Analysis of Mothers' Knowledge, Beliefs and Practice towards Neonatal Jaundice in Bingham University Teaching Hospital Jos, Plateau State, Nigeria

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Authors’ contributions

This work was carried out in collaboration among all authors. Author MS designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors HS and TOU managed the analyses of the study. Author TOU managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Neonatal jaundice is defined as the yellowish discoloration of the skin and sclera due to accumulation of unconjugated bilirubin. This is common in newborns and if not detected and treated early can lead to severe morbidity and mortality.

Aim: The aim of the study was to analyze the knowledge, attitude and practices of mothers in Bingham University Teaching Hospital on Neonatal Jaundice.

Method: This was a descriptive cross-sectional study which was carried out among mothers coming for ante and post-natal clinics in Bingham University Teaching Hospital from March to June.
1. INTRODUCTION

Neonatal jaundice usually described as the yellowish discoloration of the skin and sclera due to accumulation of unconjugated bilirubin is very common. In most infants, this can be termed as physiological having little or no effect on health outcomes. However, neonatal jaundice could sometimes require hospital visits and possible readmission after discharge usually in the first week of life [1,2]. High levels of bilirubin pose great dangers to the infants as unconjugated bilirubin is neurotoxic and could have debilitating consequences overtime [2]. Every year, about 1.1 million infants would develop severe hyperbilirubinemia with majority of affected infants living in Sub-Saharan Africa and South Asia. Higher rates of EBT (Exchange blood transfusion) has also been reported among doctors working in low- and middle-income countries (LMICs). This oftentimes reflects late presentation at these settings [3,4] and would influence disease outcome later. Infants are usually brought in as emergencies even at this time in Nigeria [4]. Evidence suggest that early diagnosis and prompt treatment will reduce the morbidity and mortality associated with neonatal jaundice [5]. The role a mother plays in the care of the child is unquantifiable. The mother is usually the first to recognize a deviation from the normal in her child. Her ability to recognize jaundice could pave way for early treatment of neonatal jaundice. Attention is focused on mothers compared to fathers as studies have shown that mothers directly influence childcare practices more than fathers. This makes mothers responsible for the early detection of neonatal jaundice after discharge and a key stakeholder in health [4,6-10]. Factors such as culture, socioeconomic status, and educational status are significant in the decision a mother takes to seek care for her child [7]. All these factors would directly influence mothers’ knowledge, attitude and practice towards neonatal jaundice. Looking at a study done in Iran on Knowledge, Attitude and behaviour on Jaundice, mothers’ knowledge of neonatal jaundice was limited [8]. This result agreed with another study done in India which also recorded low levels of knowledge among mothers regarding neonatal jaundice [11]. Coming back to Nigeria, a study carried out in Ogun State by Olusoga et al on-mother’s perception of jaundice reported only 23 (12.2%) participants had some knowledge in that they were able to mention one known cause of the condition. [12] On the other hand, 58 (30.7) participants had erroneous belief concerning the cause of NNJ while the majority, 108 (57.1%) did not know any cause of NNJ. A study in Lagos Nigeria by Ezeaka et al also revealed that >75% of the participants were unable to correctly identify the causes of neonatal jaundice despite the fact that blood group incompatibility, prematurity, infections and glucose-6-phosphate dehydrogenase deficiency have been reported by several authors in Nigeria as common aetiological factors. [13] Some respondents attributed the cause of jaundice to yellow fever in the newborn. This goes to show that more work still needs to be done in educating mothers on the cause of jaundice especially regarding addressing cultural norms in the care of the newborn. Another important factor that cannot be overlooked is maternal education. There is strong evidence showing direct relationships between maternal level of education and health outcomes as education empowers women to commit to improving health status. [14,15] It could be said that mothers who are educated tend to have better knowledge on neonatal jaundice than mothers who had no formal education. A study carried out by Ebube et al

2019, using consecutive sampling of mothers that came for ante and post-natal services that consented to the study. The knowledge, attitude and practice of Neonatal Jaundice (NNJ) was assessed using a pretested questionnaire which was analyzed using SPSS version 22.

Results: The results showed that 80% of mothers >40 years are able to define jaundice correctly compared to the 30% in mothers <26 years. Thirty-seven percent of mothers did not know any single cause of NNJ. Knowledge on NNJ was significantly associated with occupation, education and parity with fisher’s exact test of 0.045, 0.034 and 0.026 respectively. Only 16% of the mothers knew that phototherapy is the major form of treatment for NNJ, most will expose their babies to sunlight. Some traditional beliefs about the cause of NNJ includes bad blood, bad breastmilk, change in weather and evil eye.

Conclusion: There is need for more health education talks, campaigns and enlightenment of mothers on NNJ.

Keywords: Attitude; knowledge; practice; neonatal jaundice; mothers; Jos.
revealed respondents' knowledge of NNJ increased with increasing level of education [16]. Knowledge gap is significantly wider in mothers from the lower socioeconomic group, who have poorer educational status, this reiterates the point for improvement in female education. Poor socio-economic factors, low level of education and poverty all have a negative influence on health [17]. In developed countries, emphasis is being placed on prenatal screening and monitoring backed up with an efficient referral system. This place a large percentage of the burden of early recognition and prompt treatment on the health system rather than the mother [18,19]. For this reason, the high-income countries have experienced a marked reduction in cases of severe NNJ due to early diagnosis and prompt treatment [20]. Mothers bear the brunt of the responsibility in recognizing neonatal jaundice in Nigeria. The study seeks to explore the knowledge, attitude and practices of mothers to neonatal jaundice.

2. MATERIALS AND METHODS

2.1 Study Design

This was a cross-sectional study carried out among mothers who attended antenatal and postnatal clinics in Bingham University Teaching Hospital (BHUTH) Jos, Plateau State, Nigeria from March 2019 to June 2019. Bingham University Teaching Hospital is a 250-bedded teaching hospital that offers medical, surgical, maternal and child health services to the different tribes, religious and socio-economic population within and outside Plateau state. The hospital is a referral center for primary and secondary health care centers; Sample size was calculated using the formula \( Z^2 x (p) x (1-p)/d^2 \).

2.2 Sampling Method

Data were collected consecutively from women that attended the antenatal and postnatal clinics.

2.3 Exclusion Criteria

Women who did not consent to the study and women who were staff of the clinic.

2.4 Inclusion Criteria

Women who consented to the study and were attending antenatal or postnatal clinic.

2.5 Data Collection

The antenatal clinics were held on Mondays and Thursdays, while postnatal clinics were held on Wednesday. The questionnaire which was self-administered was used which included statements dealing with information on demography, knowledge, attitude and practice of participants with regards to NNJ.

The questionnaire was intended to acquire from the respondents' data on age, marital status, parity, occupation, educational level, awareness of and capacity to recognize jaundice, information on causes, danger signs, complications, treatment, and immediate step to take when they notice jaundice.

2.6 Data Analysis

One hundred and forty questionnaires were analyzed. The data collected were analyzed using SPSS version 22. Frequency tables and bar charts were used to describe the data. Chi-square statistical test and Fisher's exact test were used to show if there were association between the socio-demographic characteristics of the respondents and their knowledge and attitude towards NNJ. The level of significance was set at \( P < 0.05 \) and confidence level at 95%.

3. RESULTS

The number of respondents who participated in the study was 140. Most of them were within the age range of 31 - 35 years with 52 (37%), while the least age was those greater than 40 years with only 5 (3.6%). Of the 140 participants 102 (72%) were married, 52 (37.1) had a university education and 40(28.6%) were multipara.

Blood group incompatibility was believed to be the highest cause of NNJ by the respondents with 24 (21.2%), closely followed by infections with 23 (20.3%). About 37% of the mothers did not know a single cause of NNJ.

Fever was the most prominent danger sign in NNJ that could be elicited by mothers between
the age range of 36-40 years with 75%. Although, there was no significant association between knowing the danger signs and age, with Fisher’s exact test of 0.514. However, there was significant association between danger signs and education, occupation and parity, with Fisher’s exact score of 0.045, 0.034 and 0.026 respectively. High pitch cry was not recognized as a danger sign by almost all the mothers.

In answering the question on how NNJ should be treated, 20 (16.8%) of the participants said they had no knowledge, 54 (45.4%) incorrectly chose exposure to sunlight, while 20 (16.8%) correctly identified the use of phototherapy, and 5(4.2%) chose exchange blood transfusion (EBT) as modalities of treatment. Herbal medication was chosen as a modality of treatment by only 1 (0.8%) of the mothers.

**Table 1. Demographic distribution of the study**

| Variable          | Frequency | Percentage |
|-------------------|-----------|------------|
| **Age group (years)** |           |            |
| 15-20             | 7         | 5.0        |
| 21-25             | 13        | 9.3        |
| 26-30             | 30        | 21.4       |
| 31-35             | 52        | 37.1       |
| 36-40             | 17        | 12.1       |
| >40               | 5         | 3.6        |
| No response       | 16        | 11.4       |
| Total             | 140       | 100.0      |
| **Religion**      |           |            |
| Christian         | 103       | 73.6       |
| Muslim            | 14        | 10.0       |
| No response       | 23        | 16.4       |
| Total             | 140       | 100.0      |
| **Marital Status**|           |            |
| Single            | 2         | 1.4        |
| Married           | 102       | 72.9       |
| Divorced          | 4         | 2.9        |
| Widowed           | 1         | .7         |
| No response       | 31        | 22.1       |
| Total             | 140       | 100.0      |
| **Occupation**    |           |            |
| Housewife         | 8         | 5.7        |
| Business          | 13        | 9.3        |
| Civil servant     | 8         | 5.7        |
| Teacher           | 5         | 3.6        |
| Others            | 6         | 4.3        |
| No response       | 100       | 71.4       |
| Total             | 140       | 100.0      |
| **Education**     |           |            |
| Primary           | 2         | 1.4        |
| Secondary         | 27        | 19.3       |
| Cert/Diploma     | 38        | 27.1       |
| University        | 52        | 37.1       |
| Postgraduate      | 13        | 9.3        |
| No response       | 8         | 5.7        |
| Total             | 140       | 100.0      |
| **Parity**        |           |            |
| Prim gravida      | 23        | 16.4       |
| Multigravida      | 40        | 28.6       |
| Grand multipara   | 4         | 2.9        |
| No response       | 73        | 52.1       |
| Total             | 140       | 100.0      |
Table 2. Knowledge of neonatal jaundice

| Variable          | Correct | Wrong | Total |
|-------------------|---------|-------|-------|
| **Age group**     |         |       |       |
| 15-20             | 0(0.0)  | 7(100.0) | 7(100.0) |
| 21-25             | 4(30.8) | 9(69.2) | 13(100.0) |
| 26-30             | 18(60.0) | 12(40.0) | 30(100.0) |
| 31-35             | 20(38.5) | 32(61.5) | 52(100.0) |
| 36-40             | 7(41.2) | 10(58.8) | 17(100.0) |
| >40               | 4(80.0) | 1(20.0) | 5(100.0) |
| **Total**         | 53(42.7) | 71(57.3) | 124(100.0) |
| **Religion**      |         |       |       |
| Christian         | 41(39.8) | 62(60.2) | 103(100.0) |
| Muslim            | 6(42.9) | 8(57.1) | 14(100.0) |
| **Total**         | 47(40.2) | 70(59.8) | 117(100.0) |
| **Occupation**    |         |       |       |
| Housewife         | 3(37.5) | 5(62.5) | 8(100.0) |
| Business          | 3(23.1) | 10(76.9) | 13(100.0) |
| Civil Servant     | 5(62.5) | 3(37.5) | 8(100.0) |
| Teacher           | 3(60.0) | 2(40.0) | 5(100.0) |
| Others            | 4(66.7) | 2(33.3) | 6(100.0) |
| **Total**         | 18(45.0) | 22(55.0) | 40(100.0) |
| **Marital Status**|         |       |       |
| Single            | 0(0.0) | 2(100.0) | 2(100.0) |
| Married           | 43(42.2) | 59(57.8) | 102(100.0) |
| Divorced          | 1(25.0) | 3(75.0) | 4(100.0) |
| Widowed           | 0(0.0) | 1(100.0) | 1(100.0) |
| **Total**         | 44(40.4) | 65(59.6) | 109(100.0) |
| **Education**     |         |       |       |
| Primary           | 0(0.0) | 2(100.0) | 2(100.0) |
| Secondary         | 7(25.9) | 20(74.1) | 27(100.0) |
| Cert/Diploma      | 16(42.1) | 22(57.9) | 38(100.0) |
| University        | 27(51.9) | 25(48.1) | 52(100.0) |
| Postgraduate      | 7(53.8) | 6(46.2) | 13(100.0) |
| **Total**         | 57(43.2) | 75(56.8) | 132(100.0) |
| **Parity**        |         |       |       |
| Prim gravida      | 10(43.5) | 13(56.5) | 23(100.0) |
| Multigravida      | 23(57.5) | 17(42.5) | 40(100.0) |
| Grand multipara   | 0(0.0) | 4(100.0) | 4(100.0) |
| **Total**         | 33(49.3) | 34(50.7) | 67(100.0) |

Table 3. Causes of NNJ

| Causes of NNJ                  | Frequency | Percentage (%) |
|--------------------------------|-----------|---------------|
| Blood Incompatibility          | 24        | 21.2          |
| Infectious disease             | 23        | 20.3          |
| Hematological/Hereditary disease | 11   | 9.7           |
| Use of naphthalene ball (camphor) | 4   | 3.5           |
| Some medications given in labour | 3   | 2.7           |
| G6PD-deficiency                | 3         | 2.7           |
| Prematurity                    | 2         | 1.8           |
| Breast milk jaundice           | 1         | 0.9           |
| I don't know                   | 42        | 37.2          |
| **Total**                      | 113       | 100           |
### Table 4.1. Danger signs against demographic characteristics

| Variable | What are the danger signs | df | Fisher’s Exact |
|----------|----------------------------|----|-----------------|
|          | Fever | High pitch cry | Weakness | Upward rolling of the eyes | Refusal to pee | Convulsion | Arching of the back | Total |
| Age group |       |                |          |                            |               |           |                     |       |
| 15-20     | 2(50.0) | **              | 0(0.0) | 1(25.0) | 1(25.0) | 0(0.0) | 0(0.0) | 4(100.0) | 25 | 0.514 |
| 21-25     | 3(27.3) | **              | 0(0.0) | 1(9.1)  | 2(18.2) | 1(9.1) | 4(36.4) | 11(100.0) |        |
| 26-30     | 11(40.7) | **             | 3(11.1)| 5(18.5)| 0(0.0) | 1(3.7) | 7(25.9) | 27(100.0) |        |
| 31-35     | 23(46.0) | **             | 5(10.0)| 8(16.0)| 4(8.0) | 2(4.0) | 8(16.0) | 50(100.0) |        |
| 36-40     | 12(75.0) | **             | 1(6.3)| 2(12.5)| 0(0.0) | 0(0.0) | 1(6.3) | 16(100.0) |        |
| >40       | 1(20.0)  | **             | 0(0.0)| 2(40.0)| 1(20.0)| 0(0.0) | 1(20.0) | 5(100.0)  |        |
| Total     | 52(46.0) | **             | 9(8.0)| 19(16.8)| 8(7.1) | 4(3.5) | 21(18.6)| 113(100.0) |        |
| Religion  |       |                |          |            |       |           |                     |       |
| Christian | 44(47.8) | 0(0.0) | 6(6.5)| 15(16.3)| 8(8.7) | 1(1.1) | 18(19.6) | 92(100.0) | 6 | 0.086 |
| Muslim    | 5(41.7)  | 1(8.3) | 2(16.7)| 1(8.3)| 0(0.0) | 1(8.3) | 2(16.7) | 12(100.0) |        |
| Total     | 49(47.1) | 1(1.2) | 8(7.7)| 16(15.4)| 8(7.7) | 2(1.9) | 20(19.2) | 104(100.0) |        |
| Marital Status |       |                |          |            |       |           |                     |       |
| Single    | 0(0.0)  | **             | 0(0.0)| 0(0.0) | 1(50.0) | 0(0.0) | 1(50.0) | 2(100.0) | 15 | 0.589 |
| Married   | 47(51.6) | **             | 6(6.6)| 16(17.6)| 6(6.6) | 3(3.3) | 13(14.3) | 91(100.0) |        |
| Divorced  | 2(50.00)| **            | 0(0.0)| 1(25.0)| 1(25.0)| 0(0.0) | 0(0.0) | 4(100.0)  |        |
| Widowed   | 0(0.0)  | **             | 0(0.0)| 0(0.0) | 0(0.0) | 0(0.0) | 1(100.0) | 1(100.0) |        |
| Total     | 49(50.0) | **             | 49(50.0)| 6(6.1)| 17(17.3)| 8(8.2) | 15(15.3)| 98(100.0) |        |

*LR = Likelihood-Ratio*
Table 4.2. Danger signs against demographic characteristics contd

| Variable    | What are the danger signs | df | Fisher’s Exact |
|-------------|---------------------------|----|----------------|
|             | Fever | High pitch cry | Weakness | Upward rolling of the eyes | Refusal to pee | Convulsion | Arching of the back | Total |
| Occupation  |       |                |          |                           |               |            |                    |       |
| Housewife   | 2(25.0) | 1(12.5) | 2(25.0) | 1(12.5) | 0(0.0) | 1(12.5) | 8(100.0) | 24 | 0.045 |
| Business    | 6(50.0) | 0(0.0) | 0(0.0) | 1(8.3) | 0(0.0) | 1(8.3) | 4(33.3) | 12(100.0) |       |
| Civil/servant | 5(71.4) | 0(0.0) | 0(0.0) | 1(14.3) | 0(0.0) | 0(0.0) | 1(14.3) | 7(100.0) |       |
| Teacher     | 0(0.0) | 0(0.0) | 0(0.0) | 3(75.0) | 0(0.0) | 0(0.0) | 1(25.0) | 4(100.0) |       |
| Others      | 0(0.0) | 0(0.0) | 1(20.0) | 1(20.0) | 2(40.0) | 0(0.0) | 1(20.0) | 5(100.0) |       |
| Total       | 13(36.1) | 1(2.8) | 3(8.3) | 7(19.4) | 3(8.4) | 1(2.8) | 8(22.2) | 36(100.0) |       |
| Education   |       |               |          |                           |               |            |                    |       |
| Primary     | 1(50.0) | 0(0.0) | 0(0.0) | 0(0.0) | 0(0.0) | 1(50.0) | 0(0.0) | 2(100.0) | 24 | 0.034 |
| Secondary   | 7(36.8) | 1(5.3) | 0(0.0) | 1(5.3) | 6(31.6) | 0(0.0) | 4(21.1) | 19(100.0) |       |
| Cert/Dip.   | 16(44.4) | 0(0.0) | 2(5.6) | 6(16.7) | 4(11.1) | 1(2.8) | 7(19.4) | 36(100.0) |       |
| University  | 23(46.9) | 0(0.0) | 6(12.2) | 10(20.4) | 0(0.0) | 3(6.1) | 7(14.3) | 49(100.0) |       |
| Postgrad    | 8(61.5) | 0(0.0) | 1(7.7) | 2(15.4) | 0(0.0) | 0(0.0) | 2(15.4) | 13(100.0) |       |
| Total       | 55(46.2) | 1(0.8) | 9(7.6) | 19(16.0) | 10(8.4) | 5(4.2) | 20(16.8) | 119(100.0) |       |
| Parity      |       |               |          |                           |               |            |                    |       |
| Prim gravida | 4(17.4) | 1(4.3) | 4(17.4) | 4(17.4) | 2(8.7) | 2(8.7) | 6(26.1) | 23(100.0) | 12 | 0.026 |
| Multigravida | 21(55.3) | 0(0.0) | 4(10.5) | 7(18.4) | 2(5.3) | 0(0.0) | 4(10.5) | 38(100.0) |       |
| Grand multipara | 0(0.0) | 0(0.0) | 0(0.0) | 1(25.0) | 2(50.0) | 0(0.0) | 1(25.0) | 4(100.0) |       |
| Total       | 25(38.5) | 1(1.5) | 8(12.3) | 12(18.5) | 6(9.2) | 2(3.1) | 11(16.9) | 65(100.0) |       |
What is your source of Information?

![Bar chart on source of information](image)

**Table 5. Treatment of NNJ**

| Treatment of NNJ       | Frequency | Percentage |
|------------------------|-----------|------------|
|Expose to sunlight      | 54        | 45.4       |
|Phototherapy            | 20        | 16.8       |
|Antibiotics             | 10        | 8.4        |
|Glucose water           | 9         | 7.6        |
|Exchange blood transfusion| 5        | 4.2        |
|Herbal medication       | 1         | 0.8        |
|I don’t know            | 20        | 16.8       |
|Total                   | 119       | 100        |

**Table 6. Distribution of complication of NNJ**

| Complication            | Frequency | Percentage |
|-------------------------|-----------|------------|
|Blindness/deafness      | 30        | 18.07      |
|Delayed                 | 41        | 24.70      |
|Developmental Milestone|           |            |
|Death                   | 34        | 20.48      |
|Cerebral palsy          | 18        | 10.84      |
|Seizure disorder        | 8         | 4.82       |
|I don’t know            | 35        | 21.09      |
|Total                   | 166       | 100.0      |

The attitude of mothers towards the treatment of NNJ was not too good as 48% of the mothers said they will bring the babies to the hospital, only 1.7% will use traditional medication. However, about 29% will use sunlight.

4. DISCUSSION

The demographic characteristics of this study showed that the age range of the mothers were more in the reproductive age group, with less than 5% being above 40 years. This is expected because the study was done among mothers.
Table 7. Distribution of common traditional beliefs of NNJ

| Common traditional belief          | Frequency | Percentage |
|-----------------------------------|-----------|------------|
| Bad breast milk                   | 19        | 20.88      |
| Bad blood                         | 46        | 50.55      |
| Evil eye                          | 5         | 5.49       |
| Eating yellow colored food        | 8         | 8.79       |
| Change in weather                 | 13        | 14.29      |
| Total                             | 91        | 100.0      |

Table 8. What will you do If you see a child with NNJ

| What I will do when I see a child with jaundice | Frequency | Percentage |
|-------------------------------------------------|-----------|------------|
| Expose to sunlight                               | 49        | 29.17      |
| Treat with drugs                                 | 11        | 6.55       |
| Give herbal medication                           | 3         | 1.79       |
| Refer to the hospital                            | 81        | 48.21      |
| Do Nothing                                       | 8         | 4.76       |
| Give glucose water                               | 16        | 9.52       |
| Total                                            | 168       | 100.0      |

coming for pre-natal and post-natal care in the hospital. This is similar to what was obtained in Benin with a greater percentage of the mothers falling within the age range of 26-35 years and less than 1% being in the range of 46-55 years [16].

Despite the high morbidity and mortality associated with hyperbilirubinaemia, it is disheartening to see that a lot of young mothers could not describe the condition. However, a lot of the older women could define the condition. A plausible explanation could be because they have been exposed to babies with such conditions during the early years of their reproductive age. The result corroborates study done by Ezeaka et al where about two-thirds of the mothers could not correctly define jaundice [13].

The major source of information from this study was from health workers, while the least source was from lectures and seminars. This is expected as these are mothers that are either in the hospital for ante-natal or post-natal services, where they are exposed to a lot of health workers and are being given health talks. This is in contrast with results obtained by Alfouwais et al where the major source of information was from relatives/friends [21].

The result obtained from this study showed that many of the mothers believed that the common cause of NNJ includes blood group incompatibility and sepsis. This could be attributed to the fact that many of the mothers have a university education. This contrasts with what was obtained by Rabiyeepoor et al in Iran [22], where greater than 70% of them did not know that blood incompatibility is a cause of NNJ. The reason for this could be because only about 8% of the mothers had university education compared to more than one-third in our study.

The commonest danger sign noticed in our study was fever with about two-third of the mothers mentioning it. The next common danger sign known was back arching. The knowledge on danger signs was significantly associated with education, occupation and parity. This collaborates studies done by Aggarwal et al, Alfouwais et al and Moawad et al, where knowledge was found to be related to education, occupation and parity. [11,21,23] This calls for improved female education and mass health enlightenment programmes on newborn jaundice. In constrast, the study done by Yuen Ng et al in Malaysia showed that knowledge of NNJ has no relationship with parity and other socioeconomic variables [6]. A plausible reason for this could be because of the difference in methodology, country and year of study.

There are two main effective treatment modalities for hyperbilirubinaemia, these are phototherapy and EBT. In this study only 16% and 4% of the mothers knew these forms of treatment respectively. Most of the mothers believed that exposure to sunlight is a form of treatment. This is worrisome seeing that the major source of information in this study was
from healthcare workers. Yuen Ng et al said that studies have shown that some health workers are responsible for this wrong information [6]. The use of sunlight as a form of treatment for babies with jaundice is common in Africa [7,10,13,16,18].

Neonatal jaundice is a cause of severe morbidity and mortality, [2,5,12,16,18] the knowledge of this could help in preventing the delay in the presentation of babies with NNJ, to reduce the morbidity and mortality. The complication of delayed developmental milestone was known by about one-fourth of the mothers, closely followed by death and blindness/deafness. This is similar to what was obtained by Ezeaka et al, with about one-fourth of the mothers knowing about brain damage, mental retardation and delayed developmental milestones as complication. [13] About one-fifth of the mothers do not know any complication of NNJ. This is comparable to the 33% gotten by Egube et al. [16]

The practice of the mothers concerning NNJ is not too good as only about half of the mothers will take or refer the babies to the hospital. One third will expose the babies to sunlight, while about 6% will treat the babies with some medication. The fact that most of the mothers believed that exposure to sunlight is a form of treatments explains why up to one-third will immediately expose their babies to sunlight when they develop jaundice. The result obtained was less than the more than two third that will seek medical advice from the study of Moawad et al and egube et al. [16,23]

5. CONCLUSION

The mothers attending ante-natal and post-natal clinics in BHUTH have some degree of knowledge on NNJ. However, they have some negative beliefs and practices toward babies with NNJ. Therefore, thorough health education talks on NNJ should be instituted at antenatal and postnatal clinics. There is the need to increased knowledge about the effective treatment of NNJ and consequences of severe hyperbilirubinaemia by well-trained health care workers who will need to attend refresher courses from time to time.

6. RECOMMENDATION

There should be Public Health intervention in the hospital throughs health education, campaigns, ANC counselling on NNJ. The healthcare workers should focus more on young mothers, businesswomen, housewives, single/divorced/widowed women and those with below secondary school level of education.

CONSENT

Informed consent was obtained verbally from the mothers and confidentiality maintained.

ETHICAL APPROVAL

Ethical clearance was obtained from the research and ethical committee of the Bingham University Teaching Hospital (BHUTH) Jos, Plateau State.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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