

Knowledge, attitude and practice of Iraqi mothers towards Vitamin D supplementation to their infants in Baghdad Al -Rusafa 2016

Tamara Abdul Wahab Rasheed *, Hawraa Khalil Taha**, Bekir Abdul Wahab Rasheed ***

ABSTRACT

Background: Routine supplementation of vitamin D to infants is justifiable since vitamin D deficiency, and its consequences are highly prevalent not only in developing countries but worldwide. Maintaining a normal level of vitamin D is crucial in order to have a normal skeletal, as well as, extra-skeletal health. Knowledge of mothers regarding importance of vitamin D supplementation affect the health of their babies in a positive manner if accompanied by appropriate practice.

Objective: To determine the level of knowledge, attitude and practice of Iraqi mothers of under or equal 12 months old infants in Baghdad, AL-Rusafa, regarding vitamin D supplementation for their infants.

Type of the study: A cross-sectional study.

Methods: A descriptive cross sectional, questionnaire-based study conducted at six primary health care centers in Baghdad AL-Rusafa. 400 mothers of under or equal 12 months old infants attending primary health care centers (PHCC) for routine vaccination and follow up of their infants were included in the study from the 10th of February 2016 till the 10th of June 2016.

Results: A total of 400 mothers enrolled in the study, with a mean age of 27.11years \pm 6.65572, Only (45%) (n=180) of them had given their infants vitamin D drops, with a mean score of vitamin D supplementation practice of 1.26 ± 1.51265 from 4 which was significantly correlated with their knowledge score which was 3.6100 ± 2.14987 from 9 and their attitude score which was 3.6275 ± 1.89644 from 6.

Conclusion: The study revealed poor knowledge, fair attitude and poor practice among mothers regarding vitamin D supplement for their infants.

Key words: mother, vit D, Baghdad.

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Vitamin D is a fat soluble vitamin that has several important functions. (1) It plays an important role in bone metabolism through regulation of calcium and phosphate homeostasis and may also play an important role in modulation of cell growth, neuromuscular, immune function and reduction of inflammation.(2) Vitamin D is produced by the body during exposure to sunlight, but is also found in oily fish, eggs and fortified food products.(1) Neonatal vitamin D levels are dependent on the maternal vitamin D status at delivery.(3) In the first few months of life, infants are dependent on breast milk, sunlight or supplements as sources of vitamin D.(4) As the breast milk is a poor source of vitamin D, and sun exposure may be restricted for infants living at higher latitudes or for cultural or other reasons, infants are particularly vulnerable to vitamin D deficiency.(4)(5) vitamin D deficiency in infants can lead to bone malformation (rickets), seizures and difficulty breathing.(4) While studies have identified a lack of sun exposure as the main cause of vitamin D deficiency this does not preclude the existence of vitamin D deficiency in hot sunny countries.(6) Indeed, there is evidence that the prevalence of rickets and vitamin D deficiency is greater in the Middle East than in many western countries, with a large meta-analysis concluding that 20-80% suffer from vitamin D deficiency. (7) American Academy of Pediatrics (AAP) recommends vitamin D supplementation of all breastfed infants in the amount of

400IU/day, started soon after birth and given until the infant is taking more than 1000mL/day of vitamin D-fortified whole or formula milk. (8)

Aim of the study: To determine the level of knowledge, attitude and practice of mothers regarding Vitamin D supplementation to their infants.

Methods

1- Study Design: A cross-sectional descriptive study.

2- Setting: The study was conducted in four months duration from the 10th of February 2016 till the 10th of June 2016, in six primary health care centers in Baghdad, AL-Rusafa selected from five different sectors

3- Sample size: A systematic random sample of 422 mothers of under 12 month old healthy infants, attending the selected PHCCs for routine vaccination and follow up of their infants were interviewed. Mothers of unhealthy infants and who refused to participate in the study were excluded (22 mothers).

4- Data Collection: A questionnaire was designed by the researcher adapted from multiple questionnaires of international researches to collect data on mothers knowledge, attitude and practice towards vitamin D. The questionnaire consist of four parts:

Maternal socio-demographic: A list of (4) items covered maternal socio-demographic variables that included age, parity, occupation and education.

1. **Knowledge test part:** A list of (9) items testing mothers knowledge regarding vitamin D knowledge, sources of information, sources of vitamin D, role of vitamin D, vitamin D deficiency complications and at which age to start supplementation.
2. **Attitude test part:** A list of (6) close end questions that evaluated mother's attitude toward vitamin D supplementation to their infant.
3. **practice test part :** A list of (4) questions that evaluate mothers practice toward giving, or not giving vitamin D to their infants at the time of interview, the age at which vitamin D was started, for how long to be given to their infants, and who prescribe it.

Questionnaire scoring: Knowledge responses were divided into three categories according to the attained score. A score of 0-3 (poor), 4-6 (fair), and 7-9 (good) knowledge. Attitude responses were divided into three categories A score of 0-2 (poor), 3-4 (fair), and 5-6 (good) attitude. The supplementation practice responses were divided into two categories according to the attained score. A score of 0-2 (poor), while 3-4 reflected (good) practice.

Statistical analysis: Data were analyzed using SPSS (statistical package for social sciences) version 20/IBM. Descriptive statistics were expressed as: Frequency, Percent and mean \pm SD (standard deviation). Using the descriptive statistics and Pearson's correlations, level of significance was set at p-value (sig.) \leq 0.05 to be considered as significant difference.

Results

Maternal Socio-Demographic Data: The total study sample included 400 mothers of 0-12 months old infant. Fifty percent of the participants aged between 26-35 years with a mean of 27.11 ± 6.65572 , about two third of them (64.5%) were multiparous, the majority of them (79%) were housewives, regarding educational level its shown that 37% of them were university graduate and higher education (Master or PhD), (table1) Vitamin D is a fat soluble vitamin that has several important functions. (1) It plays an important role in bone metabolism through regulation of calcium and phosphate homeostasis and may also play an important role in modulation of cell growth, neuromuscular, immune function and reduction of inflammation. (2) Vitamin D is produced by the body during exposure to sunlight, but is also found in oily fish, eggs and fortified food products. (1) Neonatal vitamin D levels are dependent on the maternal vitamin D status at delivery. (3) In the first few months of life, infants are dependent on breast milk, sunlight or supplements as sources of vitamin D. (4) As the breast milk is a poor source of vitamin D, and sun exposure may be restricted for infants living at higher latitudes or for cultural or other reasons, infants are particularly vulnerable to vitamin D deficiency. (4) (5) Vitamin D deficiency in infants can lead to bone malformation (rickets), seizures and difficulty breathing. (4) While studies have identified a lack of sun exposure as the main cause of vitamin D deficiency this does not preclude the existence of vitamin D deficiency in hot sunny countries. (6) Indeed, there is evidence that the prevalence of rickets and vitamin D deficiency is greater in the Middle East than in many western countries, with

a large meta-analysis concluding that 20-80% suffer from vitamin D deficiency. (7) American Academy of Pediatrics (AAP) recommends vitamin D supplementation of all breastfed infants in the amount of 400IU/day, started soon after birth and given until the infant is taking more than 1000mL/day of vitamin D-fortified whole or formula milk. (8)

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them (64.5%) were multiparous, the majority of them (79%) were housewives, regarding educational level its shown that 37% of them were university graduate and higher education(Master or PhD), (table1)

Table 1: Maternal Socio- Demographic Data

Variable		Frequency	Percent
Age	15-25	150	37.5
	26-35	200	50.0
	36-50	50	12.5
	Mean	27.1100 ± 6.65572	
Parity	Primi	136	34.0
	Multi	258	64.5
	Grand-multi	6	1.5
Occupation	Housewife	316	79.0
	Employed	76	19.0
	Student	8	2.0
Education	Illiterate	4	1.0
	Read & Write	20	5.0
	Primary School	90	22.5
	Secondary School	138	34.5
	University	140	35.0
	Master or PhD	8	2.0

Results of knowledge questions

About 71.5% (286) of participants heard about vitamin D. While 28.5(n=114) of them didn't have information about vitamin D. (table 2)

Table 2: Participant's responses towards knowledge questions (N=400)

Question	N of correct answer	% of correct answer
Have heard about Vitamin D	286	71.5%
Sources of vitamin D (sun exposure, food, supplement...)	154	38.5%
Sufficiency of breast milk with vitamin D	57	14.25%
Sufficiency of fruits and vegetables with vitamin D	42	10.5%
Dietary sources of vitamin D	243	60.75%
Vitamin D supplements are best started during first month	76	19%
Vitamin D is important for bone growth and immunity	241	60.25%
Vitamin D helps the body to absorb calcium	257	64.25%
Vitamin D deficiency cause Rickets, Diabetes, asthma and decrease immunity	88	22%

Remarkably, the mean knowledge score was 3.61±2.14987 from 9 indicating poor knowledge about vitamin D among mothers, (table 3)

Table 3: frequency of knowledge score among the group

	N	Percent
Poor	192	48.0%
Fair	166	41.5%
Good	42	10.5%
Mean ±Standard Deviation	3.6100±2.14987	

Maternal Attitude towards vitamin D supplementation

The majority of responding mothers 75.25% (n=301) agreed that vitamin D supplementation are necessary to their infants, and 86.75% (n= 347) showed willingness to administer vitamin D supplements to their infants if a doctor offered them, (table 4)

Table 4: Participant's responses in attitude towards Vitamin D supplementations

Maternal attitude toward vitamin D supplementation	Agree	Disagree	Don't know
I think that Vitamin D supplement is necessary to my infant	301 (75.25%)	12 (3%)	87 (21.75%)
If I was given Vitamin D supplement by a doctor I will give it to my infant	347 (86.75%)	14 (3.5%)	39 (9.75%)
In my opinion, Since my baby is breast-fed he/she does not need vitamin D supplement than if he (she) was on milk formula	209 (52.25%)	146 (36.5%)	45 (11.25%)
In my opinion, since my baby is being exposed to sunlight he/she) does not need vitamin D drops	156 (39%)	150 (37.5%)	94 (23.5%)
Since I am on vitamin D supplement, my baby does not need Vitamin D drops.	116 (29%)	195 (48.75%)	89 (22.25%)
I will advise my relative or friends to give vitamin D supplements to their infants	306 (76.5%)	8 (2%)	86 (21.5%)

The overall mean attitude score of the respondents was 3.6275±1.89644 which indicate fair (positive) attitude towards vitamin D, (table 5)

Table 5: frequency of attitude score among the group

	Frequency	Percent
Poor	152	38.0%
Fair	174	43.5%
Good	74	18.5%
Mean ±Standard Deviation	3.6275±1.89644	

Maternal Practice towards vitamin D: Regarding vitamin D supplementation practice in this study only (45%) of the total participants were giving their infants vitamin D drops, (table 6) The mean practice score of vitamin D supplementation were 1.26 from 4 with a standard deviation of 1.51265 which indicate poor practice, (table 7)

Table 6: Maternal practice toward vitamin D supplementation

Practice				
Mother giving Vitamin D Drops		Yes= 180 (45%)		No=220 (55%)
		n=180	% from 180	
Age supplement Started	0-3 months	38	21.1%	
	4-6 months	80	44.45%	
	>6 months	62	34.45%	
Frequency of supplementation Day per week	Daily	114	63%	
	3days/ week	58	32%	
	<3 days/ week	8	5%	
Duration of giving supplementation of vitamin D		Mean = 5.2833±3.54133 months		

Table 7: frequency of practice score among the group

	No.	Percent
Poor	306	76.5.0%
Good	94	23.5%
Mean ±Standard Deviation	1.26±1.51265	

all practice score and knowledge score, practice score and attitude score and knowledge score with attitude score showed , a positive and significant correlations with P<0.0001

Table 8: Correlation between Knowledge, attitude and practice

	Mean±S.D	Correlation with Knowledge	Correlation with Attitude	Correlation with Practice
Knowledge	3.61±2.14987	****	P=<0.0001* R ² =0.423	P=0.0001* R ² =0.322
Attitude	3.6275±1.89644	P=<0.0001 R ² =0.424	*****	P=0.0001* R ² =0.453
Practice	1.26±1.51265	P=<0.0001 R ² =0.268	P=<0.0001* R ² =0.230	*****

Source of information: When questioning about the source of getting advice to give vitamin D supplement, 76% of them the source was private doctor, while only 13% was the PHCC doctors

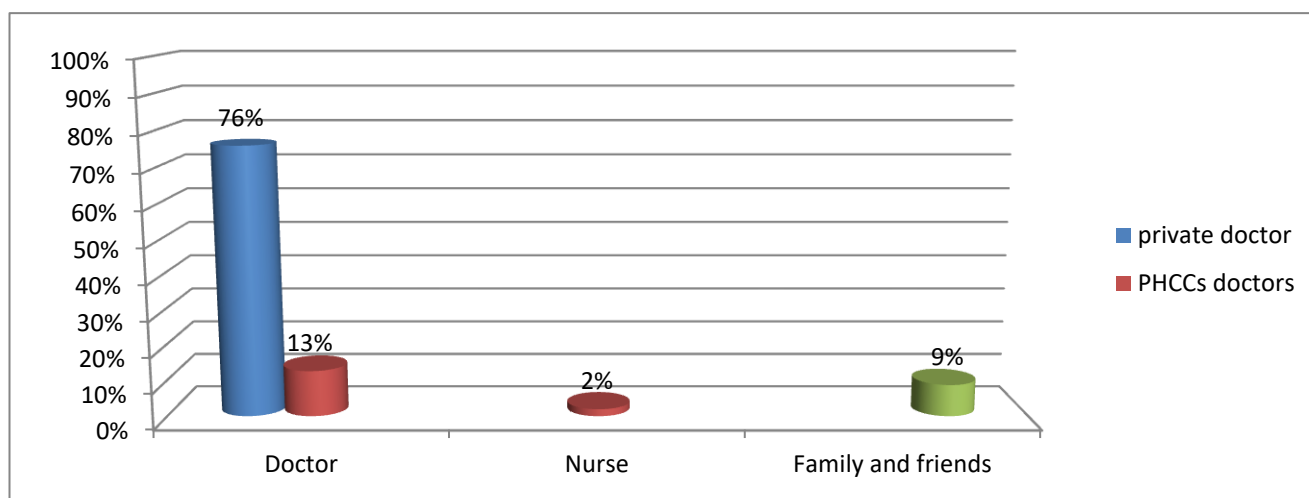


Figure-1:- Source of information

Discussion : The sample maternal Socio- Demographic Data is similar to a study conducted by Alramdhan A, et al. in Al-Absa, Eastern Saudi Arabia at 2012.⁽⁹⁾ And also similar to a recent study published by Al Marzooqi D, et al. in 2014 in UAE, except in employment status and educational level, in which (59.4%) of emirates mothers were housewife, and (68.3%) of them were university graduates.⁽¹⁰⁾ The poor knowledge about vitamin D among Iraqi mothers in our study, goes with Al Marzooqi D,et al. in UAE at 2014 who found that the mean knowledge score was 1.88 out of 6 indicating also poor knowledge about vitamin D among Emirates mothers.⁽¹⁰⁾ In this study, only 19% of mothers were aware that vitamin D supplementation should be started within one week of birth. This rate was considerably low which goes with Cicek Z,et al. in Konya, Turkey at 2015 study, where 32% of Turkish mothers were aware that the supplementation should be started within one week of birth.⁽¹¹⁾ On the other hand, more than 60% are not aware of the nutritional sources of vitamin D, and only 14.25% were aware about the insufficiency of breast milk in vitamin D, which is considered low percent and also goes with Cicek Z,et al. study, where more than 40% of Turkish mothers were not aware of the nutritional sources of vitamin D and 40% considered milk to be a sufficient source of vitamin D.⁽¹¹⁾ The overall fair attitudes scale towards vitamin D in our study, may be due to their poor knowledge about the insufficiency of the natural sources of vitamin D, this result goes with

Al Marzooqi D,et al. in UAE at 2014 result in the same concern.⁽¹⁰⁾ Regarding vitamin D supplementation practice in this study only (45%) of the total participants were giving their infants vitamin D drops. Of those who gave vitamin D 44.4% started between 4 to 6 months while only 21.1% of them started before 4 months of life. This is a relatively a low percent, in comparison to Al Marzooqi D, et al. in which (73.9%) of mothers had given their infants vitamin D drops and (64.1%) started correctly during the first month of life⁽¹⁰⁾ indicating that this issue, needs to be addressed.

Similar poor vitamin D supplementation practices were reported by Khadrawi, et al. among Muslim mothers and infants both in Ireland and Saudi Arabia, at 2015, where only (49.4%) of Ireland Muslim mothers and (13.2%) of Saudi Muslim mothers were giving their infants vitamin D drops.⁽¹²⁾ Good knowledge raises concern among mothers regarding their infant's need for vitamin D supplementations and improves their practice which was proved by our study by positive correlations and significant difference between them, in contrast to Al Marzooqi D,et al. who showed no significant association between practice and knowledge nor practice and attitude.⁽¹⁰⁾ When questioning about the source of information regarding vitamin D it was found that the majority of participants in our study heard about it commonly from their doctors, in similar to Emirates and Irish mothers in whom the main source of their information were their doctors.⁽¹⁰⁾⁽¹²⁾ The majority of

mothers who gave vitamin D to their infant, got the advice from private doctors, indicating that appropriate communication about Vitamin D supplementation should be encouraged from health care providers.

Conclusion: From this study we concluded that

- The majority of mothers have poor knowledge about vitamin D, fair attitude and poor practice
- The majority of the mothers who give vitamin D to their infant get advice from their private doctors, while minority of them were advised by the PHCCs doctors.

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