

## Assessment of Mothers Knowledge towards Care of Children with Erb's Palsy

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### Abstract:

**Background:** A rather common disorder that causes a complicated functional impairment of the upper limb and disability is brachial plexus injury (BPI). It is primarily brought on by traumatic events that result in traction forces, wounds, or compression of the plexus against the hard surfaces of surrounding structures during labor (ribs, vertebral bodies, or muscles).

### Objectives:

1. To assess mothers levels of knowledge towards Erb's palsy.
2. To find out relationship between level of knowledge and mothers sociodemographic characteristic.

**Methods:** descriptive design was conducted on 100 mothers who have children with Erb's palsy data collection time from January 15<sup>th</sup> to March 23<sup>th</sup>, 2023 at rehabilitation medical center and Joint disease in the Baghdad and Al\_muthanna city. The data collection methods was by questionnaire consists of three parts: part I Related to the Demographic Characteristics of the Mother's, part II Questionnaire Related to mothers Knowledge toward Erb's palsy

**Results:** The highest percentage of the study sample (39%) are with in age group (20-30) years, live in urban area (91%), primary school graduated (41%), house wife's (83%), and mothers have (55%) fair knowledge and (45%) good knowledge.

**Conclusions:** The study is conclude that the mothers have good level of knowledge regarding Erb's palsy is muscle weakness in the arm or shoulder and fair level of knowledge about Macrosomia one of Erb's palsy causes.

**Recommendations:** Special training courses should be presented to mothers about child macrosomia and how it causes erb's palsy.

**Keywords:** Assessment of mother's knowledge, child with Erb's palsy.

**Background:** A rather common disorder that causes a complicated functional impairment of the upper limb and disability is brachial plexus injury (BPI). It is primarily brought on by traumatic events that result in traction forces, wounds, or compression of the plexus against the hard surfaces of surrounding structures (ribs, vertebral bodies, or muscles). Mothers sometimes lack the knowledge, skills to distinguish between nerve damage, and an injury connected to the bones. The mothers become frustrated because of their limited understanding, about the Erb's palsy to provide good care for their children <sup>(1)</sup>.

Birth palsy of the brachial plexus is a typical injury 1 to 4 children per 1,000 live births are affected. 1-3 this occurrence appears to be rising as a result of a brachial plexus in half of the children impacted by rising birth weights. Birth palsy of the plexus has at least one identified risk factor these danger signs include macrosomic baby, shoulder dystocia, protracted labor, macrosomia instrumented delivery (with forceps or a vacuum), prior delivery and several pregnancies culminating in birth palsy of the brachial plexus during labor <sup>(2)</sup>, an external force that acts rapidly and causes

physical harm <sup>(3)</sup>.

Some factors that increase the risk of birth injury are related to infants: infants born extremely prematurely or with a very low birth weight, fetal macrosomia, fetal abnormalities, or twins <sup>(4)</sup>, birth trauma is characterized as harm to a newborn brought on by mechanical forces such as traction or compression during labor, <sup>(5)</sup>.

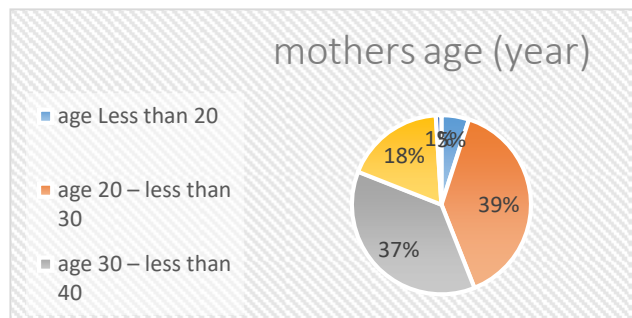
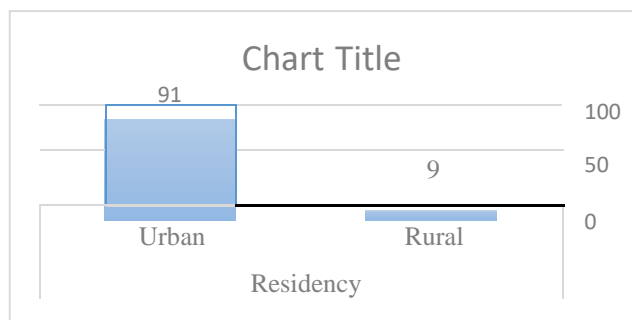
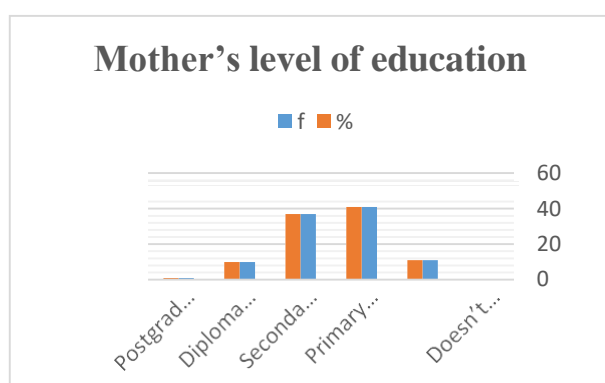
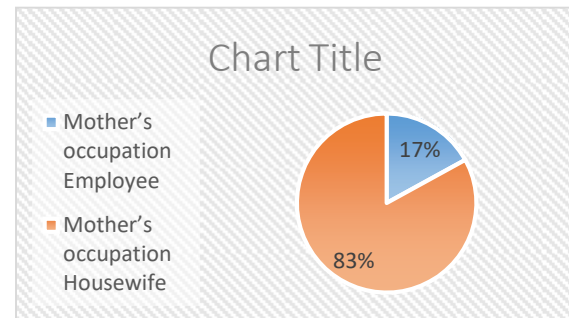
Some children experience complications during delivery and some require cardiopulmonary resuscitation in the delivery room <sup>(6)</sup>. The care of a physically disabled child is considered a full-time job with high demands, and it puts a lot of stress on the mother who unexpectedly finds herself in this difficult circumstance <sup>(7)</sup>. A mother with good knowledge not only takes better care of her child but also contributes to society by spreading information. Therefore, it significantly contributes to raising community awareness <sup>(8)</sup>.

In addition, the amount of emotional, physical, and psychological assistance a patient receives from a nurse is greatly influenced by how that nurse feels about them and how sick they are <sup>(9)</sup>.

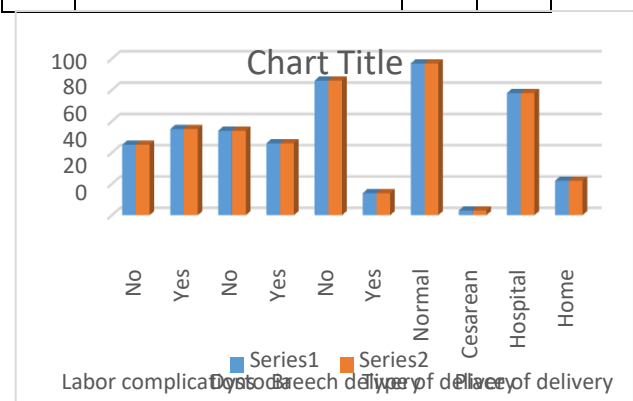
**Methodology:**

The study objective is to assess mothers' knowledge regarding care of children with Erb's palsy. Descriptive study design conducted on 100 Mothers have children with Erb's palsy in rehabilitation medical center and Joint disease and. Take write approval from the mothers before collecting the study. The study instrument consists of two parts: part I demographic characteristics and part II: (mother's knowledge). The data was collected by the using of questioner format collected by the researcher from January 15<sup>th</sup>, 2023, to March 23<sup>th</sup>, 2023, by self-reported. The study analysis by using Frequency (F) and Percentage (%) to describe the sociodemographic characteristics of mothers and using Mean of Score (M.S) and Standard Deviation (SD) to determine the levels knowledge by using SPSS packaging (26).

**Exclusion Criteria:** Child who comes with another person rather than his mother.

**Study results****Figure 1: Age group of participant****Figure 2: Distribution of mothers Residency****Figure 3: Distribution of mothers level of education****Figure 4: Distribution of mothers occupation****Table (1): Distribution of Children according to their Socio-demographic Characteristics**

| List | Characteristics                    | f               | %  |
|------|------------------------------------|-----------------|----|
| 1    | Age (months)<br>M±SD=<br>1.3 ± 1.2 | Less than 1     | 12 |
|      |                                    | 1 – less than 3 | 71 |
|      |                                    | 3 – less than 5 | 13 |
|      |                                    | 5 or ore        | 4  |
| 2    | Gender                             | Male            | 59 |
|      |                                    | Female          | 41 |
|      | Number of visits                   | One             | 1  |
|      |                                    | Two             | 89 |
|      |                                    | Three           | 10 |

**Figure 5: Distribution of mothers according to Medical Data****Table (2): Distribution of Children according to Medical Data**

| List | Medical data              | F               | %  |
|------|---------------------------|-----------------|----|
| 1    | Age diagnosis at (Months) | Less than 1     | 82 |
|      |                           | 1 – less than 3 | 9  |
|      |                           | 3 – less than 5 | 1  |
|      |                           | 5 – less than 7 | 5  |
|      |                           | 7 and more      | 3  |
| 2    | Erb's type                | Upper           | 83 |
|      |                           | Lower           | 1  |
|      |                           | Complete        | 16 |
| 3    | Use shoulder brace        | No              | 92 |
|      |                           | Yes             | 8  |
| 4    | Time of use brace         | Not used        | 92 |
|      |                           | ≤ 1 month       | 2  |
|      |                           | 2 months        | 6  |

**Table (3) Evaluation of General mothers Knowledge about Erb's Palsy**

| List | General knowledge  | Scale        | f (%)  | M    | Eval. |
|------|--|--------------|--------|------|-------|
| 1    | Erb's palsy is muscle weakness in the arm or shoulder.   | I don't know | 10(10) | 2.63 | Good  |
|      |  | Uncertain    | 17(17) |      |       |
|      |  | I know       | 73(73) |      |       |
| 2    | Erb's palsy injuries occur when the infant's shoulder become lodged behind the mothers pelvic bones during delivery. | I don't know | 21(21) | 2.22 | Fair  |
|      |  | Uncertain    | 36(36) |      |       |
|      |  | I know       | 43(43) |      |       |
| 3    | Types of Erb's' palsy is Upper, lower and more severe (total plexus injury)  | I don't know | 13(13) | 2.59 | Good  |
|      |  | Uncertain    | 15(15) |      |       |
|      |  | I know       | 72(72) |      |       |

**Table (4): Evaluation of mothers Knowledge about Causes of Erb's Palsy (N=100)**

| List | Knowledge about causes                         | Scale        | f (%)  | M    | Eval. |
|------|--|--------------|--------|------|-------|
| 1    | The Forces on child arm during delivery        | I don't know | 7(7)   | 2.63 | Good  |
|      |  | Uncertain    | 23(23) |      |       |
|      |  | I know       | 70(70) |      |       |
| 2    | Shoulder dystocia.                             | I don't know | 11(11) | 2.52 | Good  |
|      |  | Uncertain    | 26(26) |      |       |
|      |  | I know       | 63(63) |      |       |
| 3    | Difficult vertex breech delivery.              | I don't know | 25(25) | 2.16 | Fair  |
|      |  | Uncertain    | 34(34) |      |       |
|      |  | I know       | 41(41) |      |       |
| 4    | Macrosomia.                                    | I don't know | 26(26) | 2.09 | Fair  |
|      |  | Uncertain    | 39(39) |      |       |
|      |  | I know       | 35(35) |      |       |
| 5    | Prolong second stage.                          | I don't know | 19(19) | 2.32 | Fair  |
|      |  | Uncertain    | 30(30) |      |       |
|      |  | I know       | 51(51) |      |       |
| 6    | Maternal body mass index more than 29 (obese). | I don't know | 41(41) | 1.77 | Fair  |
|      |  | Uncertain    | 41(41) |      |       |
|      |  | I know       | 18(18) |      |       |

**Table (5): Evaluation of mothers Knowledge about Symptoms of Erb's Palsy (N=100)**

| List | Knowledge about symptoms                              | Scale        | f (%)  | M    | Eval. |
|------|---|--------------|--------|------|-------|
| 1    | Paralysis of the affected upper extremity and muscles | I don't know | 17(17) | 2.37 | Good  |
|      |   | Uncertain    | 29(29) |      |       |

|   |  |              |        |      |      |
|---|--|--------------|--------|------|------|
|   |  | I know       | 54(54) |      |      |
| 2 | The arm hangs limp alongside the body.   | I don't know | 12(12) | 2.51 | Good |
|   |  | Uncertain    | 25(25) |      |      |
|   |  | I know       | 63(63) |      |      |
| 3 | The shoulder and arm are adducted and internally rotated.  | I don't know | 19(19) | 2.21 | Fair |
|   |  | Uncertain    | 41(41) |      |      |
|   |  | I know       | 40(40) |      |      |
| 4 | The elbow is extended and the forearm is pronates, with the wrist and fingers flexed. .                      | I don't know | 28(28) | 2.04 | Fair |
|   |  | Uncertain    | 40(40) |      |      |
|   |  | I know       | 32(32) |      |      |
| 5 | A grasp reflex may be present because finger and wrist movement remain normal, but the Moro reflex is absent | I don't know | 24(24) | 2.08 | Fair |
|   |  | Uncertain    | 44(44) |      |      |
|   |  | I know       | 32(32) |      |      |
| 6 | The muscles of the hand is paralyzes, with consequent wrist drop and relaxed fingers.                        | I don't know | 31(31) | 2.10 | Fair |
|   |  | Uncertain    | 28(28) |      |      |
|   |  | I know       | 41(41) |      |      |
| 7 | The Moro reflex is absent on the affected side for all forms of Erb's palsy.                                 | Uncertain    | 29(29) | 2.11 | Fair |
|   |  | I know       | 31(31) |      |      |
|   |  | I don't know | 40(40) |      |      |

Table (6): Evaluation of mothers Knowledge about Physiotherapy of Erb's Palsy (N=100)

| List | Knowledge about physiotherapy   | Scale        | f (%)  | M    | Eval. |
|------|---|--------------|--------|------|-------|
| 1    | Exercise therapy should administer daily.                                 | I don't know | 1(1)   | 2.82 | Good  |
|      |   | Uncertain    | 16(16) |      |       |
|      |   | I know       | 83(83) |      |       |
| 2    | Teaching the exercise from physiotherapist.                               | I don't know | 31(31) | 1.93 | Fair  |
|      |   | Uncertain    | 45(45) |      |       |
|      |   | I know       | 24(24) |      |       |
| 3    | Physiotherapy include electrotherapy, splint as well as movement therapy. | I don't know | 47(47) | 1.65 | Poor  |
|      |   | Uncertain    | 41(41) |      |       |
|      |   | I know       | 12(12) |      |       |
| 4    | Do exercise at home 2-3 per days.   | I don't know | 46(46) | 1.63 | Poor  |
|      |   | Uncertain    | 45(45) |      |       |
|      |   | I know       | 9(9)   |      |       |

|   |   |              |        |      |      |
|---|---|--------------|--------|------|------|
| 5 | Physiotherapy movements are natural movements of the hand and arm that the child cannot do. | I don't know | 46(46) | 1.63 | Poor |
|   |   | Uncertain    | 45(45) |      |      |
|   |   | I know       | 9(9)   |      |      |

Table (7) Relationships among mothers Knowledge with their Sociodemographic Characteristics

| Variables                   |                      | Knowledge |      |      |       | Relationship                                 |
|-----------------------------|----------------------|-----------|------|------|-------|--|
|                             |                      | Poor      | Fair | Good | Total |  |
| Marital status              | Married              | 0         | 54   | 45   | 99    | $r_{pb} = .153$<br>P-value= .127<br>Sig= N.S |
|                             | Widower              | 0         | 1    | 0    | 1     |  |
| Age (year)                  | Less than 20         | 0         | 2    | 3    | 5     | $r_s = .110$<br>P-value= .227<br>Sig= N.S    |
|                             | 20 – less than 30    | 0         | 19   | 20   | 39    |  |
|                             | 30 – less than 40    | 0         | 20   | 17   | 37    |  |
|                             | 40 – less than 50    | 0         | 13   | 5    | 18    |  |
|                             | 50 and more          | 0         | 1    | 0    | 1     |  |
| Residency                   | Rural                | 0         | 5    | 4    | 9     | $r_{pb} = .137$<br>P-value= .174<br>Sig= N.S |
|                             | Urban                | 0         | 50   | 41   | 91    |  |
| Socioeconomic status        | Low                  | 0         | 15   | 8    | 23    | $r_s = .212$<br>P-value= .034<br>Sig= S      |
|                             | Moderate             | 0         | 30   | 22   | 52    |  |
|                             | High                 | 0         | 10   | 15   | 25    |  |
| Mother's level of education | Read & write         | 0         | 5    | 6    | 11    | $r_s = -.103$<br>P-value= .307<br>Sig= N.S   |
|                             | Primary school       | 0         | 25   | 16   | 41    |  |
|                             | Secondary school     | 0         | 23   | 14   | 37    |  |
|                             | Diploma /Bachelor    | 0         | 2    | 8    | 10    |  |
|                             | Postgraduate         | 0         | 0    | 1    | 1     |  |
| Father's level of education | Doesn't read & write | 0         | 1    | 0    | 1     | $r_s = .204$<br>P-value= .041<br>Sig= S      |
|                             | Read & write         | 0         | 3    | 3    | 6     |  |
|                             | Primary school       | 0         | 17   | 17   | 34    |  |
|                             | Secondary school     | 0         | 27   | 12   | 39    |  |
|                             | Diploma /Bachelor    | 0         | 5    | 13   | 18    |  |
|                             | Postgraduate         | 0         | 2    | 0    | 2     |  |
| Mother's occupation         | Employee             | 0         | 6    | 11   | 17    | $r_{pb} = -.213$<br>P-value= .033<br>Sig= S  |
|                             | Housewife            | 0         | 49   | 34   | 83    |  |
| Father's occupation         | Employee             | 0         | 32   | 26   | 58    | $r_{pb} = .043$<br>P-value= .674<br>Sig= N.S |
|                             | Unemployed           | 0         | 23   | 19   | 42    |  |

### Discussion:

The participants are within age 20–30 years old (39%), live in urban area (91%), with primary school (41%), Housewife's (83%) and Moderated socioeconomic status (52%) mothers in Egypt within age (25-30) are highest result of mothers age were (35%), the mother live in urban area (85%), primary school (42%) <sup>(1)</sup>, mother's occupation in Baghdad Housewife's 86% <sup>(10)</sup>, and in Pakistan mild socio-economic status (11%) <sup>(11)</sup>, primary school graduated (36.7%) highest percentage at Basra <sup>(12)</sup>, in Baghdad city the highest percentage of mothers unemployed (95.5%) <sup>(13)</sup>, and 70% of mothers live in urban areas in Baghdad <sup>(14)</sup>.

My point of view, since the majority of the mothers in the study are young, they got married at a

young age, which leads to difficulty in labor and thus leads to Erb's palsy. Home delivery may be one of the causes of Erb's palsy.

The majority of the study sample (55%) had Labor complications and the highest percentage is Breech delivery (86%), as shown in Figure (5), (62.5%), of breech deliveries, and some deliveries are done by poorly trained birth <sup>(15)</sup>. In addition, population in this study included all folders of the children with Erb's Palsy who were referred to the Hands Clinic at Groote Schuur Hospital other studies have confirmed that breech birth is one of the most common causes of Erb's

palsy, in addition, the number of children more than three quarter (77%) of mothers have 2-3 children<sup>(16)</sup>. In addition, the highest percentage (43.8%) of the study sample had two children and that was the high result in the study agreed, with study in Baghdad<sup>(15)</sup>. In terms of place of delivery, most mothers in the study (78%) are delivered in a hospital and in Nigeria; most of the participants (99%) are hospital delivery these results mean that there is no significant relationship between place of birth and Erb's palsy<sup>(17)</sup>.

The results of the present study in Table (2): Distribution of children according to medical data regarding the child's age at diagnosis, the study shown that a large number of children in the study sample were diagnosed within a period of less than a month. This result is consistent with study in Pakistan; the half of parents realized the injury of their children a few days later after birth<sup>(18)</sup>. And at Basra the age at diagnosis was less than one year (46.7%). the highest percentage in the sample of 30 mothers<sup>(12)</sup>. My point of view, mothers' observe weakness of the affected limb during short periods of childbirth indicates that mothers are aware of the normal limb movement of their children.

In Table (3) the findings indicate that mothers have good level of knowledge about Erb's (average mean: 2.48), In Egypt mothers' knowledge regarding brachial palsy the result revealed poor mothers' knowledge and this disagree with results<sup>(1)</sup>. While Baghdad city, (68.4%) mothers with low level of knowledge<sup>(3)</sup>, this result disagree with current study. While in the Karkh and Rasafa areas of Baghdad Region mothers knowledge is moderate (85%) in sample consists of 100 mothers<sup>(19)</sup>. And Mosul participant with good knowledge<sup>(20)</sup>. My point of view, this study's result for mothers with good knowledge at a young age this returned to good memory and good activities for the mother indicate that the majority of mothers are housewives and with primary school because they married at a young age.

Table (4) explored the statistics of mothers knowledge about causes of Erb's palsy are fair level ((average mean: 2.75), In Egypt mothers knowledge about causes of Erb's palsy was Satisfactory<sup>(1)</sup>. My point of view, the mothers need additional knowledge about Erb's palsy causes, (difficult vertex breech delivery, macrosomia, prolong second stage and maternal body mass index more than 29 (obese) and how lead to Erb's palsy to avoided future child's effected.

Table (5) mothers knowledge about symptoms of Erb's palsy; the findings indicate that mothers have fair level of knowledge about symptoms of Erb's palsy seen by total (average mean: 2.20). In addition, mother's knowledge about symptoms Erb's palsy are Satisfactory<sup>(21)</sup>.

From point of view the mothers to know more about Erb's palsy symptoms (The shoulder and arm are adducted and internally rotated, the elbow is extended and the forearm is pronates, with the wrist and fingers

flexed, A grasp reflex may be present because, finger and wrist movement remain normal but, the moro reflex is absent, The muscles of the hand is paralyzes, with consequent wrist drop and relaxed fingers, and The Moro reflex is absent on the affected side for all forms of Erb's palsy). In addition, fair level linked to low-level education of the mother's.

The results of the present study in Table (6) explored the statistics of mothers have fair level by (total average mean: 1.99), about Physiotherapy of Erb's Palsy and in India (73%), of participant have awareness about physiotherapy<sup>(22)</sup>.

From my point of view, the mother has had little knowledge about physiotherapy, which includes electrotherapy, splints, movement therapy, and exercise at home 2-3 times, per day, and physiotherapy movements, which are natural movements of the hand and arm that the child cannot do. In addition, needs training about that for good knowledge and practice and a good result of improvement.

In table (7) indicates that there is significant relationship among mothers knowledge with regard to socioeconomic status and father's level of education at p-values= .034 and .041, and there is significant relationship (reverse) between mothers knowledge and their occupational status at p-value= .033, At Baghdad City Significant relationship among mothers knowledge with their Sociodemographic Characteristics<sup>(23)</sup>, and in Baghdad was significant relationship between level of knowledge and marital status, while there is no significant relationship with age<sup>(24)</sup>.

**Conclusion:** The study conclude that the age group of the sample was 20-less than 30 year with gravida and para, 1-3 gravida, 1-3 para, primary school graduation and housewife's. In general, the mothers have good level of knowledge about Erb's palsy and fair in (causes, symptoms, and physiotherapy of Erb's palsy).

### Recommendations:

Farther study about mothers' knowledge in other sitting to discover the knowledge of mother in all items in 1 month after delivery.

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