



Original Article

Knowledge, Attitude, and Practice of Nurseries' Workers toward Infection Prevention among the Children

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ABSTRACT

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Background: Infections are common in the children attending daycare centers how act as predisposes to it. Hygienic interventions have a fundamental role in infection control and disease prevention in child care settings.

Objective: - To evaluate the knowledge, attitude, and practice of nurseries workers in infection prevention and control among the children.

Subjects and Methods: A cross-sectional study using the researcher-developed questionnaire validated by two experts and piloted, and 100 nurseries-workers had participated in it.

Result: the mean age of participants was 37.5 years±12.1, (37%) aged 18-30 yrs, 58% married, and 57% with higher education, 54% of nurseries the participant take care of 11-20 children. 67 (67%) had correct knowledge about infection control, (91%) had the corrected practice, but unfortunately, 47 (47%) had a low attitude. Education level has significantly associated with the knowledge, attitude, and practice of the child care workers.

Conclusion: Most of the nurseries workers had good knowledge and correct practice and less about their attitude in infection prevention.

Introduction

Infections are common in the children attending daycare centers (DCCs); children attending daycare centers (DCCs) acquire gastrointestinal and respiratory infections more often than children cared for at home. (1) Child care centers represent special risks for transmission of infectious agents because young children exhibit high susceptibility to many community-acquired viruses and bacteria. They frequently receive antibiotics (appropriately and inappropriately). (2)

Behavioral characteristics such as incontinence or inadequate hygiene, frequent mouthing of hands and toys or other objects, drooling, and direct contact among children during play facilitate the spread of infection. (3)

Over recent decades, the number of children in collective out-of-home daycare has increased significantly worldwide. The impact of this situation is manifest in the behavior of infectious diseases in the community, in the form of increased risk of acquiring infectious diseases to which those involved in this care are exposed, which is widely recognized as a public health problem. The scientific literature also recognizes that control measures to reduce the transmission of infectious diseases are effective and necessary to minimize the unfavorable consequences for joint health. It results from daycare in groups, recommending infection control standards and practices for environments where children are cared for together. (4)

Demand for group child care has increased markedly in proportion to the number of mothers with young children employed

outside the home. As society has become increasingly mobile, with fewer extended families living near one another, many working mothers cannot rely on relatives to provide child care. (5)

The morbidity that occurs in the children in out-of-home care causes a great deal of Family disruption, and economic loss, due not only to illness in the children but also to disease spread to adult contacts in the center and at home. (6)

Children in child care centers and child care homes were more likely than the children cared for in their own homes to get ear infections and upper respiratory infections, particularly at ages 1 and 2 yr. (7, 8).

Generally, direct contact with the hands is considered the principal means of transmission of most pediatric infections. Several different studies have confirmed the contamination of the hands of workers and children and objects and surfaces in the daycare center. Studies demonstrate an increased frequency of respiratory disease and diarrhea at daycare centers where handwashing is infrequent. A greater frequency of diarrhea has also been confirmed at daycare centers where the same workers perform diaper changing and food handling tasks. Diaper changing is considered the highest risk procedure for transmission of enteric pathogens between the children and workers at daycare centers. (4)

Hand hygiene (HH) is considered a simple and effective measure to prevent infections; however, in the daycare center, the caregiver's compliance with HH guidelines is low. (1)

In Iraq, MOH has a program to follow up child care homes to assess the health and environmental condition to provide a safe environment for the children. Still, there is no research about that program, so we conducted this study.

This study aims to assess nurseries workers' knowledge, attitude, and practice in preventing and controlling infection among children.

Subjects and Method

Study design and settings

A cross-sectional study with an analytic element; was conducted in a sample of workers in Bagdad city nurseries during the period from Jan-Jun 2016.

Subjects

Stratified selection Sample chose 36 out of 70 nurseries in Bagdad, as all 12 government nurseries and 24 private nurseries.

Included criteria: the nurseries worker (food-preparation, diaper-changing, child's-play or sleep, and transferring the children); who was present at the researcher visiting date and accept to enroll in this study can be chosen,

Excluded criteria

Any worker absented at the visiting day or refused to involve in the study, and another worker (not working with food preparation, diaper-changing, child's-play or sleep, and transferring the children).

Tools

A well-structured questionnaire was employed to assess nursery workers' knowledge, attitude, and practice in infection prevention and control based on the Iraqi minister of health guidelines. The questionnaire was content-validated by two experts (community physicians). A pilot study was done with ten workers (10%), and they were excluded from the sample.

Oral consent was obtained before introducing the questionnaire to each worker answering on a separated-paper.

The researcher structured the questionnaire based on infection prevention and control guidelines, 2009 and 2013 (9, 10) of the Iraqi health minister. The questionnaire was divided into five sections: demographic information (age, marital status, and educational level). The second information about the total number of the children in the nursery, how many children care about, the most infection had occurred in the children in the nursery, her responsibility in the nursery (food preparation, diaper changing, the child playing or sleeping, transferring the children), did she follow childhood vaccine schedule.

The knowledge part consists of 23 questions (infection definition, disease definition, vaccine, transmission, root entry, correct handwashing, correct feeding, prevention, antiseptic solutions, cleaning (clothes, WC, food, baby toes, body fluids, and surfaces), common cold symptoms, tooth brushing, enforced sick leave) and answered by true, false; I don't know.

The attitude part consists of 15 questions (the vaccine important, boiling the feeding-bottles, feeding-bottle cover, the digestive tract infection, education poster about the disease, nail-biting and finger-sucking, enforced sick-leave for the sick child and how many days, the relation between the possibility of infection and the children no. she care,

and hours of a child staying, diaper changing & prepare food, age contributes of the children, the hand rub with alcohol and handwashing with water and soap, the role of PHC center, the roles of TV), they answer by (Strongly think, think, Don't think, or Don't think strongly)

The practice part consists of 23 questions (correct handwashing procedure, timing, when to do routinely {9 situations}, customize towel & frequently washed, the bottle-feeding cleaning, swage managements, the cleaning and sterilization solutions, clean washable surfaces, infected wound handling, blood body fluid spots clean, the cloth washing and drying, drinking water, Increase the water give to the baby when he has diarrhea and vomiting or excessive sweating, the parents' notification when there is an infectious disease in the nursery with reported symptom and how to prevent it. I would recommend reviewing the health center at the onset of these symptoms, babies kissing on the face, hand, embrace them.) they answer by (rarely, Some time, most time, or always)

Ethical consideration

Approval was obtained from the Ministry of Health and the Ministry of Labor and Social Affairs. Also, the researcher informed the worker about the study's objective and indicated their rights as participants.

Data collection

Each worker was interviewed using a structured questionnaire in the administration room. The researcher informed the worker about the purpose of the study and indicated their rights as participants. The questionnaire took approximately 15 minutes.

Data entry and analysis were done in the Statistical Package for Social Science (SPSS) ver.-20. Frequency and percentage were used to describe the data, and suitable statistical tests were used accordingly. Chi-Square test and Fisher's Exact Probability test were

used to test the association between dependent and independent variables. Statistical significance was pre-determined as $p < 0.05$.

Data analysis and coding:

knowledge score (23-38) poor
 Correct answer 3, I don't know 2, incorrect answer 1 (39-53) accepted (54-69) good

Attitude scoring
 Correct thinking: strongly think=4, think=3, (25-15) poor
 don't think=2, and don't think strongly giving=1, (35- 26) accepted
 Incorrect thinking: Strongly think=1, think=2, (45-36) high
 don't think=3, & don't think strongly giving=4

practice scoring
 Correct practicing: always=4, most-time=3, (23-45) poor
 sometimes=2, and rare=1, (46-68) accepted
 Incorrect practicing: always=1, most-time=2, (69-92) good
 sometimes=3, and rare=4.

The main limitation of this study was the long time needed to obtain written consent from the administrative part of the Arabic board for medical specialization and the Ministry of Labor and Social Affairs.

Results

A total of 100 nurseries workers were enrolled in this study, working in the 36 chosen nurseries. The mean age of participants was 37.5 ± 12.1 years, (37%) were from the category of 18-30 years old, 58% were married, 57% with higher education, 47% of nurseries served less than 25 children, in 54% of nurseries the participant take care from 11-20 children in the nursery, the common cold or flu was the answer of 75% of participants about the question of common infection in the nurseries, 97% of studied sample was followed the schedule of vaccination of the children they care about, 94% of them were answered positively with regards to health center contribution, and 61% were with more than one responsibility in the nursery. (Table1)

The study revealed that 67(67%) had good knowledge, 30 participants (30%) had accepted knowledge, and the remaining three participants (3%) had poor knowledge. (Figure 1)

Association with knowledge: the study found that a higher proportion of participants in all age groups had good knowledge compared to those with accepted & poor knowledge; hence the difference was statistically insignificant, ($P=0.209$), with marital status ($P=0.090$), total children number in the nursery ($P = 0.387$), no of the children care about ($P= 0.091$) and most infections in the nursery ($P=0.302$), nursery management follow up of children's vaccine and workers, ($P=0.113$), the care-given responsibility & knowledge ($P=0.176$). While there was a statistically significant association between good knowledge & level of education ($P=0.002$), health centers contribution to increasing health awareness about preventing the spread of infection in the nursery ($P=0.001$). (Table 2)

Association with attitude: out of the 100 participants of the study, 30(30%) had the high attitude, 23(23%) with accepted attitude and, unfortunately, 47(47%) had the low attitude (Figure 1), and with statistically significant with education level ($P=0.0007$), common

infection in the nursery ($P=0.005$) and health center contribution ($P=0.020$), but with no significant association with age ($P=0.178$), marital status of participants ($P=0.930$), total children number in the nursery ($p=0.194$), no of the children care about ($P= 0.879$), follow vaccine ($p=0.083$), care given responsibility ($p=0.753$). (Table 3)

Association with practice: the participants in prevention and control of infection among the children of the nurseries, (91%) of the participants had a good practice, only six (6%) with accepted practice and three (3%) with poor practice, (Figure 1).

With a significant association with education level, total number in the nursery, primary health center contribution ($p=0.020$, $p=0.039$, $p=0.001$ respectively), but no statistically significant association with their age, marital status, number of the children care-about, most common infection in the nursery, nursery management follows up the children's and workers vaccine, and care given responsibility ($p=0.401$, $p=0.191$, $p=0.496$, $p=0.887$, $p=0.125$, and $p=0.138$ respectively). (Table 4).

Table 1: Socio-demographic and baseline characteristics of the studied group

Variable	No.	%	
Age /years	18-30	37	37.0
	31-43	29	29.0
	44-56	25	25.0
	57-68	9	9.0
Marital status	Single	30	30.0
	Married	58	58.0
	Widow	8	8.0
	Divorced	4	4.0
Educational level	Primary	20	20.0
	Secondary	23	23.0
	College	57	57.0
Total number of children in the nursery	<25	47	47.0
	26-50	19	19.0
	51-70	19	19.0
	76-99	6	6.0
	> 100	9	9.0
no of the children care about	< 10	40	40.0
	11-20	54	54.0
	21-30	6	6.0
Most infection * = (Skin, UTI, etc.)	Common cold, flu	75	75.0
	Tonsillitis	8	8.0
	Acute bronchitis	3	3.0
	Diarrhea ±vomiting	7	7.0
Follow vaccine	Others*	7	7.0
	Yes	97	97.0
	No	3	3.0
Health center contribution	Yes	94	94.0
	No	6	6.0
	Food preparation	10	10.0
Care-given responsibility	Diaper changing	7	7.0
	Child's play or sleep	13	13.0
	Transferring the children	6	6.0
	More than one	64	64.0

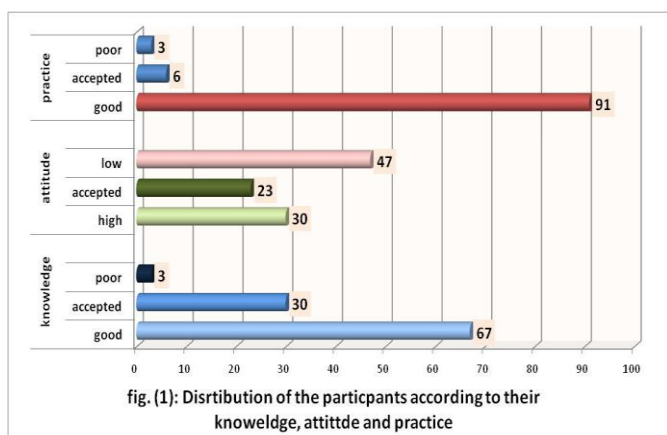


fig. (1): Disrtbution of the participants according to their knowledge, attitde and practice

Table 2: Relationship of Knowledge degree with several participants' characteristics

Variable	knowledge degree						P-value	
	good		accepted		poor			
	No.	%	No.	%	No.	%		
Age category	18-30	26	70.3	11	29.7	0	0.0	0.209*
	31-43	15	51.7	12	41.4	2	6.9	
	44-56	20	80.0	4	16.0	1	4.0	
	57-68	6	66.7	3	33.3	0	0.0	
	Single	24	80.0	5	16.7	1	3.3	
Marital status	Married	37	63.8	20	34.5	1	1.7	0.090*
	Widow	5	62.5	3	37.5	0	0.0	
	Divorced	1	25.0	2	50.0	1	25.0	
	Primary	7	35.0	10	50.0	3	15.0	
Educational level	Secondary	18	78.3	5	21.7	0	0.0	0.002
	College	42	73.7	15	26.3	0	0.0	
	<25	31	66.0	15	31.9	1	2.1	
Total number in the nursery	26-50	11	57.9	8	42.1	0	0.0	0.387*
	51-70	15	78.9	3	15.8	1	5.3	
	76-99	3	50.0	2	33.3	1	16.7	
	>100	7	77.8	2	22.2	0	0.0	
Number of the children care about	<10	31	77.5	7	17.5	2	5.0	0.091*
	11-20	31	57.4	22	40.7	1	1.9	
	21-30	5	83.3	1	16.7	0	0.0	
Most common infection in the nursery ** = (Skin, UTI, etc.)	Common cold, flu	49	65.3	24	32.0	2	2.7	0.302*
	Tonsillitis	4	50.0	4	50.0	0	0.0	
	Acute bronchitis	2	66.7	1	33.3	0	0.0	
	Diar. ± Vomit.	6	85.7	0	0.0	1	14.3	
	Others **	6	85.71	1	14.28	0	0.0	
	Yes	65	67.0	30	30.9	2	2.1	
Follow vaccine	No	2	66.7	0	0.0	1	33.3	0.113*
	Yes	67	71.3	25	26.6	2	2.1	
Health center contribution	Yes	67	71.3	25	26.6	2	2.1	0.001*
	No	0	0.0	5	83.3	1	16.7	
Care-given responsibility	Food preparation	9	90.0	1	10.0	0	0.0	0.176*
	Diaper changing	5	71.4	2	28.6	0	0.0	
	Child's play or sleep	10	76.9	3	23.1	0	0.0	
	Transferring the children	1	16.7	5	83.3	0	0.0	
	More than one	42	65.6	19	29.68	3	4.68	
Total	67	100.0	30	100.0	3	100.0		

* p-value calculated by chi-square with Fisher exact test

Table 3: Relationship of Attitude degree with participants' parameters

Variable	Attitude degree	P-value
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		high		accepted		low		value
		No.	%	No.	%	No.	%	
Age category	18-30	14	37.8	3	8.1	20	54.1	0.178*
	31-43	9	31.0	9	31.0	11	37.9	
	44-56	6	24.0	8	32.0	11	44.0	
	57-68	1	11.1	3	33.3	5	55.6	
	Single	11	36.7	6	20.0	13	43.3	
Marital status	Married	16	27.6	15	25.9	27	46.6	0.930
	Widow	2	25.0	1	12.5	5	62.5	
	Divorced	1	25.0	1	25.0	2	50.0	
	Primary	2	6.6	11	36.6	17	56.6	
Educational level	Secondary	7	30.4	9	39.1	7	30.4	0.0007
	College	21	44.6	19	40.4	7	14.8	
	<25	10	21.3	11	23.4	26	55.3	
Total number in the nursery	26-50	7	36.8	3	15.8	9	47.4	0.194
	51-70	7	36.8	3	15.8	9	47.4	
	76-99	3	50.0	1	16.7	2	33.3	
	>100	3	33.3	5	55.6	1	11.1	
	<10	10	25.0	11	27.5	19	47.5	
Number of the children care about	11-20	18	33.3	11	20.4	25	46.3	0.879
	21-30	2	33.3	1	16.7	3	50.0	
	Common cold, flu	25	33.3	20	26.7	30	40.0	
Most common infection in the nursery ** = (Skin, UTI, etc.)	Tonsillitis	0	0.0	1	12.5	7	87.5	0.005*
	Acute bronchitis	0	0.0	2	66.7	1	33.3	
	Diarrhea ± vomiting	1	14.3	0	0.0	6	85.7	
	Others**	6	66.67	0	0.0	3	33.34	
Follow vaccine	Yes	29	29.9	21	21.6	47	48.5	0.083*
	No	1	33.3	2	66.7	0	0.0	
Health center contribution	Yes	26	27.7	21	22.3	47	50.0	0.020*
	No	4	66.7	2	33.3	0	0.0	
Care-given responsibility	Food preparation	2	20.0	1	10.0	7	70.0	0.753*
	Diaper changing	2	28.6	1	14.3	4	57.1	
	Child's play or sleep	3	23.1	5	38.5	5	38.5	
	Transferring the children	2	33.3	2	33.3	2	33.3	
	More than one	21	32.81	14	21.87	29	45.31	
Total	30	100	23	100	47	100		

* p-value calculated by chi-square with Fisher exact test

Table 4: Relationship of practice degree with participants' parameters

		Practice degree						P-value
		high		Accepted		poor		
		No.	%	No.	%	No.	%	
Age category/years	18-30	25	86.2	2	6.9	2	6.9	0.401*
	31-43	34	91.9	3	8.1	0	0.0	
	44-56	24	96.0	1	4.0	0	0.0	
	57-68	8	88.9	0	0.0	1	11.1	
	Single	27	90.0	3	10.0	0	0.0	
Marital status	Married	54	93.1	2	3.4	2	3.4	0.191*
	Widow	7	87.5	0	0.0	1	12.5	
	Divorced	3	75.0	1	25.0	0	0.0	
	Primary	15	75.0	2	10.0	3	15.0	
Educational level	Secondary	22	95.7	1	4.3	0	0.0	0.020*
	College	54	94.7	3	5.3	0	0.0	
	<25	45	95.7	2	4.3	0	0.0	
Total number. in the nursery	26-50	17	89.5	1	5.3	1	5.3	0.039*
	51-70	17	89.5	1	5.3	1	5.3	
	76-99	3	50.0	2	33.3	1	16.7	
	>100	9	100.0	0	0.0	0	0.0	
	<10	47	87.0	4	7.4	3	5.6	
Number of the children care about	11-20	38	95.0	2	5.0	0	0.0	0.496*
	21-30	6	100.0	0	0.0	0	0.0	
	Common cold, flu	67	89.3	5	6.7	3	4.0	
Most common infection in the nursery	Tonsillitis	8	100.0	0	0.0	0	0.0	0.887*

		Practice degree						p-
** = (skin rash, UTI, etc)	Acute bronchitis	3	100.0	0	0.0	0	0.0	
	Diarrhea ±vomiting	6	85.7	1	14.3	0	0.0	
	Others**	7	100.0	0	0.0	0	0.0	
Follow vaccine	Yes	89	91.8	5	5.2	3	3.1	0.125*
	No	2	66.7	1	33.3	0	0.0	
Health center contribution	Yes	88	93.6	5	5.3	1	1.1	0.001*
	No	3	50.0	1	16.7	2	33.3	
	Food preparation	10	100.0	0	0.0	0	0.0	
	Diaper changing	7	100.0	0	0.0	0	0.0	
Care-given responsibility	Child's play or sleep	13	100.0	0	0.0	0	0.0	0.138*
	Transferring the children	4	66.7	0	0.0	2	33.3	
	More than one	57	89.06	6	9.38	1	1.56	
Total		91	100.0	6	100.0	3	100.0	

* p-value calculated by chi-square with Fisher exact test

Discussion

The children cared for at daycare or in preschool education exhibit a 2-3x greater risk of acquiring infections, which impacts both individual health and the dissemination of diseases through the community; among other factors, the risk is associated with the characteristics of daycare centers, and simple preventative measures are effective for reducing transmission of diseases. (4)

In Iraq, the major numbers of the children were cared for by the parents or members of the family, which are attributed to the belief of our community, not enough child daycare centers, and only little numbers of them go to the child daycare nursery especially those who one or both parents were an employee.

The main age group of the participant was less than 30 years old; this is agreed with Martyniuk et al.'s study, 2014 (11) Bright KA United States (12), Gensheimer KF (13).

The current study revealed that the nurseries worker takes care of 11-20 children in the nursery, which is considered high because few nurseries are available for the public. So this has disagreed with the findings of McSweeney, L.A, 2016(14) Li Y., 2013(15),

The present study shows that the common cold or flu was the common cause of child infection in which 3/4 of the participants were answered correctly about the question of common infection in the nurseries, which has agreed with Ackerman, Stacey J et al. 2001 (16), Nesti MM, 2007 (4).

The current study found that a high percentage of daycare workers didn't know that common cold and flu are caused by viruses, so no need for antibiotics and workers without specific knowledge implicated in the elevated consumption of antibiotics by the children who attend daycare centers by recommending them (17). That is associated with increased antimicrobial use has contributed to the appearance of multi-resistant organisms. That is concordant with Long SS, 2012, (18), where the antibiotic abuses lead to multi-resistant organisms. That may represent a weakness in community health care education, especially in the child-daycare workers.

Diarrhea represents 7% of the most children infection in the nursery in the present study, lower than that reported in previous studies. The incidences of diarrheal disease among the children who attend daycare are increased by 30 to 50%. Rotavirus infection is responsible for a considerable proportion of hospital admissions of children due to diarrhea, ended with dehydration and higher frequency than other gastrointestinal conditions due to other agents,

Enserink R. reported 2014 in his study (An epidemiological perspective on gastroenteritis in child daycare centers: Assessment of impact and risk that Rotavirus is significantly associated with gastroenteritis among daycare attendee (19), however, the lower proportion of diarrheal diseases reported in our study might be attributed to the well general hygiene in the daycare nurseries, good handwashing, and cleaning program among the workers in addition to the rotavirus vaccine was introduced in the last few years in Iraq to the vaccination schedule in Iraq nonetheless, some children might not vaccinate

However, the current study found that 67(67%) had good knowledge about prevention and control of infection, 30(30%) had accepted knowledge, and the remaining 3 participants (3%) had poor knowledge about them. However, participants' degree of knowledge and age was not statistically significant.

Additionally, knowledge of participants in prevention and control of infection among children wasn't significantly associated with marital status, the total number of the children in the nursery, number of the children care about, and most infections in the nursery, from another point of view, knowledge of participants was significantly associated with their level of education where the participants with secondary school level or higher had higher knowledge scores than those with the lower level of education, this might be attributed to the amount of information that participants with the high level of education had more information than those with the lower level of education. They might acquire this information via different sources such as school or college.

Nursery management might play an important role in promoting nursery workers' knowledge; therefore, the current study found a significant association between the degree of knowledge and nursery management follow-up of the children's vaccine and workers.

Moreover, the health center's contribution to increasing health awareness about preventing and controlling infection in the nursery was significantly associated with good knowledge compared to the non-contribution of the health center. This was not unexpected, through the periodic visits of the PHC health team to the nurseries and the health education to the workers. Additionally, they focus on giving more information and follow up for food-preparing works, which is why they have high knowledge of infection control.

Regarding the participants' attitude, unfortunately, only 30% of the participants had a good attitude, and a higher degree of attitude was reported among the younger age group; however, the difference was statistically insignificant. Also, no statistically significant association had been found between the degree of attitude and the marital status of participants, the total number in the nursery, the number of the children care about, nursery management and care-given responsibility conversely, the attitude of participants was significantly related to the higher level of education, the common infection in the nursery, and health center contribution.

Regarding the practice of the participants in prevention and control of infection among the children of the nurseries, (91%), of the studied group had a good practice and the practice of the participants was not significantly associated with participants age, marital status, number of the children care about, a most common infection in the nursery, nursery management follow up the children's and workers vaccine, In contrast, higher educational level was significantly associated with good practice, this is agreed with (Fukkink RG, 2007) (20). Moreover, in all these comparisons, a significant association was found with each of the total numbers in

the nursery, Health center contribution to increase health awareness and care given responsibility.

The current study revealed that the good practice of workers related to the number of children. This has disagreed with Faulkner-Schneider LA, 2005 (21). this means that in the present study, the workers were shared their experiences with others; besides, dividing work tasks between them was an essential step in running the level of services.

Regarding the child care-given responsibilities, it had been found that about two-thirds of them have more than one responsibility which means that the person who prepared food or bottle-feeding milk is the same person that changes the diaper. Child's play or sleep and Transferring the children. In the current study, more than one-third of study participants respond correctly that direct contact represents the main cause of getting infection among the children, this finding agreed with Goldmann DA,1992 ((22) Nesti MM, 2007 (4)

In the present study, 97% of the studied group mentioned that they followed the schedule of vaccination of the children they care about, this finding was similar to that found in previous studies Hadler JL. et al 2014 (23), Hurwitz ES, et al. (2000) (24), this may be because in Iraq the vaccination coverage is high (25)

The current study revealed a significant association between participants' level of education and their knowledge, attitude, and practice, and there was no significant difference between the different sources of information and the degree of knowledge. In contrast, the attitude of the respondents was significantly affected by the source of information. Unfortunately, most of the published studies did not concern with such association; however, some of these studies discussed these issues separately and in different subjects (26). Nonetheless, there are minimal requirements for childcare workers in many counties regarding education and training.

Conclusion

Two-thirds of the nurseries worker had the correct knowledge and practice about infection prevention and control among the children. But only one-third of them had the correct attitude with a significant association between the childcare workers' level of education and knowledge, attitude, and practice.

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Conflict of Interest

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