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**Hasanain Faisal Ghazi**

International Medical School,  
Management & Science  
University, Selangor, Malaysia

**Tiba Nezar Hasan**

International Medical School,  
Management & Science  
University, Selangor, Malaysia

## Mothers' attitude towards vitamin d supplement among infants in Baghdad city, Iraq

**Hasanain Faisal Ghazi and Tiba Nezar Hasan**

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### Abstract

Vitamin D is a fat-soluble vitamin that has many important functions. The main objective of the study is to find out mothers' attitude towards vitamin D among infants in Baghdad city, Iraq. A cross-sectional study was carried out among 771 mothers in Baghdad city, Iraq. Questionnaire related to vitamin were distributed. The mean age of mothers was  $28.30 \pm 3.9$  years. Majority of the mothers (80.9%) gave vitamin D supplements to their infants and around 76.4% their pediatrician advised them to give vitamin D supplement. There was a significant association between giving vitamin D supplement with mother's educational level, pediatrician advice and start walking ( $p = 0.03, <0.001$  and  $0.004$ ) respectively. As a conclusion, majority of mothers in Baghdad city, Iraq gave vitamin D supplements to their infants based on pediatrician's advice.

**Keywords:** Vitamin D, mothers' attitude, Baghdad, Iraq

### Introduction

Vitamin D is a fat-soluble vitamin that has many important functions<sup>[1]</sup>. It plays an essential and fundamental job in bone digestion by managing calcium and phosphate homeostasis and may likewise assume a significant job in regulation of cell development, neuromuscular, resistant capacity and decrease of aggravation<sup>[2]</sup>. Vitamin D is produced by the body during exposure to sunlight, but is also found in eggs, oily fish and fortified food<sup>[1]</sup>. Infant's vitamin D levels are dependent on the maternal vitamin D level at delivery<sup>[3]</sup>. In the first few months of life, infants are dependent on breast milk, sunlight or supplements as sources of vitamin D<sup>[4]</sup>.

As breast milk is a poor of vitamin D, and sun presentation might be confined for babies living at higher floors or for social and cultural reasons, newborn children are especially vulnerable to vitamin D deficiency<sup>[4, 5]</sup>. Vitamin D inadequacy in newborn children can prompt bone mutation (rickets), seizures and trouble breathing<sup>[4]</sup> previous studies have shown that lack of sun exposure is the main reason for vitamin D deficiency, but this do not explain the issue in sunny or tropical countries<sup>[6]</sup>. Indeed, there is proof that the prevalence of rickets and vitamin D insufficiency is more noteworthy in the Middle East than in numerous western nations, with a big meta-analysis concluded that 20-80% experience vitamin D insufficiency.

In 2003, the American Academy of Pediatrics (AAP) recommended that all infants aged more than 2 months old should get 200 IU of vitamin D.<sup>[7]</sup> Others than dietary sourced, children and adults can get adequate vitamin d from direct exposure to sun light. An average of 10 to 15 minutes of direct sun exposure can create 10,000 to 20,000 IU of vitamin D. Multiple factors play roles in vitamin D synthesis such as skin pigmentation, latitude, and measure of skin uncovered, making it hard to evaluate how much vitamin D we can get from direct sun exposure. Newborn children and kids who have darker pigmentation should stay between five to 10 times of sun exposure to achieve similar levels of 25-hydroxyvitamin D as compared to children with lighter pigmentation.<sup>[8]</sup> Previous studies done in Iraq showed that children nutritional status plays an important role in developing children's intelligence quotient (IQ)<sup>[9-11]</sup>.

The main objective of this study is to find out the mothers' attitude and practice towards vitamin D among infants in Baghdad city, Iraq.

### Correspondence

**Tiba Nezar Hasan**

International Medical School,  
Management & Science  
University, Selangor, Malaysia

**Methods**

An Internet-based study was conducted among 771 mothers at Baghdad city, Iraq to assess their attitude towards vitamin D supplements to their infants. The inclusion criteria were mother with infant age less than 2 years old. Data collection was done during July 2018. Mothers were selected using non- probability convenience sampling. The questionnaires link was distributed to mothers through Facebook groups and a Google form was used to host and distribute the questions. After accessing the link, mothers need to read the consent form carefully and agree to participate in the study. A full explanation of the study aims, and objectives was written in the introduction part of the questionnaires. All the questionnaires are compulsory to answer. The questionnaires consist of 3 parts, part 1 about sociodemographic data of the mothers (age, education, occupation, child age and weight). Part 2 about Vitamin D (give vitamin D, child walking and teething history, pediatrician advice) Part 3 about antenatal history (baby weight at birth, smoking history, folic acid history during pregnancy).

We decided to use this method in data due to time and budget limitations and using this method will give us wider access to more respondents and from different geographical and social backgrounds. Many previous studies have

suggested that internet-based research is the method of choice [12].

Data analysis were done using SPSS software version 24. Descriptive statistics and chi square test were used to get the final results.

**Results**

The socio-demographic characteristics of the respondents is shown in table 1. The mean age of mothers was 28.30± 3.9 years. Majority (79.5%) had university degree and housewife (47.4%). The mean child age was 10.33±5.07 months, the mean duration for giving vitamin D was 5.87±4.32 months and breastfeeding period mean was 6.40±5.10 months.

Table 2 shows that 76.4% said that their pediatrician advised them to give vitamin D supplement to their infants. 80.95 gave vitamin d supplement. 38.1% of the children already start to walk.

There was a significant association between mother’s educational background and giving vitamin D supplement (p=0.03). Also, there was a significant association between pediatrician advice and giving vitamin D supplement (p<0.001) and between start walking and giving vitamin D supplement (p=0.004) as shown in table 3.

**Table 1:** Socio-demographic characteristics of the mothers

		N	%	
Mothers’ Educational Level	Primary	9	1.2	
	Secondary	37	4.8	
	University	613	79.5	
	Postgraduate Degree	112	14.5	
Mothers’ Occupation	Housewife	367	47.6	
	Government	335	43.5	
	Private Sector	69	8.9	
Do You Smoke?	No	767	99.5	
	Yes	4	.5	
Folic Acid During Pregnancy	No	30	3.9	
	Yes	741	96.1	
	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>SD</b>
Mother age in years	18.00	45.00	28.30	3.904
Child age	1.00	24.00	10.33	5.07
Child weight at Birth	1.00	6.20	3.14	0.62
Duration of Vitamin D supplement	1.00	24.00	5.87	4.32
Breastfeeding time in Months	.00	24.00	6.40	5.10
Teething at which age	4.00	14.00	7.63	1.93
Walk at which age?	8.00	18.00	12.10	1.76

\*All data in months

**Table 2:** Attitude regarding Vitamin D supplements

		N	%
Did your pediatrician advice you to give Vitamin D to your Infant?	No	182	23.6
	Yes	589	76.4
Did you give Vitamin D to your Infant?	No	147	19.1
	Yes	624	80.9
Did your child start walk?	No	477	61.9
	Yes	294	38.1

**Table 3:** Association between socio-demographic factors and Vitamin D supplement

Variables		Vitamin D supplement				X <sup>2</sup>	P value
		No		Yes			
		N	%	N	%		
Mother Education	Primary	4	44.4	5	55.6	8.85	0.03*
	Secondary	12	32.4	25	67.6		
	University	113	18.4	500	81.6		
	Post graduate Degree	18	16.1	94	83.9		
Mother Occupation	Housewife	82	22.3	285	77.7	4.87	0.08
	Government	54	16.1	281	83.9		
	Private sector	11	15.9	58	84.1		
Pediatrician Advice	No	110	60.4	72	39.6	264.27	<0.001*
	Yes	37	6.3	552	93.7		
Child start to walk	No	106	22.2	371	77.8	8.07	0.004*
	Yes	41	13.9	253	86.1		

**Discussion**

The main findings in our study that majority of mothers (80%) gave vitamin d supplements to their infants. Mothers’ educational backgrounds were associated significantly with giving vitamin D to infants.

Our finding was supported by study done in United Arab Emirates [13] in which (73.9%) of mothers had given their infants vitamin D drops and (64.1%) started correctly during the first month of life. While previous study done in Iraq showed that 45% of mothers gave vitamin D supplement to their infants. The majority of mothers have poor knowledge about vitamin D, fair attitude and poor practice [14]. Similar poor vitamin D supplement practices were reported by Kearney *et al.* [15] among infants both in Ireland and Saudi Arabia, where only (49.4%) of Ireland mothers and (13.2%) of Saudi mothers were giving their infants vitamin D supplements.

In our study majority of mothers said that their pediatricians advised them to give vitamin D and this finding supported by previous study done in Baghdad city, Iraq [14].

Health promotion and education regarding the importance of vitamin D and other nutrients in child’s development is needed as many mothers gave vitamin D based on advice without knowing the benefits of vitamin D in their child development and progress.

**Conclusion**

As a conclusion, majority of mothers in Baghdad city, Iraq gave vitamin D supplements to their infants based on pediatrician’s advice. Mother’s educational background was significantly associated with giving vitamin D supplements to their infants.

**Conflict of interest:** Authors declare no competence of interest.

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