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Effectiveness of Intervention Program on Primary School Pupils' about Hand-washing Practices

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Abstract

This quasi-experimental study aimed to develop an intervention program to enhance hand hygiene practices among school children in Najaf Governorate. Data were collected via a questionnaire assessing demographic characteristics and hand washing behaviors. Descriptive and inferential statistics were employed for data analysis. Results revealed suboptimal hand hygiene practices, with only 58.2% of children washing their hands after using the bathroom and 63.4% after playing. Gender and age disparities were evident, with females and older children exhibiting better hand washing habits. Family dynamics also played a significant role, with children learning hand washing predominantly from their mothers, particularly when fathers were present and employed as earners. Recommendations include integrating hygiene education into school curricula and conducting targeted educational sessions to promote effective hand washing practices. These findings underscore the importance of addressing socio-demographic factors in designing interventions to improve hand hygiene among school children, thereby mitigating the spread of infectious diseases.

Highlights :

- Importance of Hand Hygiene: The study highlights the significance of hand washing in preventing disease transmission, emphasizing its crucial role in maintaining public health.
- Gender and Age Disparities: Findings reveal differences in hand washing practices based on gender and age, underlining the need for targeted interventions to address these disparities.
- Influence of Family and Profession: The influence of family members, particularly parents, and the profession of the father on hand washing habits underscores the importance of familial and societal support in promoting good hygiene practices.

Keywords : Hand hygiene, Intervention program, Quasi-experimental study, School curriculum, Educational session

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Introduction

Hand washing is a quick and easy procedure that is thought to guard against infections. It is also seen to be one of the best ways to stop many different kinds of pollutants and illnesses at home, at work, in kindergartens, schools, and hospitals[1]. Its goal is to get rid of live things as well as dirt and dust. Keeping hands clean helps stop bacteria and viruses from spreading amongst individuals and throughout the community [2]. It is a precursor to many diseases, including: Diarrhea and annoying intestinal diseases such as SIBO, and avoid Common eye infections, known as pink eye (conjunctivitis), (Keratitis, inflammation of the eyelid) and reducing inflammation of the device. Respiratory diseases, which include viruses, fungi, and some types of bacteria [3]. Touching fluids from the mouth, nose, intestines, and other bacterially contaminated places exposes our hands to tingling infections. Disease-causing agents are automatically eliminated from hands by washing them with soapy water under running water and drying them with a fresh towel. In addition to eliminating pathogens, soap also eliminates disease-causing germs from hands. Washing hands with soap and water reduces the number of people suffering from diarrhea, By approximately 23%-43%, the number of days absent from school that children miss due to digestive system diseases occur by 29% to 57%, including diarrheal diseases, People who suffer from a poor immune system by about 58% and diseases, The respiratory system, such as the common cold, in the general population about 16%-21%.[4] Hand washing is considered a shield for children from infection. As 83% of infectious diseases are related to the child touches surfaces, books, desks, door handles, and faucets, which spread It contains disease-causing germs such as bacteria and viruses.Washing hands is the easiest method of observance and one of the most important means of avoiding the spread bacterial and viral infections, advising parents to remind their children of the importance of washing hands after using the toilet, sneezing, runny nose, coughing, and wet food, especially at the start of the school year the new ones.[5]

Objectives :

1. Assess the primary Pupils' practices regarding hand washing.
2. Preparing an intervention program on hand washing steps.
3. Identify the effectiveness of the intervention program with regard to hand washing.
4. Finding the relationship between demographic variables and pupils' practices regarding hand washing.

Method

Design of the Study :

A quasi-experimental study conducted in Al-Najaf Governorate from 1st September of 2023 until 10th January 2024.

Ethical Considerations:

In order to secure their cooperation and clearance for data collection, the study obtained ethical authorization from the Scientific Research Ethics Committee of the Kufa Institute and the Ethics Committee of the Al-Najaf Governorate Education.

Research sample :

The sample was collected in a systematic random method (probability) from the Al-Najaf Governorate Education, the Al-Safa and Al-Marwah Primary School were selected to collect the samples, so that the number of the sample included in the study was (153) Pupils.

Method of data collecting:

Data was collected through the use of a questionnaire with two primary sections. The first section asked about each pupil's social and demographic traits, and the second part related to the Pupils practices regarding how to wash hands.

Validity of the Questionnaire and the Program :

The expert panel determines the content validity of the early created instrument by examining the questionnaire's sufficiency, relevance, and clarity in measuring the idea of interest. A draft version of the questionnaire was created and given to eight specialists.

Reliability of the Questionnaire:

The test-retest approach was utilized to calculate the Pearson Correlation Coefficient in order to assess the instrument's reliability. The current study instrument's dependability was assessed using the Pearson Correlation Coefficient using IBM SPSS version 26.0, a statistical package for social science applications.

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Statistical analysis :

Descriptive statistics methods were used to analyze the data, and inferential statistics to find relationships.

- Descriptive statistics :

1. **N . = frequency**
2. **% = percentage**
3. **Mean**

- Inferential statistics :

1. **Paired Samples T-test**
2. **Multiple Linear Regression**

Results and Discussion

Characteristics of pupils	N	Percentage
Gender		
Male	73	47.7%
Female	80	52.3%
Age (year)		
8 ≤	21	13.7%
10 – 8	71	46.4%
10 ≥	61	39.9%
mean of age = 9.71		
Class		
First	23	15.0%
Second	23	15.0%
Third	21	13.7%
Fourth	26	17.0%
Fifth	35	22.9%
sixth	25	16.4%
Residency		
Urban	93	60.8%
Rural	60	39.2%

Figure 1. ***The distribution of the Samples based on Sociodemographic Variables***

The analysis of data in this table (1) shows that 52.3% of participants in the study were female, also shows that 46.4% of pupils are within age 8–10yrs., regarding level of education, the highest percentage in the study refers to 22.9% for pupils within fifth class of primary school. The residency variable shows that 60.8% of pupils are resident in urban.

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social Variables	N	Percentage
No. of brothers		
2≤	109	71.2%
2>	44	28.8%
No. of sisters		
2 ≤	118	77.1%
2>	35	22.9%
Is the father alive		
yes	148	96.7%
no	5	3.3%
Is the mother alive		
yes	150	98.0%
no	3	2.0%
Occupation of father		
Free work	59	38.6%
Employee	94	61.4%
Occupation of mother		
Housewife	108	70.6%
Employee	45	29.4%

Figure 2. ***Pupils' distribution based on socially relevant variables***

Table (2) showed that brothers' and sisters in the family refers to 2 ≤ as seen with highest percentage in the study (77.1% and 71.2%). Also showed that most of pupils' father and mother is alive. The occupational status shows the highest percentage of fathers are employee (61.4%), while the mothers are housewife.

			%	Mean	SD	p-value
Time of hand-washing	Pre-test	no	42.0%	2.11	0.971	0.000
		Some time	4.5%			
		yes	53.5%			
	Post-test	no	14.8%	2.60	0.732	
		Some time	10.2%			
		yes	75.0%			

Figure 3. ***Overall Assessment of pupil's about the time of h and-washing***

The table (3) showing a significant difference in the pupils' practices regarding time of hand washing pre-test the intervention program and post- test the intervention program, as before the program the percentage of yes was 53.5% and after the program the percentage of yes was 75.0%.

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		Performance	%	p-value
Hand washing method	Pre-test	wrong	51.3%	0.000
		correct	48.7%	
	Post-test	wrong	12.9%	
		correct	87.1%	

Figure 4. ***Overall Assessment of pupil's about the steps of h and-washing***

The table (4) shows that there is a significant difference in the pupils' practices regarding hand washing before the intervention program and after the intervention program, where before the program the correct performance was 48.7% and after the program the correct performance was 87.1%.

	Pre-test				Post-test	
List	Items		Mean	p-value	mean	p-value
1	gender	Male	2.04	0.014	2.63	0.321
		Female	2.19		2.58	
2	age	8≤	2.25	0.000	2.47	0.000
		10 – 8	2.03		2.67	
		10 >	2.09		2.64	
3	class	First	2.22	0.000	2.46	0.000
		Second	1.69		2.47	
		Third	2.31		2.89	
		Fourth	2.19		2.76	
		Fifth	2.08		2.63	
		sixth	2.00		2.62	

Figure 5. ***The relationship between demographic information and hand washing times***

The table (5) shows there are a high significant relationship between the demographic information and pupil's practices of hand washing times regard to age and class while significant relationship regard the gender.

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List	Items		Pre-test Mean	Pre-test p-value	Post-test mean	Post-test p-value
1	Occupation of mother	Housewife	1.51	0.041	1.88	0.953
		Employee	1.43		1.86	
2	age	8≤	1.48	0.000	1.66	0.000
		10 - 8	1.58		1.89	
		10≥	1.38		1.92	
3	class	First	1.48	0.000	1.64	0.000
		Second	1.52		1.82	
		Third	1.67		1.96	
		Fourth	1.59		1.93	
		Fifth	1.52		1.91	
		sixth	1.16		1.95	

Figure 6. *The relationship between demographic information and the steps of hand washing*

The table (6) shows there are a high significant relationship between the demographic information and pupil's practices of hand washing steps regard to age and class while a significant relationship regrading to the gender.

Discussion

This chapter has provided a systematically ordered discussion and reasonable interpretation of the study findings based on available evidence from the literature and similar studies.

The analysis of data (table 1&2) showed that pupils are with highest percentage of age group (8 – 10) years and females, most of participants in the study within fifth class, and resident in urban. The number of brother and sister in the family refers to 2≤ children as the group with the highest proportion, also the most of father and mother is a live. The highest percentage is shown by the occupational status of fathers are employments while the most mothers are housewives.

The study finding agree with a study done by [6] who carried out a study on "Hand washing practice among public primary school children" and found that the majority of study participants—555 (82.7%)—were urban dwellers, and over 381 (56.9%) were female. Further corroborated by research conducted by [7], which showed that 61.84% of participants were in the 8–10 age group and 38.16% were in the 11–13 age group.

I believe that because they are more mature, they will be more open to taking part in the educational program. Because mothers are more adept at raising children, they are the ones who look after them all the time. The presence of fathers in the household also has a good impact on the research sample practices.

Discussion the statistical result according to overall assessment of pupil's about the time of hand-washing and steps of hand-washing(table 3&4), the analysis of data showed that a significant difference in the pupils' knowledge and practices regarding hand washing before the intervention program and after application the intervention program that exploring clear enhancing in performance.

The study finding agree with a study done by [8] who conducted the study to evaluate the success of instruction in raising awareness of primary school pupils' hand-washing practices. When compared before and after the program's implementation, the results of this study show a statistically significant improvement in all areas of hand washing knowledge throughout the program phases.

Another supportive evidence has been found by [9] who aimed to find out how primary school pupils' knowledge and abilities are affected by a hand hygiene intervention. According to his research, when children are exposed to

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health education techniques, their handwashing behavior significantly increases.

Also study finding agree with a study done by [10], the purpose of the study was to assess how well a training program improved the hand washing practices of elementary school students. Who indicated that following the implementation of the educational program, there were statistically significant differences in the investigated sample's overall knowledge and practice score.

According to the current study (table 5+6) the relationship between demographic information and the steps of hand washing, steps of hand washing, the study showed there are a high significant relationship between the demographic information and pupil's practices of hand washing steps regard to age and class while a significant relationship regrading to the gender. Also there are a high significant relationship between the demographic information and pupil's practices of hand washing times regard to age and class while significant relationship regard the gender.

This result is consistent with [11], the purpose of this study is to determine how self-efficacy in appropriate hand washing is related to sociodemographic factors, knowledge, attitudes, and practices. Who discovered that the findings suggest to a significant association between gender and self-efficacy in proper hand washing.

Also study finding agree with a study done by [12] that aim to Find out how much knowledge, attitudes, and practice there is about handwashing among students in Eastern Province Schools is the goal of the current study. Showed there was a positive correlation between the mother’s education and hand hygiene practices (value p= 0.044).

In addition the study support by [13] that exploring following the training, there was a noticeable change in the way that pupils washed their hands. The mean score for students' hand-washing habits at pivotal moments throughout the previous twenty-four hours increased from 1.17 prior to the intervention to 1.67 subsequent to it ($P < 0.001$). In terms of soap usage, the current study discovered that at baseline, 211 (75%) participants washed their hands with soap; however, this number dramatically increased to 279 (99%) ($P < 0.001$) after the intervention.

From my perspective, regarding the parents' educational attainment, as educational attainment rises, so does medical culture, which strengthens people's defenses against infectious diseases through practices like good oral hygiene, hand washing, and personal hygiene.

Conclusions

The data study revealed a notable difference between pupil's pre-intervention and post-intervention hand washing practices and knowledge, which explored a discernible improvement in performance. The gender plays a role in the hand washing process, females are better than males, and age also plays an important role in the process of washing hands, as it has become clear the percentage of Pupils’ who are more than 10 years old.

Recommendation

1. Hygiene should be part of the curriculum for pupils
2. Conduct an educational session on the practice of hand washing
3. Activating the role of teachers in educating pupils about personal hygiene and the importance of washing hands in preventing the transmission of diseases.

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