

## Knowledge, Attitude and Practice Regarding Personal Hygiene among Preschool Children in Tanta city, Gharbia Governorate, Egypt

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### ABSTRACT

**Background:** Personal hygiene aids in the disease prevention and health promotion. It is vital in every phase of life, but good cleanliness behavior starts in childhood.

**Purpose:** To appraise the KAP of the personal hygiene and also to assess the association between proper knowledge and the attitude and practice of personal hygiene among preschool children. **Methods:** This is a cross-sectional study conducted in Tanta city, Gharbia governorate in the middle of Delta region in Egypt from October 2013 to March 2014.

**Results:** The study included 231 preschool children most of them were males 128 (55.4%), the majority were rural resident 205 (88.7%) with their age ranged between 3-6 years and median age 5 years. More than three quarters of the children (77.1%) knew the requirement of personal hygiene. On the other hand more than half of them had a special towel and comb. About two thirds of children (65.4%) had good to moderate knowledge with nearly three quarters (73.6%) had positive attitudes and more than half (55.4%) had good practice. There was a moderate positive correlation between knowledge score with both the attitude and practice scores. Male and older children had a significant better knowledge, attitude and practice than female and younger ones. Residence had no significant effect on children knowledge, attitude and practice.

**Conclusions:** Preschool children knowledge, attitudes, and practices about personal hygiene were deficient in some aspects.

**KEYWORDS:** Attitude, Hygiene, Knowledge, Practice, Preschool children.

### INTRODUCTION

The term hygiene is derived from the name of the antique Greek deity of beneficial living-Hygeia. Hygiene refers to the set of practices linked to the conservation of health and healthy living<sup>1</sup>. It involves usual washing of the body (bathing), washing the hands when essential, washing ones' clothing, washing the hair, brushing the teeth, cutting the nails, and caring for the gums<sup>2</sup>. Children are predominantly vulnerable to the neglect of necessary personal hygiene<sup>3</sup>.

Personal hygiene in a straight line aid in the disease prevention and health promotion.<sup>4</sup> Hygiene practices are prejudiced by social, familial and individual factors as well as the children's knowledge and attitudes towards hygiene<sup>3</sup>. In a study conducted in Senegal, reasons given for not washing hands included stubbornness (not wanting to follow what adults say), laziness, the rush to go to breaks, the time it takes away from playing, and the dirt and smell of the toilets.<sup>5</sup>

In 2009, researchers reported that 62% and 31% of all deaths in Africa and Southeast Asia, in that order, are caused by communicable disease<sup>6</sup>. This tendency is especially distinguished in developing countries where acute respiratory and intestinal infections are the primary causes of morbidity and mortality among young children.<sup>7</sup> In Egypt, although children mortality rates have been reduced in current years, yet, diarrheal diseases still account for 12% of deaths in children <5 years of age. Insufficient sanitary circumstances and poor hygiene practices play chief roles in the increased impact of communicable disease within these developing countries. According to the population census in Egypt (2014), 32.1% were children in the age group zero to fourteen years. They are the true groundwork of our society as healthy children will be healthy and strong adults who can dynamically contribute in the developmental activities of a nation.<sup>8-10</sup>

Personal hygiene is vital in every phase of life, but good cleanliness behavior starts in childhood. Kids who learn what it is and how to follow appropriate hygiene practices will usually hold that into maturity.<sup>11</sup> This factor is inspiring us to carry out this study.

The objective of this study was to appraise the KAP of the personal hygiene. Moreover, to assess the association between proper knowledge, attitude and practice of personal hygiene among preschool children in Tanta, Egypt. Information from this study will serve as baseline data for future school-based hygiene intervention programs for preschools.

## SUBJECTS AND METHODS

**Study design:** This is a cross-sectional study.

**Study setting:** This study was conducted in Tanta city, Gharbia governorate in the middle of Delta region in Egypt from October 2013 to March 2014.

**Participants:** The sample size was calculated by the Minitab statistical program for one sample at a significance level of 0.05, a power of 0.8, a test proportion of 0.5 and alternative proportion of 0.6, ending with a minimum sample size equal 194. Two hundred and fifty children were chosen by a multistage probability sample technique. First, Tanta educational administration was divided into east and west administrations, then the study subjects were chosen by a random selection of one primary school (a cluster) from the east and another one from the west administration, then three classes were chosen randomly from each school.

Out of the 250 children chosen, nineteen children didn't complete all needed data properly so they were excluded and the study sample included (N=231) children who completed the study.

**Inclusion criteria:** The study included all children under 6 years in the kindergarten who completed the study properly.

**Tools for Data collection:** Each student was interviewed using a structured questionnaire. (Also parent and researcher observation for practice items).

### The questionnaire consisted of:

#### Demographic information

Grade, gender, residence.

#### Knowledge questions

16 questions about personal hygiene as an instrument for personal hygiene, importance, and frequencies of bathing, washing hands, feet/hair, brushing teeth, cutting nails etc.

#### Practice questions

21 questions about what actually done as morning face washing, frequency of tooth washing, ear cleaning after bath, washing hand with (soap, water only, other), and teeth cleaning (toothpaste, water only, other)

#### Attitude questions

5 questions include concepts about the importance of washing hands after touching animals, before meals, after meals; the importance of cleaning body, the importance of tooth brushing and if obesity is a sign of strength.

#### Validity and reliability

The face validity of the questionnaire was tested by five professors and associate professors of Public health and community medicine in Tanta Faculty of Medicine. The average overall face validity was equal to 95%. Test-retest reliability was done by Alpha (Cronbach's) test reliability for internal consistency and it was equal to 0.87. Test reliability was applied on a pilot of 20 children before the study.

#### Ethical consideration:

A verbal consent was taken from the school's director and children families before data collection.

#### Data Analysis:

Statistical analysis was done using SPSS (Version 17.0, SPSS Inc. Chicago, IL, USA). Frequency tables and graphs were used to describe KAP of personal hygiene among children. Qualitative data were summarized in percentage and non-parametric tests of significance [chi square test, Montcarlo exact tests] were applied for nominal scale variables. As regards quantitative data; median, range and IQR were used to summarize the age as a skewed numerical variable while kruskal-wallis test of significance was applied as a non-parametric test. Spearman Correlation between two variables was applied. The p-value was two-tailed and statistical significance was set at 0.05.

## SCORING SYSTEM FOR KAP

#### Knowledge

There were 16 questions scored (1 & 0) for true and false answers. The total score ranged from 0 to 16. The score was divided into three categories; poor knowledge with a score less than 50% {< 8}, moderate knowledge from 50 % to 75% (8 to 12) and good knowledge more than 75% {> 12}.

#### Attitude

Five questions for attitude answered with (1, 0) for agreeing and don't agree. The total score ranged from 0 to 5. The score was divided into three categories; negative with a score less than 50% {< 2.5}, indifference from 50% to 75% {2.5 to 3.75} and positive more than 75% {> 3.75}.

#### Practice

There were 21 questions scored (1, 0) for practice and don't practice. The total score ranged from 0 to 21. The score was divided into three categories; poor practice with a score less than 50% {< 10.5}, moderate from 50% to 75% {10.5 to 15.75} and good more than 75% {> 15.75}

**Table 1: Frequency distribution of the study subjects according to their Knowledge towards personal hygiene**

Knowledge questions	Knowledge			
	Know (True)		Don't know (False)	
	No	%	No	%
1. Do you know the requirement of personal hygiene?	178	77.1	53	22.9
2. Do you know the requirement of general hygiene?	117	50.6	114	49.4
3. Do you know the importance of hand washing?	198	85.7	33	14.3
4. Do you know the importance of foot washing?	145	62.8	86	37.2
5. Do you know the importance of cleaning your ear?	112	48.5	119	51.5
6. Do you know the importance of tooth washing?	198	85.7	33	14.3
7. Do you know the difference between personal and general hygiene requirement?	72	31.2	159	68.8
8. Do you know the harm of nail biting on health?	82	35.5	149	64.5
9. Is the towel a personal hygiene instrument?	184	79.7	47	20.3
10. Is the broom a general hygiene instrument?	128	55.4	103	44.6
11. Do you know the harm of poor personal hygiene?	64	27.7	167	72.3
12. Do you know how many times of tooth brushing/day?	133	57.6	98	42.4
13. Do you know the importance of hand washing with soap?	206	89.2	25	10.8
14. Do you know what you should do during sneezing?	179	77.5	52	22.5
15. Do you know how many times of bathing/week?	101	43.7	130	56.3
16. Do you know the importance of using handkerchief during sneezing?	177	76.6	54	23.4

**Table 2: Frequency distribution of the study subjects according to their attitude towards personal hygiene**

Attitude questions	Attitude			
	Agree		Don't agree	
	No	%	No	%
1. Using tooth paste is Important in cleaning tooth	204	88.3	27	11.7
2. The towel is a personal hygiene instrument	188	81.4	43	18.6
3. Being more obese meaning more strong	114	49.4	117	50.6
4. Washing hand with soap is important after dealing with animals	183	79.2	48	20.8
5. Body cleanliness is important	218	94.4	13	5.6

**Table 3: Frequency distribution of the study subjects according to their Practice of personal hygiene**

Practice questions	Practice			
	Practice		Don't practice	
	No	%	No	%
1. Do you Wash your face in the morning?	218	94.4	13	5.6
2. Do you have a special towel?	134	58.0	97	42.0
3. Do you Wash your tooth twice/day?	139	60.2	92	39.8
4. Do you take a Bath once /day?	125	54.1	106	45.9
5. Does your Mother clean your ear after bathing?	148	64.1	83	35.9
6. Do you wash your hands with soap before and after meals?	200	86.6	31	13.4
7. Do you wash your hands with soap after a toilet?	186	80.5	45	19.5
8. Do you wash your hair with water and shampoo?	213	92.2	18	7.8
9. Do you Comb your hair after a bath?	219	94.8	12	5.2
10. Does your mother cut your Nails at least once weekly?	191	82.7	40	17.3
11. Do you Use tooth paste after meals in cleaning tooth?	145	62.8	86	37.2
12. Do you Change underwear daily or frequently per week?	196	84.8	35	15.2
13. Do you avoid walking with bare feet?	159	68.8	72	31.2
14. Do you use a private comb?	132	57.1	99	42.9
15. Do you wash your hand after dealing with an animal?	182	78.8	49	21.2
16. Do you use a handkerchief during sneezing?	184	79.7	47	20.3
17. Do you keep your foot and socket clean?	198	85.7	33	14.3
18. Do you keep your face and hand clean?	214	92.6	17	7.4
19. Do you eat from street vendors?	108	46.8	123	53.2
20. Do you use antiseptic for a wound cleaning?	165	71.4	66	28.6
21. Do you have your own cup?	146	63.2	85	36.8

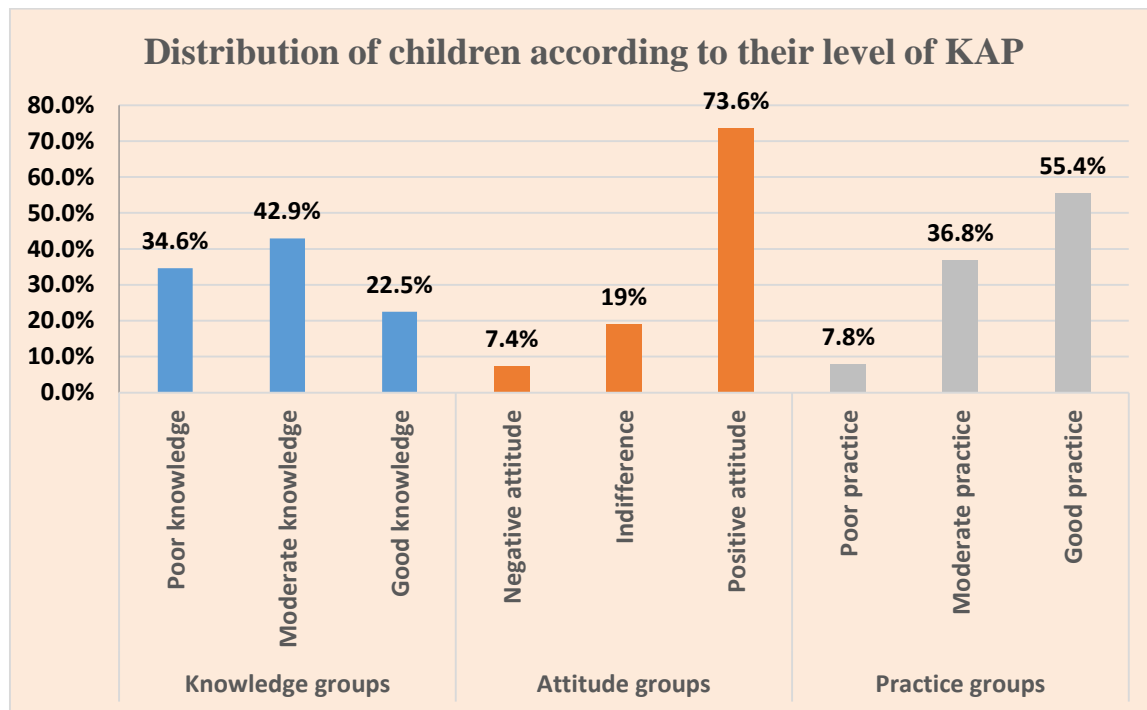


Fig 1: Distribution of the study children according to their level of knowledge, attitude and practice.

Table 4: Correlation between knowledge score and both of the attitude and practice scores

Knowledge score	Correlation Coefficient	Attitude score	Practice score
		.397*	.485*
	Sig. (2-tailed)	.000	.000

Table 5: The relationship between children knowledge with their attitude and practice

Attitude and Practice		Knowledge						Significance test P value
		Poor knowledge (< 50%) (N=80)		Moderate knowledge (50-75%) (N=99)		Good knowledge (> 75%) (N=52)		
		No	%	No	%	No	%	
Attitude	Negative (N=17)	14	82.4	3	17.6	0	0.0	X <sup>2</sup> =36.03
	Indifference (N=44)	25	56.8	14	31.8	5	11.4	P=0.001*
	Positive (N=170)	41	24.1	82	48.2	47	27.6	
Practice	Poor (N=18)	12	66.7	5	27.8	1	5.6	X <sup>2</sup> =36.65
	Moderate (N= 85)	44	51.8	31	36.5	10	11.8	P=0.001*
	Good (N=128)	24	18.8	63	49.2	41	32.0	

Table 6: The relationship between children knowledge with their age, sex and residence

Age, Sex and residence		Knowledge						Significance test P value
		Poor knowledge (< 50%) (N=80)		Moderate knowledge (50-75%) (N=99)		Good knowledge (> 75%) (N=52)		
		No	%	No	%	No	%	
Sex	Male (N=128)	29	22.7	63	49.2	36	28.1	X <sup>2</sup> =18.62
	Female (N=103)	51	49.5	36	35.0	16	15.5	P=0.001*
Residence	Urban (N=26)	11	42.3	14	53.8	1	3.8	X <sup>2</sup> =5.858
	Rural (N= 205)	69	33.7	85	41.5	51	24.9	P=0.053
Age	Median age	5		5		5		Kruskal-Wallis test
	Range	3 -6		4 -6		4 -6		X <sup>2</sup> =18.62
	IQR	0		0		0		P= 0.027*

**Table 7: The relationship between children Attitude with their age, sex and residence**

Age, Sex and residence			Attitude						Significance test P value
			Negative attitude ( $< 50\%$ ) (N=80)		Indifference (50-75%) (N=99)		Positive attitude ( $> 75\%$ ) (N=52)		
			No	%	No	%	No	%	
Sex	Male (N=128)	3	2.3	22	17.2	103	80.5	$X^2=12.18$ P=0.002*	
	Female (N=103)	14	13.6	22	21.4	67	65.0		
Residence	Urban (N=26)	1	3.8	6	23.1	19	73.1	Montcarlo test $X^2=0.742$ P=0.767	
	Rural (N= 205)	16	7.8	38	18.5	151	73.7		
Age	Median age	5		5		5		Kruskal-Wallis test $X^2=9.008$ P= 0.011*	
	Range	4-6		3 -6		3 -6			
	IQR	1		1		0			

**Table 8: The relationship between children Practice with their age, sex and residence**

Age, Sex and residence			Practice						Significance test P value
			Poor practice ( $< 50\%$ )(N=80)		Moderate practice (50-75%) (N=99)		Good practice ( $> 75\%$ ) (N=52)		
			No	%	No	%	No	%	
Sex	Male (N=128)	8	6.2	39	30.5	81	63.3	$X^2=7.209$ P=0.027*	
	Female N=103)	10	9.7	46	44.7	47	45.6		
Residence	Urban (N=26)	2	7.7	13	50.0	11	42.3	$X^2=2.296$ P=0.317	
	Rural (N= 205)	16	7.8	72	35.1	117	57.1		
Age	Median age	5		5		5		Kruskal-Wallis test $X^2=13.89$ P= 0.001*	
	Range	4-6		3 -6		3 -6			
	IQR	1		0		0			

**RESULTS**

This study included 231 preschool children, more than half of them were males 128 (55.4%). The majority of the participants were rural resident 205 (88.7%) with their age ranged between 3-6 years and their median age was 5 years

Table 1 shows frequency distribution of the study subjects according to their Knowledge towards personal hygiene; 77.1% of children knew the requirement of personal hygiene. The best questions answered were the 3<sup>rd</sup>, 6<sup>th</sup> and 13<sup>th</sup> (the importance of washing hands, teeth brushing and using soap in cleaning hand) as they were 85.7% for 1st and 2nd items and 89.2% for the third. Regarding the harm of nail biting by mouth, the ham of poor personal hygiene and the number of bathing/week (8<sup>th</sup>, 11<sup>th</sup> and 15<sup>th</sup> questions), less than one-third of children answered it correctly.

Table 2 shows frequency distribution of the study subjects according to their attitude towards personal hygiene. They had good attitude towards all asked aspects except the 3rd question as about half of the children perceived obesity as a sign of strength.

Table 3 shows frequency distribution of the study subjects according to their Practice of personal hygiene. About 90% of children practiced face washing in the morning, using shampoo in washing hair, combing their hair and washing hand with soap before and after meals. On the other hand more than half of them had a special

towel and comb (58% and 57.1% respectively) also 54.1% bath daily and 60.2% use toothbrush twice daily. Table 5 shows the relationship between children knowledge with their attitude and practice. It reveals that three quarters of children with positive attitude, had significant moderate and good knowledge (48.2% and 27.6% respectively), while the majority of children with a negative attitude (82.4%) had a significant poor knowledge (P=0.001). In addition most of those with good practice had a significant moderate and good knowledge (49.2% and 32% respectively) and more than half of those with poor practice had a significant poor knowledge (66.7%) (P=0.001).

Regarding gender and age, males and older children had significant better knowledge than female and younger ones (P=0.001, P= 0.027) . Whereas there was no significant association between knowledge and place of residence whether urban or rural (P=0.053).

Most of the male children (80.5%) had a significant positive attitude compared to females (65%) (P=0.002). Also, older children had a significant positive attitude (P= 0.011). No significant association was found regarding residence (P=0.767).

Concerning practice 63.3% of male children had a significant good practice compared to 45.6% of females (P=0.027). For age, older children had more good practice significantly than younger ones (P= 0.001).

## DISCUSSION

In the present study, there was a high level of knowledge among children regarding the requirement of personal hygiene and the importance of hand washing, tooth brushing and using soaps in cleaning hand (Table 1). This was in agreement with another study carried out in Ethiopia (2014) among primary school children, as (85.4%) of students know the importance of hand washing before meals<sup>12</sup>. This also reported by primary school children in Erbil city (2012) where the majority of students (94%) knew the requirement of personal hygiene, and most of them (83%) knew the importance of the hand washing<sup>13</sup>.

Whereas, the harm of nail biting, a number of bathing/week and the harm of poor personal hygiene were not well known by children. This was lower than that reported in other studies, in Erbil city (2012) and in India (2014) as more than half of children knew the importance of good personal hygiene<sup>13,14</sup>. This may be due to the age difference in the study population as the children of the current study were younger.

In the present study, most of the children (90%) practiced face washing in the morning, using shampoo in washing hair, combing hair and washing hand with soap before and after meals (Table 3). These high proportions were consistent with that reported by other studies<sup>13,15</sup>. However it is higher than reported from other studies in India and Turkey as 85.4% and 46.9% of students respectively, reported washing hands before meals while 45.12% and 42.4%, respectively, reported using soap<sup>14,16</sup>.

More than half of children in the present study had a bath daily (54.1%). And also (60.2%) used tooth brush twice daily. These findings disagree with Ansari (2014), who reported 81% of children bath daily and 31% practiced tooth brush twice daily<sup>15</sup>. Kenneth A Eaton et al (2008) conducted a study on school children. The study revealed that in Switzerland, Sweden, Netherlands, Germany, Denmark and Norway, more than 75% of children brushed their teeth more than once per day, whereas, in Finland, Romania, Greece, Lithuania, Turkey and Malta less than 46% brushed more than once per day<sup>17</sup>. Lower proportions were shown by Petersen PE et al (1998) as 22% of children brushed their teeth twice a day<sup>18</sup>. This could be explained by the difference in the socioeconomic status and living conditions among study participants and may be the level of awareness among parents.

The present study revealed that three-quarters of children with a positive attitude and the majority of those with good practice had significantly moderate and good knowledge (Table 5). This agrees with the findings of Dakhili et al (2014)<sup>19</sup>.

Also, Smith et al (2007) reported that Subjects with strong knowledge showed better attitude and practice towards hygiene. However, neither the attitude nor the

practice variables differed significantly between the strong and weak knowledge groups<sup>20</sup>. This may be explained by differences in study population and methodology.

In the current study, male children had significantly better knowledge, attitude and practice than female ones (Table 6,7,8). This disagrees with Kamran et al (2014) who reported that females had better knowledge, attitude and practice scores than males regarding oral health<sup>21</sup>. Whereas in another study males had shown significantly higher scores compared to females<sup>22</sup>. This discrepancy in results may be explained by the cultural and social differences.

In the present study, older children had significantly better knowledge, attitude and practice than younger ones (Table 6,7,8). These findings are in harmony with Sheren et al., (2012) who reported a significant relationship between age and child knowledge concerning personal hygiene<sup>13</sup>.

## CONCLUSIONS & RECOMMENDATIONS

Preschool children knowledge, attitudes, and practices of personal hygiene were deficient in some aspects. The need for more health education concerning personal hygiene to ensure that all children learn at an early age how to protect themselves and others from preventable exposure to illness and other hazards related to poor hygiene. This can be carried out through formal (as a part of the curriculum) and informal health education messages.

## LIMITATIONS

The major limitation of this study is that the self-reported data and the practice cannot be ensured for all items. Also, the data were liable to information bias thus, cannot be generalized.

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