

## Nurses' Knowledge Concerning Developmental Dysplasia of the Hip: A Cross-Sectional Study

Mohamad A Akber<sup>1</sup>, Ali Malik Tiryag<sup>2</sup>, Ahmed Ibrahim Habib Alobaidi<sup>3</sup>

1. Ph.D., Fundamentals of Nursing Department, College of Nursing, University of Basrah, Basrah, Iraq

2. MSc, Fundamentals of Nursing Department, College of Nursing, University of Basrah, Basrah, Iraq

3. Ph.D., Alzahraa Medical College, University of Basrah, MB.Ch. B, F.I.C.M.S., F.R.C.S. Orthopaedic Surgery.

Received: 19.5.2024

Accepted: 19.6.2024

### Abstract

**Background:** The phrase "developmental dysplasia of the hip (DDH)" describes a range of hip joint anatomical anomalies in which there is an improper interaction between the femoral head and the acetabulum. Due to capsular laxity and mechanical instability, this condition of aberrant growth causes hip dysplasia, subluxation, and sometimes dislocation.

**Objectives:** To assess nurses' knowledge concerning developmental dysplasia of the hip.

**Methods:** In Al-Basrah City's hospitals, descriptive cross-sectional research was conducted, to determine the level of knowledge among nurses about the developmental dysplasia of the hip in Al-Basrah Teaching Hospitals from 30<sup>th</sup> October 2023 to the 13<sup>th</sup> of March 2024. Non-probability (convenience) sample consists of (150) nurses from five Teaching Hospitals (Al-Sader Teaching Hospital, Al-Basrah Teaching Hospital, Al-Mawani Teaching Hospital, Al-Faihaa Teaching Hospital, and Al-Basrah Hospital for Gynecology and Pediatric). Following a thorough review of the prior research, the researchers created a self-reported questionnaire. Version 26 of the SPSS program was used for data analysis.

**Results:** The results of this study show more than half of nurses have good knowledge concerning developmental dysplasia of the hip (53.4%), less than half of nurses have medium knowledge (46.6%), and none have weak knowledge.

**Conclusions:** More than half of the nurses have good knowledge regarding developmental dysplasia of the hip.

**Keywords:** Nurses; Knowledge; Developmental Dysplasia of The Hip

**Corresponding author:** Ali Malik Tiryag

College of Nursing, University of Basrah, Basrah, Iraq

✉E-mail: [ali.malik@uobasrah.edu.iq](mailto:ali.malik@uobasrah.edu.iq)

### Introduction

The term "developmental dysplasia of the hip" (DDH) describes a range of aberrant hip joint development, from minor dysplasia that can only be seen on an X-ray or ultrasound to severe dysplasia that can cause a frank dislocation of the hip joint. DDH is a significant contributor to childhood and young adult impairment and the most frequent cause of complete hip replacement in those

under 40 (1). Youngsters with "true DDH," who need therapy, have been kept apart from youngsters with simple dysplasia, who will grow normal hips if treatment is not received (2). It is estimated that 1-3 percent of Irish newborns are afflicted by hip dysplasia to some extent and that 1-2 out of every one thousand babies have frank hip dislocation at birth (3). Female sex, breech posture, a positive first-degree family history, and improper lower extremity swaddling are risk factors for DDH (4). Treatment methods include surgical reduction and osteotomy, Pavlik harnessing, and other measures depending on the patient's age of presentation and the degree of dysplasia. Most writers state that a

DDH diagnosis made after three months of age is considered late (5), with this cohort showing inferior results and a higher need for surgical intervention (6).

Within 72 hours following delivery, all newborns should have a whole-body clinical assessment, including the Ortolani (7) and Barlow (8), hip tests also evaluate the degree of abduction, thigh fold symmetry, and leg length. A "six-week check," or second evaluation, should occur at about six weeks of age. But beyond the newborn stage, the Barlow and Ortolani clinical tests' reliability seems to decline (9). Current Irish regulations state that a screening ultrasound should be performed on neonates who exhibit either an unusual clinical examination or a positive status for risk factors, such as a breech presentation or a first-degree family history (3).

## Methods

In the city of Al-Basrah's Teaching Hospitals, descriptive cross-sectional research was conducted from 30<sup>th</sup> October 2023 to 13<sup>th</sup> March 2024, to determine the level of knowledge among nurses about the developmental dysplasia of the hip in Al-Basrah Teaching Hospitals from 30<sup>th</sup> October 2023 to 13<sup>th</sup> of March 2024. Non-probability (convenience) sample consists of (150) nurses at the orthopedic operative theatres, maternity ward, obstetric, pediatrics, neonatal intensive care units, and orthopedic words departments in five governmental hospitals from five government hospitals (Al-Sader Teaching Hospital, Al-Basrah Teaching Hospital, Al-Mawani Teaching Hospital, Al-Faiha Teaching Hospital, and Al-Basrah Hospital for Gynecology and Pediatric) in Al-Basrah city. A self-reported questionnaire was developed by the researchers after extensive reading

of the previous literature. The questionnaire contains two parts; the first part consists of 5 items related to the demographic characteristics of nurses, including age, sex, level of education, years of experience, and workplace within the hospital. The second part of the questionnaire consists of 20 questions related to evaluating nurses' knowledge about DDH. The researchers used a three-point Likert scale that ranges from Yes, Uncertain, and No and scored 3 for yes, 2 for uncertain, and 1 for no. A Likert scale with points that go from 1 to 3 is used by the researchers. Yes with 3, not sure with 2, and no with 1. The knowledge level was categorized by the researcher using the Mean Score and the cutoff point (0.66): low = 1-1.66, moderate = 1.67-2.33, and good = 2.34-3. To ascertain the validity of the questionnaire, eleven experts provided copies of it. The questionnaire's reliability was evaluated by using the Alpha-Cronbach coefficient ( $\alpha = 0.78$ ). SPSS version 26.0 was utilized for the analysis of the data.

## Results

Table 1 describes the demographic data of nurses showing more than half of nurses' ages are between 20 and 30 years old, approximately two-thirds of the nurses are female (64%), more than one-third of nurses are seen with diploma graduated (36%), also, more than one-third of the nurses have years 5 and 10 years of experience (36%), and approximately one-third of nurses' work in the orthopedic wards (32.6%).

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

| Variables |                     |                               | Frequency | Percent |
|-----------|---------------------|-------------------------------|-----------|---------|
| 1         | Age                 | 20-30 years                   | 76        | 50.7%   |
|           |                     | ≥ 31 years                    | 74        | 49.3%   |
|           |                     | Total                         | 150       | 100%    |
| 2         | Sex                 | Male                          | 54        | 36%     |
|           |                     | Female                        | 96        | 64%     |
|           |                     | Total                         | 150       | 100%    |
| 3         | Educational Level   | Nursing School                | 44        | 29.3%   |
|           |                     | Diploma                       | 69        | 46%     |
|           |                     | Bachelor                      | 37        | 24.7%   |
|           |                     | Total                         | 150       | 100%    |
| 4         | Years of Experience | < Five years                  | 45        | 30%     |
|           |                     | 5-10 years                    | 54        | 36%     |
|           |                     | > Ten years                   | 51        | 34%     |
|           |                     | Total                         | 150       | 100%    |
| 5         | Place of Work       | Orthopedics operation theatre | 47        | 31.4%   |
|           |                     | Maternity Ward                | 7         | 6.4%    |
|           |                     | Obstetric Department          | 13        | 8.6%    |
|           |                     | Pediatric Department          | 17        | 11.4%   |
|           |                     | Neonatal Intensive Care Unit  | 17        | 11.4%   |
|           |                     | Orthopedic Ward               | 49        | 32.6%   |
|           |                     | Total                         | 150       | 100%    |

Table 2, nurses' knowledge regarding developmental dysplasia of the hip. Most of the nurses (72%) encountered a case of DDH during work. Most of the nurses (79.3%) believe the DDH has an impact on the future child's life. More than one-third of the nurses (40.6%) believe that family history is a risk factor for DDH. More than half of the nurses (55.3%) believe DDH affects both men and women equally. More than one-third of the nurses (42.6%) believe the first child is at greater risk of DDH. More than one-third of nurses (41.3%) believe premature birth is the most prevalent cause of DDH. Most of the nurses (71.3%) believe the most prevalent cause of DDH in children is breech presentation. Less than half of the nurses (46.6%) are not sure if the amount of amniotic fluid is high, it can cause DDH. More than one-third of the nurses (36%) are not sure hormonal changes can be a cause of infection and DDH. Less than half of the nurses (40%) do not believe that swaddling causes the child to suffer from DDH.

**Table 2: Questions to Assess Nurses' Knowledge**

| Items                                                                                                                                   | Yes |        | Not sure |        | No |       | MS   |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----|--------|----------|--------|----|-------|------|
|                                                                                                                                         | F   | %      | F        | %      | F  | %     |      |
| 1- Do you encounter a case of developmental dysplasia of the hip during your work?                                                      | 108 | 72%    | 6        | 4%     | 36 | 24 %  | 2.48 |
| 2- Does a hip developmental dysplasia have an impact on the future child's life?                                                        | 119 | 79.3%  | 23       | 15.3 % | 8  | 5.3 % | 2.74 |
| 3- Is family history a risk factor for developmental dysplasia of the hip in a newborn?                                                 | 61  | 40.6%  | 45       | 30 %   | 44 | 29.3% | 2.11 |
| 4- Does developmental dysplasia of the hip affect males and females equally?                                                            | 83  | 55.3%  | 38       | 25.3 % | 29 | 19.3% | 1.64 |
| 5- Is the first child at greater risk of developmental dysplasia of the hip birth?                                                      | 64  | 42.6%  | 44       | 29.3 % | 42 | 28%   | 2.14 |
| 6- Is premature birth the most prevalent cause of developmental dysplasia of the hip?                                                   | 62  | 41.3%  | 52       | 34.6%  | 36 | 24 %  | 2.17 |
| 7- Is breech presentation the most prevalent cause of developmental dysplasia of the hip in children?                                   | 107 | 71.3%  | 36       | 24%    | 7  | 4.6 % | 2.66 |
| 8- If the amount of amniotic fluid is high, can it cause developmental dysplasia of the hip?                                            | 30  | 20 %   | 70       | 46.6%  | 50 | 33.3% | 2.13 |
| 9- Can hormonal changes be a cause of developmental dysplasia of the hip?                                                               | 42  | 28%    | 54       | 36%    | 54 | 36%   | 1.92 |
| 10- Does swaddling of the baby cause developmental dysplasia of the hip?                                                                | 58  | 38.6 % | 32       | 21.3 % | 60 | 40 %  | 1.98 |
| 11- May developmental dysplasia be a part of other birth deformities?                                                                   | 97  | 64.6 % | 26       | 17.3 % | 27 | 18 %  | 2.46 |
| 12- Is ultrasound one of the most crucial techniques for the early detection of hip developmental dysplasia at birth?                   | 78  | 52%    | 26       | 17.3 % | 46 | 30.6% | 2.21 |
| 13- Should all newborns be examined clinically to rule out suffering from developmental dysplasia of the hip?                           | 134 | 89.3 % | 10       | 6.6 %  | 6  | 4%    | 2.85 |
| 14- Can developmental dysplasia of the hip occur in both hips?                                                                          | 117 | 78%    | 22       | 14.6 % | 11 | 7.3 % | 2.7  |
| 15- Can a child with developmental dysplasia of the hip walk?                                                                           | 86  | 57.3 % | 37       | 24.6 % | 27 | 18 %  | 2.39 |
| 16- Do treatment is more complicated as later as the diagnosis is?                                                                      | 121 | 80.6 % | 23       | 15.3 % | 6  | 4%    | 2.76 |
| 17- Should treatment ideally begin in the first few months of a child's life?                                                           | 128 | 85.3 % | 16       | 10.6 % | 6  | 4%    | 2.81 |
| 18- Do patients with developmental dysplasia of the hip treated after the age of walking by plastering only?                            | 48  | 32%    | 42       | 28 %   | 60 | 40 %  | 2.08 |
| 19- Do most cases of development dysplasia of the hip are discovered by the Parents after the first year of life?                       | 92  | 61.3%  | 35       | 23.3 % | 23 | 15.3% | 2.46 |
| 20- Is necrosis at the head of the femur one of the most important complications after treatment of developmental dysplasia of the hip? | 78  | 52%    | 54       | 36 %   | 18 | 12 %  | 2.4  |

Table 3 shows that more than half of nurses have good knowledge regarding developmental dysplasia of the hip (53.3%), less than half of nurses have medium knowledge (46.6%), and none of them have weak knowledge.

**Table 3: Nurses’ Knowledge Concerning Developmental Dysplasia of The Hip**

| Assessment | Interval  | F  | %      |
|------------|-----------|----|--------|
| Weak       | 1-1.66    | 0  | 0 %    |
| Medium     | 1.67-2.33 | 70 | 46.6 % |
| Good       | 2. 34-3   | 80 | 53.3 % |

**Discussion**

The present study aimed to assess nurses’ knowledge regarding DDH. Based on the study’s objectives, the discussion is classified into two parts. The first part involves a discussion of the results from Table 1 (demographic data of nurses). The second part involves a discussion of the results from Table 2 and Table 3 (nurses’ knowledge concerning DDH).

**Part One: Demographic Data of Nurses**

Table 1 describes the demographic data of nurses showing more than half of nurses’ ages are between twenty and thirty years old. These results agree with a study (10) which stated most of the nurses’ age is between (20-29) years. According to the results of this study, approximately two-thirds of nurses’ sexes are female. These results agree with a study (11) which stated most of the nurses’ genders are female. According to the results of this study, more than one-third of nurses are seen with diploma graduates. These results agree with a study (12) which stated most of the nurses’ level of education is diploma. Also, more than one-third of nurses have years of experience between five and ten years. Approximately one-third of nurses work in the orthopedic wards.

These results agree with a study (13) which stated most of the nurses’ years of experience is between five and ten years.

**Part Two: Nurses’ Knowledge Concerning DDH**

Tables 2 and 3 describe nurses’ knowledge concerning DDH. The findings of the current study show more than half of nurses have good knowledge about DDH, less than half of nurses have medium knowledge, and none of the nurses have weak knowledge.

The findings of the current study are consistent with other studies (13, 14) which stated most of the nurses have moderate knowledge regarding DDH.

**Conclusions**

Most nurses have good knowledge concerning Developmental Dysplasia of the Hip.

**Recommendations**

Continued education programs for nurses to refresh their knowledge concerning DDH. Designing suitable booklets about risk factors, management, and complications of DDH.

**Acknowledgements**

We acknowledge the contributions of all nurses who took part in the study

**References**

1.Engesæter IØ, Lehmann T, Laborie LB, Lie SA, Rosendahl K, Engesæter LB. Total hip replacement in young adults with hip dysplasia: age at diagnosis, previous treatment, quality of life, and validation of diagnoses reported to the Norwegian Arthroplasty Register between 1987 and 2007. Acta orthopaedica. 2011;82(2):149-54.

2.Bialik V, Bialik GM, Blazer S, Sujov P, Wiener F, Berant M. Developmental dysplasia of the hip: a new approach to incidence. Pediatrics. 1999;103(1):93-9.

3.Krysta W, Dudek P, Pulik Ł, Łęgosz P. Screening of Developmental Dysplasia of the Hip in Europe: A Systematic Review. Children. 2024;11(1):97.

4. Shaw BA, Segal LS, Otsuka NY, Schwend RM, Ganley TJ, Herman MJ, et al. Evaluation and referral for developmental dysplasia of the hip in infants. *Pediatrics*. 2016;138(6).
5. Sharpe P, Mulpuri K, Chan A, Cundy P. Differences in risk factors between early and late diagnosed developmental dysplasia of the hip. *Archives of Disease in Childhood-Fetal and Neonatal Edition*. 2006;91(3):F158-F62.
6. Price K, Dove R, Hunter J. Current screening recommendations for developmental dysplasia of the hip may lead to an increase in open reduction. *The Bone & Joint Journal*. 2013;95(6):846-50.
7. ORTOLANI DM. Lo scatto dell'anca segno certo di prelussazione congenita nel lattante. *Acta Pædiatrica*. 1937;22(1):446-50.
8. Barlow T. Early diagnosis and treatment of congenital dislocation of the hip. *The Journal of Bone & Joint Surgery British Volume*. 1962;44(2):292-301.
9. Paton R, Hinduja K, Thomas C. The significance of at-risk factors in ultrasound surveillance of developmental dysplasia of the hip: a ten-year prospective study. *The Journal of Bone & Joint Surgery British Volume*. 2005;87(9):1264-6.
10. Tiryag AM, Atiyah HH. Nurses' knowledge toward obesity in al-Basra city. *Annals of the Romanian Society for Cell Biology*. 2021:4667-73.
11. Dawood ZS, Jassim KM, Tiryag AM, Khudhair AS. Nurses' Knowledge and Attitudes Toward Deep Vein Thrombosis: A Cross-Sectional Study. *Bahrain Medical Bulletin*. 2023;45(4).
12. Tiryag A, Atiyah M, Khudhair A. Nurses' Knowledge and Attitudes toward Thyroidectomy: A Cross-Sectional Study. *Health Education and Health Promotion*. 2022;10(3):459-65.
13. Tiryag AM, Atiyah HH. Nurses' Knowledge toward Bariatric Surgery at Surgical Wards at Teaching Hospitals in Al-Basra City. *Indian Journal of Forensic Medicine & Toxicology*. 2021;15(3):5152-9.
14. Uzel M, Ergun U. Knowledge and attitude of nursing and midwifery college students on developmental dysplasia of the hip. *Acta Orthopaedica et Traumatologica Turcica*. 2006;40(5):377-83.

## معرفة الممرضات بخلل التنسج النمائي للورك: دراسة مقطعية

**الخلفية:** يشير مصطلح "خلل التنسج النمائي للورك" إلى مجموعة من الشذوذ التشريحية في مفصل الورك حيث يوجد تفاعل غير سليم بين رأس عظم الفخذ والحُق. يؤدي هذا الخلل النمائي بسبب رخاوة المحفظة وعدم الاستقرار الميكانيكي إلى خلل التنسج النمائي للورك، ونصف الخلع، وأحيانًا الخلع الكامل.

**الأهداف:** تقييم معرفة الممرضات بخلل التنسج النمائي للورك.

**الطرق:** تم إجراء دراسة مقطعية وصفية في مستشفيات مدينة البصرة لتحديد مستوى معرفة الممرضات بخلل التنسج النمائي للورك في مستشفيات البصرة التعليمية للفترة من ٣٠ أكتوبر ٢٠٢٣ إلى ١٣ مارس ٢٠٢٤. استخدمت عينة غير احتمالية (عينة مناسبة) تتكون من (١٥٠) ممرضة من خمس مستشفيات تعليمية (مستشفى الصدر التعليمي، ومستشفى البصرة التعليمي، ومستشفى الموانئ التعليمي، ومستشفى الفيحاء التعليمي، ومستشفى البصرة للنسائية والأطفال). قام الباحثون بإنشاء استبيان ذاتي التقرير بعد مراجعة شاملة للأبحاث السابقة. تم تحليل البيانات باستخدام برنامج SPSS الإصدار ٢٦.

**النتائج:** أظهرت نتائج هذه الدراسة أن أكثر من نصف الممرضات لديهن معرفة جيدة بخلل التنسج النمائي للورك (٥٣,٤٪)، وأقل من نصف الممرضات لديهن معرفة متوسطة (٤٦,٦٪)، ولا توجد أي ممرضة لديها معرفة ضعيفة.

**الاستنتاجات:** تمتلك أكثر من نصف الممرضات معرفة جيدة بشأن خلل التنسج النمائي للورك.

**الكلمات المفتاحية:** الممرضات؛ المعرفة؛ خلل التنسج النمائي للورك