	.053	.974 NS
Showering alone	20	37.7		
<b>Assists in showering</b>				
Mum	32	61.5	3.184	.785 NS
Sisters	1	1.9		
House setter	1	1.9		
Face care	32	60.4	4.047	.132 NS
Showering daily	20	37.7	15.041	.001**
Cutting foot nails horizontally	15	28.3	7.143	.03*
Drying feet well after showering	23	43.4	.355	.838 NS
Ears care	22	41.5	5.065	.079 NS
Eyes care	22	41.5	1.969	.374 NS
Hair care	17	32.1	14.083	.001**

NS= Not statistically significance \* Statistically significant at P – value ≤ .05 \*\* Statistically significant at P – value ≤ .01

**Table 3:** demonstrates that 39.6% of studied students use soap to wash their hands and 71.7% of them wash hands before and after eating. About 24.5 % of them brush their teeth daily while only 3.8% of them shower daily. Also 37.7% of them depend on self in showering and 37.7% of them takeshower daily with soap and water.

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

Knowledge regarding menstrual hygiene			X <sup>2</sup>	P – value
	No.	%		
<b>The normal age for menarche</b>				
Less than 12 yrs.	1	3.6	17.445	.008**
12 - 14 yrs.	4	14.3		
More than 14 yrs.	0	.0		
Don't know	23	82.1		
<b>Duration of regular menses</b>				
3-7 days	2	7.1	25.212	.000**
>7 days	4	14.3		
Don't know	22	78.6		
<b>Bathing during menses</b>				
On first day	2	7.1	23.418	.001**
Last day	12	42.9		
Daily	5	17.9		
Don't know	9	32.1		
<b>Hygienic self-reported practices during menstruation</b>				
Use of sanitary pad	23	82.1	2.951	.229 NS
Number of sanitary pad per day	14	50.0	7.000	.136 NS
Use soap and water to clean the genitalia	9	32.1	15.572	.000**
Bath daily during menstruation	9	32.1	4.709	.095 NS
Clean the genitaliasatisfactory	15	53.6	7.350	.03*
Clean the genitalia by yourself	10	35.7	.000	1.000 NS

NS= Not statistically significance \* statistically significant at P – value ≤ .05 \*\* statistically significant at P – value ≤ .01

**Table 4:** revealed that there was a lack of knowledge regarding to age of menarche and duration of regular menses among 82.1% and 78.6% of studied students respectively. Concerning to time of bathing during menses, only 17.9% of them answered correctly. 82.1% of them were using sanitary pad, 32.1% of them were using soap and water to clean genitalia and bath daily during menstruation and 53.6% were washing genitaliasatisfactory. The sources of information about menstrual hygiene were media 46.4%, followed by teachers 32.1% and mothers 7.1%, Figure 2.

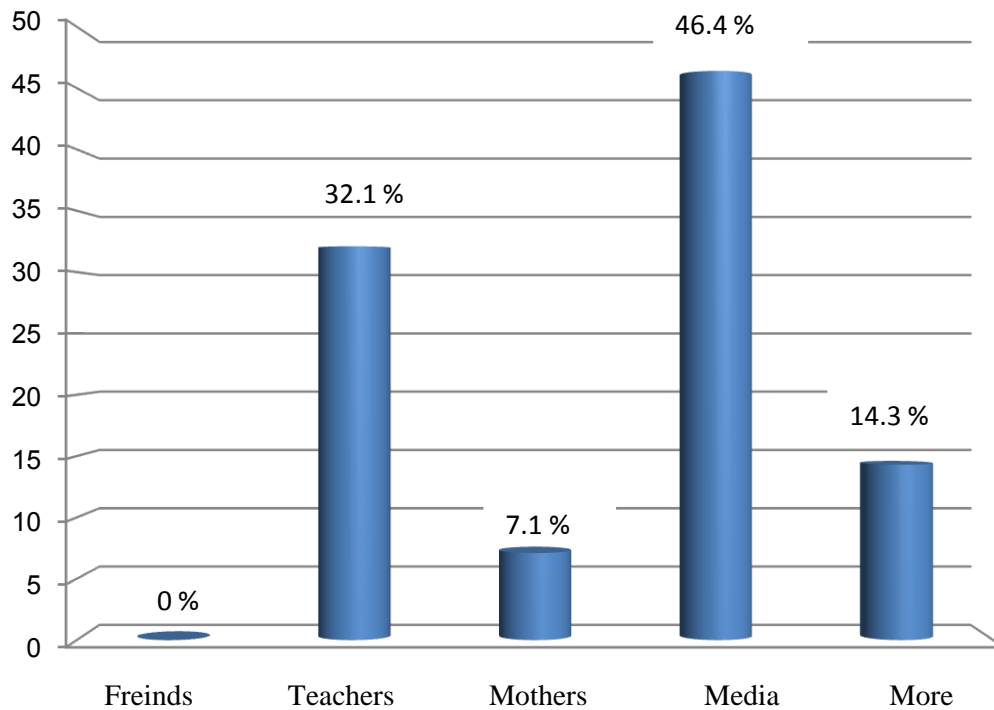


Figure 2: Source of knowledge regarding menstrual hygiene.

Table 5: 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			X <sup>2</sup>	P- Value
	No	%		
<b>Personal hygiene knowledge (n = 53).</b>				
Poor	29	54.7	23.481	.000**
Fair	19	35.8		
Good	5	9.4		
<b>Mean ± SD</b>	6.5 ± 3.6			
<b>Knowledge about menstrual hygiene (n = 28).</b>				
Poor	25	89.3	14.846	.005**
Fair	3	10.7		
Good	0	.0		
<b>Mean ± SD</b>	0.8 ± 1.4			
<b>Personal hygiene self-reported practices (n = 53).</b>				
Unsatisfactory	45	84.9	35.889	.000**
Satisfactory	8	15.1		
<b>Mean ± SD</b>	11.9 ± 5.7			
<b>Menstrual hygienic self-reported practices (n = 28).</b>				
Unsatisfactory	14	50.0	16.381	.000**
Satisfactory	14	50.0		
<b>Mean ± SD</b>	5.7 ± 2.9			

Table 5: demonstrates that 54.7% of studied students' had poor knowledge about personal hygiene and 89.3% of them had poor knowledge level about menstrual hygiene. As regarding to their practices about

personal hygiene, 84.9% and 50.0% of them had unsatisfactory level of self-reported practices about personal and menstrual hygiene respectively.

**Table 6:** 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		
	Poor	Fair	Good
<b>Age/year</b>			
6 - < 12	27.6	5.3	.0
12 - < 18	62.1	42.1	80.0
18 – 24	10.3	52.6	20.0
X <sup>2</sup> (P – value)	<b>13.505 (.009) **</b>		
<b>IQ</b>			
50- < 55	48.3	42.1	20.0
55 - < 60	31.0	15.8	.0
60- < 65	17.2	26.3	40.0
65 – 70	3.4	15.8	40.0
X <sup>2</sup> (P – value)	<b>9.933 (.027) *</b>		
<b>Residence</b>			
Urban	55.2	63.2	40.0
Rural	44.8	36.8	60.0
X <sup>2</sup> (P – value)	.918 (.632)		
<b>Social class</b>			
Unsatisfactory	64.7	29.4	5.9
Satisfactory	36.8	47.4	15.8
X <sup>2</sup> (P – value)	4.094 (.129)		
<b>Fathers education</b>			
Illiterate	24.1	10.5	0.0
Primary or reparatory	48.3	26.3	40.0
Secondary	24.1	52.6	40.0
University	3.4	10.5	20.0
X <sup>2</sup> (P – value)	8.110 (.230)		
<b>Mothers education</b>			
Illiterate	65.5	31.6	40.0
Primary or reparatory	20.7	31.6	20.0
Secondary	13.8	31.6	20.0
University	0.0	5.3	20.0
X <sup>2</sup> (P – value)	<b>10.772 (.034) *</b>		

NS= Not statistically significance

\* Statistically significant at P – value ≤ .05

\*\* Statistically significant at P – value ≤ .01

**Table 6:** shows that there were statistical significant relation between students' total knowledge about personal hygiene and their demographic data related to their age, I.Q and their mothers' education.

#### IV. 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 of lack of awareness regarding personal and environmental hygiene. Disabled children are not conscious of personal hygiene at school level. For the better knowledge and practice, the 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 that about two thirds of studied students answered correctly about the definition of personal hygiene. 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. Also the pictures of main basic equipment of personal hygiene such as toothbrush, toothpaste and soap are taught in main academic topics for painting especially in first stages of primary school.

The previous finding was in the same line with study conducted by **Ilesanmi (2016)** in Ile-Ife, Nigeria, which revealed that 97.8 % 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 majority of the respondents (98.2%) answered true to the definition of personal hygiene. Also it was supported by the study of **Kumar & Akojam, (2015)** in Manipur, India, in which 100% of the respondents agreed that personal hygiene includes cleaning of the body and clothes.

Showering (bathing) was the most important aspect or component of personal hygiene as ranked by four fifth of the studied students. This 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 62% of students.

The main sources of information regarding personal hygiene were parents (50.9%) followed by media & T.V (17.0%) and teachers (15.1%). 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, 77% and 46% respectively. From researcher's point of view, this may be due to that the studied students were girls who don't inhabit 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 be taught personal hygiene behaviors. Also at home they can watch T.V which shows videos and songs about personal hygiene such as Toyor Al-djanachannel. so teachers were not the first source of information about personal hygiene.

The present study demonstrated that about two fifth of studied students use soap to wash their hands and less than three quarter of them wash hands before and after eating. Our findings 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 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 M et al., (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 regarding to age of menarche and duration of regular menses among the majority of participants. 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. From researcher's point of view, this contradiction with the current study might be because this study was involved normally intellectually developed girls as study population not mentally retarded population.

The sources of information about menstrual hygiene were media followed by teachers. This may be explained as the adolescent girls may be shy, timid and ashamed for discussing about menstruation with their mothers. Also their mothers may have taboo for discussing about menstruation with them and most of their mothers may be illiterate and may have no knowledge about physiology of menarche. This is supported by the study conducted by **El-Gilany et al., (2005)** in Egypt who stated that mass media, peers, friends, and mothers were the most common sources of information about menstrual hygiene. Also **Upashe et al., (2015)** in Ethiopia revealed that the main source of information about menstrual hygiene was teachers 43.1%, followed by mother 22.96% and **Abu-rshaidet al., (2017)** in Kingdom of Saudi Arabia where 82.1% of subjects reported that their menstrual sources of information were their mothers, followed by 33.3% sisters, 23.1% teachers and 2.6% for books.

The current study demonstrated that more than half of studied students' had poor knowledge level about personal hygiene and the majority of them had poor knowledge level about menstrual hygiene. Also the majority of them had unsatisfactory level of self-reported practices about personal hygiene. From researcher point of view, mentally retarded students may 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 personal and menstrual hygiene. This indicates the need for imparting necessary education and information on personal and menstrual hygiene as well as meaning and fact related to menarche.

The findings of the current study showed that there were statistical significant relation between students' total knowledge about personal hygiene and their demographic data related to their age, their mothers' education and I.Q. The higher age, I.Q score and mothers' education, 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 children with more and accurate hygiene knowledge and practices and act as a source of information for their families.

The previous findings was similar to studies done by **Pal & Pal., (2017)** and **Mukherjee et al., (2014)** which revealed that KAP (Knowledge, Attitude and Practices) 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.

## V. Conclusion

Based up on the findings of this study, it can be concluded that more than half of studied students' had poor knowledge about personal hygiene and the majority of them had poor knowledge about menstrual hygiene. As regarding to their practices about personal hygiene, most of them had unsatisfactory level of self-reported practices about personal and menstrual hygiene. There were statistical significant relation between students' total knowledge about personal hygiene and their demographic data related to their age, their mothers' education and I.Q.

## VI. 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. 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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