

**University Of Mosul**  
**College Of Nursing**



**The Correlation Between Maternal Vitamin  
D Levels and Pregnancy Symptomatology  
and Quality of Life**

**A Thesis Submitted**

**By**

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**M. Sc. Thesis**

**Sciences in Nursing**

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## **Abstract**

**Background:** Vitamin D is integral to supporting maternal well-being and fetal growth, and it is well-established that deficiency of vitamin D is prevalent worldwide and implicated in a myriad of adverse outcomes, including poor maternal quality of life and gestational complications. However, the relationship between vitamin D status and general symptoms related to the pregnancy experience is less explored in Iraq.

**Objective:** This study aims to examine the relationship between maternal serum vitamin D levels and pregnancy-related symptoms and quality of life in pregnant women in Mosul, Iraq.

**Methods:** A descriptive correlational design using a cross-sectional survey was implemented with a sample of 120 pregnant women at four major maternity units in teaching hospitals in Mosul from November 2024 to January 2025. Maternal blood serum 25(OH)D test results were obtained, and women's demographic data were collected using validated survey tools: a demographic survey; serum 25(OH)D blood test results for each woman surveyed, the Pregnancy Symptoms Inventory, and the SF-36 Quality-of-Life Index. Chi-square tests were applied to determine whether differences between the mothers' vitamin D levels and pregnancy-related symptoms were statistically significant.

**Results:** 57.5% of the subjects reported a level consistent with vitamin D deficiency (<20 ng/mL) and significant associations were identified between deficiency and the pregnancy-related symptoms of nausea, vomiting, leg cramps, hip/pelvic pain, and sleep dysfunction ( $p < 0.05$ ), as well as with the socioeconomic status, gravidity, and parity. Women whose vitamin D levels were adequate reported milder symptoms than those

whose vitamin D levels were insufficient and had significantly higher scores for overall QoL than women who reported insufficient vitamin D levels in all domains of physical and emotional health.

**Conclusions and Recommendations:** Vitamin D deficiency is a significant contributor to pregnancy-related discomforts and maternal quality of life. Interventions, such as regular screening for vitamin D levels, safe sun exposure, nutrition education, and dietary supplementation, should be prioritized in regions with limited access to resources, like Mosul.

**Keywords:**

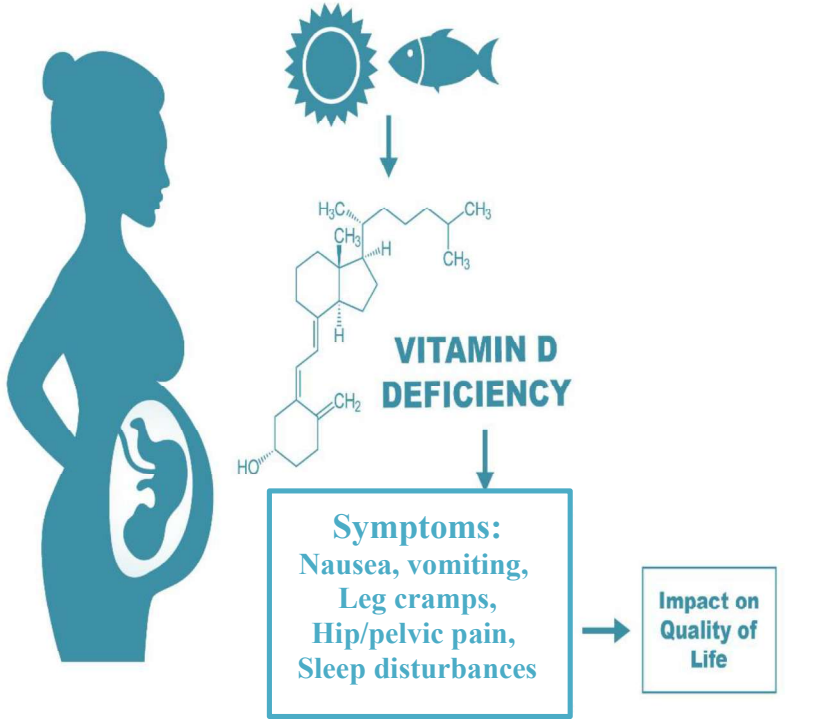
*Vitamin D deficiency; pregnancy symptoms; maternal health; quality of life; Iraq; pregnancy healthcare; discomfort/impairment in pregnancy; SF-36; nutrition; Mosul.*

# The Correlation Between Maternal Vitamin D Levels and Pregnancy Symptomatology and Quality of Life

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Publisher: University of Mosul

HIGHLIGHTS	GRAPHICAL ABSTRACT
<ul style="list-style-type: none"> <li>• High Prevalence of Vitamin D Deficiency 57.5% of pregnant women had serum 25(OH)D levels &lt;20 ng/mL, indicating widespread deficiency in Mosul.</li> <li>• Significant Associations with Pregnancy Symptoms, Deficiency was significantly associated with Nausea and vomiting ,Leg cramps ,Hip/pelvic pain ,Sleep disturbances</li> <li>• Negative Impact on Quality of Life, Women with low vitamin D levels reported significantly lower scores in both physical and emotional domains of quality of life (SF-36).</li> <li>• Protective Effect of Adequate Vitamin D Adequate Vitamin D levels were linked with milder symptoms and higher overall QoL scores.</li> <li>• Public Health Recommendations The study recommends:             <ul style="list-style-type: none"> <li>• Routine screening of vitamin D during prenatal care</li> <li>• Nutrition education and supplementation</li> <li>• Targeted interventions for resource-limited settings like Mosul</li> </ul> </li> </ul>	 <p>The graphical abstract illustrates the relationship between Vitamin D deficiency and pregnancy outcomes. It features a silhouette of a pregnant woman on the left. Above her, a sun and a fish represent sources of Vitamin D. A chemical structure of Vitamin D is shown in the center. An arrow points from the chemical structure to the text 'VITAMIN D DEFICIENCY'. From there, an arrow points to a box listing symptoms: 'Symptoms: Nausea, vomiting, Leg cramps, Hip/pelvic pain, Sleep disturbances'. A final arrow points from this box to another box: 'Impact on Quality of Life'.</p>
<p><b>Keywords:</b></p> <p>Vitamin D deficiency; pregnancy symptoms; maternal health; quality of life; Iraq; pregnancy healthcare; discomfort/impairment in pregnancy; SF-36; nutrition; Mosul</p>	<p><b>ABSTRACT</b></p> <p><b>Background:</b> Vitamin D is integral to supporting maternal well-being and fetal growth, and it is well-established that deficiency of vitamin D is prevalent worldwide and implicated in a myriad of adverse outcomes, including poor maternal quality of life and gestational complications. However, the relationship between vitamin D status and general symptoms related to the pregnancy experience is less explored in Iraq.</p> <p><b>Objective:</b> This study aims to examine the relationship between maternal serum vitamin D levels and pregnancy-related symptoms and quality of life in pregnant women in Mosul, Iraq.</p> <p><b>Methods:</b> A descriptive correlational design using a cross-sectional survey was implemented with a sample of 120 pregnant women at four major maternity units teaching hospitals in Mosul from November 2024 to January 2025. Maternal blood serum 25(OH)D test results were obtained, and women's demographic data were collected using validated survey tools: a demographic survey; serum 25(OH)D blood test results for each woman surveyed, the Pregnancy Symptoms Inventory, and the SF-36 Quality-of-Life Index. Chi-square tests were applied to determine whether differences between the mothers' vitamin D levels and pregnancy-related symptoms were statistically significant.</p> <p><b>Results:</b> 57.5% of the subjects reported a level consistent with vitamin D deficiency (&lt;20 ng/mL) and significant associations were identified between deficiency and the pregnancy-related symptoms of nausea, vomiting, leg cramps, hip/pelvic pain, and sleep dysfunction (<math>p &lt; 0.05</math>), as well as with the socioeconomic status, gravidity, and parity. Women whose vitamin D levels were adequate reported milder symptoms than those whose vitamin D levels were insufficient and had significantly higher scores for overall QoL than women who reported insufficient vitamin D levels in all domains of physical and emotional health.</p> <p><b>Conclusions and Recommendations:</b> Vitamin D deficiency is a significant contributor to pregnancy-related discomforts and maternal quality of life. Interventions, such as regular screening for vitamin D levels, safe sun exposure, nutrition education, and dietary supplementation, should be prioritized in regions with limited access to resources, like Mosul.</p> <p>2025 M.Sc. Thesis – University of Mosul, College of Nursing (<a href="https://www.uomosul.edu.iq/">https://www.uomosul.edu.iq/</a>).</p>



جامعة الموصل  
كلية التمريض

العلاقة بين مستويات فيتامين د لدى الأمهات وأعراض الحمل ونوعية الحياة

رسالة ماجستير

علوم في التمريض

تقدمت بها

اسراء فؤاد ياسين يونس

بإشراف

د. سلوى حازم غيلان المختار

استاذ

## المستخلص

**الخلفية:** يلعب فيتامين (د) دوراً أساسياً في دعم صحة الأم ونمو الجنين، ومن المعروف أن نقص فيتامين (د) شائع على مستوى العالم ويرتبط بالعديد من النتائج السلبية، بما في ذلك انخفاض جودة حياة الأم والمضاعفات الحملية. ومع ذلك، فإن العلاقة بين مستويات فيتامين (د) والأعراض العامة المرتبطة بالحمل لا تزال غير مستكشفة بشكل كافٍ في العراق.

**الهدف:** دراسة العلاقة بين مستويات فيتامين (د) في مصل دم الحوامل والأعراض المتعلقة بالحمل، بالإضافة إلى تأثير هذه العلاقات على جودة الحياة العامة لدى النساء الحوامل في مدينة الموصل، العراق.

**الطريقة:** تم تطبيق تصميم وصفي ارتباطي باستخدام مسح مقطعي شمل ١٢٠ امرأة حامل في أربعة مستشفيات تعليمية رئيسية في الموصل خلال الفترة من نوفمبر ٢٠٢٤ إلى يناير ٢٠٢٥. تم الحصول على نتائج اختبار مصل الدم لفيتامين D 25(OH) وتم جمع البيانات الديموغرافية باستخدام أدوات استبائية معتمدة، شملت استبياناً ديموغرافياً، نتائج اختبار الدم، استبيان أعراض الحمل، ومؤشر جودة الحياة SF-36. تم استخدام اختبار كاي-تربيع (Chi-square) لتحديد وجود فروقات ذات دلالة إحصائية بين مستوى فيتامين (د) لدى الأمهات وأعراض الحمل.

**النتائج:** أظهر ٥٧,٥٪ من المشاركات مستويات تُصنف على أنها نقص في فيتامين (د) ( $<20$ ) نانوغرام/مل)، وتم تحديد علاقات ذات دلالة إحصائية بين النقص وأعراض الحمل مثل الغثيان، التقيؤ، تقلصات الساق، ألم الحوض/الورك، واضطرابات النوم ( $p < 0.05$ )، بالإضافة إلى الارتباط بالحالة الاجتماعية والاقتصادية، وعدد مرات الحمل والولادة. النساء اللواتي كانت لديهن مستويات كافية من فيتامين (د) أبلغن عن أعراض أخف وجودة حياة أعلى من غيرهن في جميع مجالات الصحة الجسدية والعاطفية.

**الاستنتاج والتوصيات:** يشكل نقص فيتامين (د) عاملاً مساهماً كبيراً في الانزعاجات المرتبطة بالحمل وانخفاض جودة حياة الأم. لذا، ينبغي تنفيذ تدخلات مثل الفحص المنتظم لمستويات فيتامين (د)، التعرض الآمن لأشعة الشمس، التنقيف الغذائي، والمكملات الغذائية كأولوية في المناطق ذات الموارد المحدودة مثل مدينة الموصل.

**الكلمات المفتاحية:** نقص فيتامين د؛ أعراض الحمل؛ صحة الأم؛ جودة الحياة؛ العراق؛ الرعاية الصحية أثناء الحمل؛ الانزعاج أثناء الحمل؛ SF-36؛ التغذية؛ الموصل.