



UNIVERSITI PUTRA MALAYSIA

***RELATIONSHIP BETWEEN KNOWLEDGE AND AWARENESS OF
JAUNDICE IN NEWBORN AMONG PARENTS IN SEREMBAN,
NEGERI SEMBILAN***

ANIS IZZATI BINTI MUHAMAD AFENDI

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ANIS IZZATI BINTI MUHAMAD AFENDI

**BACHELOR OF NURSING
UNIVERSITI PUTRA MALAYSIA
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IN SEREMBAN, NEGERI SEMBILAN**

By

ANIS IZZATI BINTI MUHAMAD AFENDI

Thesis Submitted to the Faculty of Medicine and Health Sciences,

Universiti Putra Malaysia, in Fulfillment of the

Requirement for the Degree of Bachelor Of Nursing

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RELATIONSHIP BETWEEN KNOWLEDGE AND AWARENESS OF JAUNDICE IN NEWBORN AMONG PARENT IN SEREMBAN, NEGERI SEMBILAN

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ABSTRACT

Introduction: Jaundice in newborn is a condition of the baby presenting yellowish discoloration of skin and eye during their first week of life because the bilirubin is buildup in the blood due to immature liver. The primary responsibility toward care of jaundice in newborn is completely to the parents after discharge from the hospital where they be the one to recognize, response and provide appropriate treatment if any abnormality occur. Newborn morbidity and mortality is preventable when the jaundice is manageable with adequate awareness, knowledge and appropriate intervention. **Objective:** To determine the association between the level of knowledge and awareness on care of jaundice in newborns with the type of treatment selected among parents. **Methods:** A cross-sectional study was carried out among 250 respondents from a community in Seremban. The respondents were asked to answer an online questionnaire regarding neonatal jaundice. Spearman correlation, Kruskal Wallis H test and Pearson chi-square were used to evaluate the resulting data. **Results:** The mean age of the respondents was 36.48 ± 12.2 years old, 41.7% (58) were male, 58.3% (81) were female, 56.1% (78) were Malay, 24.5% (34) were Chinese, 16.5% (23) were Indian and 2.9% (4) others ethnic. About 56.8% (79) of the respondent were having excellent knowledge while 38.8% (54) having average knowledge and 4.3% (6) having limited knowledge. Meanwhile, 97.1% (135) and 2.9% (4) of the respondent had satisfactory awareness and unsatisfactory awareness respectively. There is no significant relationship between knowledge and awareness with the type of treatment selected on jaundice in newborn ($p=0.733$). However, the excellent knowledge was achieved by the total of 56.8% respondents with satisfactory awareness related with type of treatment selected by the total of 55.4%. **Conclusion:** Majority respondents had excellent knowledge, sufficient awareness and good in selected proper type of treatment to the newborn with jaundice. Even though the result shows positive towards the community, the health education to recognize, prevent and manage the jaundice should be improved to enhance the knowledge and awareness among them.

Keywords: knowledge, awareness, jaundice, neonatal, newborn, parent, mother

HUBUNGAN ANTARA PENGETAHUAN DAN KESEDARAN JAUNDIS PADA BAYI BARU LAHIR DALAM KALANGAN IBU BAPA DI SEREMBAN, NEGERI SEMBILAN

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ABSTRAK

Pengenalan: Jaundis pada bayi baru lahir adalah keadaan bayi menunjukkan perubahan warna kekuningan pada kulit dan mata semasa minggu pertama kehidupan mereka disebabkan oleh bilirubin yang terkumpul dalam darah kerana hati yang belum matang. Tanggungjawab utama terhadap penjagaan jaundis neonatal adalah sepenuhnya kepada ibu bapa selepas discaj dari hospital dimana mereka yang akan mengenali, membalas dan memberikan rawatan yang sewajarnya jika berlaku sebarang kelainan. Morbiditi dan kematian bayi baru lahir boleh dicegah apabila jaundis dapat diurus dengan kesedaran, pengetahuan dan rawatan yang sesuai. **Objektif:** Untuk menentukan perkaitan antara tahap pengetahuan dan kesedaran tentang penjagaan jaundis pada bayi baru lahir dengan jenis rawatan yang dipilih dalam kalangan ibu bapa. **Kaedah:** Satu kajian keratan rentas telah dijalankan dalam kajian ini di kalangan 250 responden daripada komuniti di Seremban. Responden diminta menjawab soal selidik dalam talian berkenaan dengan jaundis neonatal. Spearman correlation, Kruskal Wallis H test dan Pearson chi-square digunakan untuk menilai data yang terhasil. **Hasil Kajian:** Purata umur responden ialah 36.48 ± 12.2 tahun, 41.7%(58) adalah lelaki, 58.3%(81) adalah perempuan, 56.1%(78) adalah Melayu, 24.5%(34) Cina, 16.5%(23) India and 2.9%(4) lain-lain etnik. Kira-kira 56.8%(79) responden mempunyai pengetahuan cemerlang manakala 38.8%(54) mempunyai pengetahuan sederhana dan 4.3%(6) mempunyai pengetahuan terhad. Manakala, 97.1%(135) dan 2.9%(4) responden masing-masing mempunyai kesedaran memuaskan dan kesedaran tidak memuaskan. Terdapat hubungan yang tidak signifikan antara pengetahuan dan kesedaran dengan jenis rawatan yang dipilih terhadap jaundis neonatal ($p=0.733$). Maka, pengetahuan cemerlang dicapai oleh 56.8% responden dengan kesedaran memuaskan berkaitan jenis rawatan yang dipilih dengan jumlah keseluruhan 55.4%. **Kesimpulan:** Majoriti responden mempunyai pengetahuan cemerlang, kesedaran mencukupi dan baik dalam memilih jenis rawatan yang sesuai kepada jaundis neonatal. Walaupun hasilnya ialah positif kepada masyarakat, pendidikan kesihatan untuk mengenali, mencegah dan mengurangkan jaundis perlu ditingkatkan bagi meningkatkan pengetahuan dan kesedaran di kalangan masyarakat.

Kata kunci: pengetahuan, kesedaran, jaundis, neonatal, bayi baru lahir, ibu bapa

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DECLARATION (STUDENT)

I hereby confirm that:

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This is to confirm that:

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- supervision responsibilities as stated in the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) are adhered to.

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LIST OF ABBREVIATION

1. ANOVA : Analysis of variance
2. COVID-19 : Coronavirus Disease 2019
3. JKEUPM : Jawatankuasa Etika Universiti Untuk Penyelidikan Melibatkan
Manusia
4. JKKK : Jawatankuasa Kemajuan dan Keselamatan Kampung
5. MOH : Ministry of Health, Malaysia
6. NNJ : neonatal jaundice
7. SPSS : Statistical Package for Social Science
8. TSB : total serum bilirubin

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CHAPTER 1

INTRODUCTION

1.1 Background of The Study

Jaundice in newborn or known as neonatal jaundice (NNJ) is defined as a yellowish discoloration of baby's skin and eyes which is the most common condition that occur during the first week of life (Magfour et al., 2019). According to PORTAL MyHEALTH by Ministry of Health Malaysia (MOH), NNJ occurs due to the accumulation of bilirubin, the product of red blood cell breakdown. Bilirubin should be excrete into the stools after the liver has done processing however, due to inability of the immature hepatic metabolic pathway causes bilirubin to fail to excrete from the body (Alfouwais et al., 2018; Ezeaka et al., 2016). Hence, jaundice is also known as hyperbilirubinemia due to the buildup of bilirubin in the blood that causes yellow discoloration.

The primary responsibility for the care of jaundice in newborns is entire to the parents after discharge from the hospital. The parent or caregiver will be the one with the newborn to recognize, response and provide appropriate treatment if any abnormality occur (Alfouwais et al., 2018). NNJ is medical condition that most likely happen just over half of full-term newborn babies and four-fifths of preterm babies (Shehu et al., 2019). Kernicterus and bilirubin encephalopathy is example of complication that contribute to prolonged jaundice without early recognition or treatment (Kokou H. Amegan-Aho et al., 2019). Therefore, NNJ should be concerned and be monitored by parent or caregiver for prolonged jaundice occurs that may lead to complications for the newborn. Thus, this research is intended to

know the parent knowledge about jaundice in newborn.

Jaundice in newborns is a manageable as well preventable cause of morbidity and mortality to the baby. Phototherapy is well known as the standard management to treat jaundice in newborns to reduce the concentration of bilirubin (Maisels & McDonagh, 2009). However, other alternatives being practice to some of the parent toward NNJ such as placing the baby under the morning sunlight or let the baby consume herbal medication before seek medical care (Salia et al., 2021). Thus, this research also measures the treatment on care of jaundice associate with the level of knowledge and awareness among parent on jaundice in newborns.

1.2 Problem Statement

In a study by Olatunde et al. (2020), an assessment of knowledge about neonatal jaundice among 518 pregnant women in Southwest, Nigeria found that the majority of them 77% have heard, 15.6% have not heard, 2.5% were not sure and 4.1% did not respond about neonatal jaundice. Besides that, a study done by Kokou H. Amegan-Aho et al. (2019) in Ghana, West Africa, reported that 133 out of 175 expected mothers are aware of neonatal jaundice, 65.1% maternal age was the age group of 26- 35 years old and 36.0% the parity of the expected mother that had never give birth.

Furthermore, in a study done in Saudi Arabia by Alfouwais et al. (2018), only 43.8% of the participants admitted that they have sufficient knowledge of neonatal jaundice otherwise 56.2% have no sufficient knowledge of neonatal jaundice. Moreover, according to a study done by Ezeaka et al. (2016), there were 395 pregnant women in Lagos, Nigeria involved only 25.6% of them provide correct definition on neonatal jaundice and the other 74.4% of mothers did not know the correct definition.

Based on a study done by Magfour et al. (2019), out of 450 mothers in Jazan, Saudi Arabia, 60.4% of them were having poor knowledge whereas 39.6% of them were having good knowledge with 96%, 89.3% and 77.5% were younger mother age 20 – 29 years old, had bachelor or higher level of education and multipara mothers respectively.

According to a study reported by Shehu et al. (2019), 181 medical students were assessed on their knowledge of neonatal jaundice. The study showed that almost all the students were able to define what is neonatal jaundice, the causes and the complications of neonatal jaundice. However, some of them have been identified to have poor knowledge of the treatment of neonatal jaundice. 43.1% and 33.0% of the participants chose exposure to sunlight and had no idea on the effective color of light for phototherapy respectively. This study was conducted in Jos, Nigeria, focusing on medical students of Bingham University Teaching Hospital.

In addition, there was a recent study conducted by Demis et al. (2021) in Ethiopia, East Africa. They reported that there were factors associated with mothers' knowledge of NNJ. However, among 380 mothers involved, 39.2% were having good knowledge about NNJ, otherwise 60.8% were having poor knowledge about NNJ. Good knowledge of neonatal jaundice was associated with 47.8% of mothers having a favorable attitude towards NNJ, 78.4% having a child with a history of jaundice, 50.4% were currently having a child with jaundice, 41.0% were having antenatal care follow-up and 43.4% were living in the urban area compared to the rural area.

In Malaysia, according to a study conducted by Boo et al. (2011), there were differences in maternal knowledge of jaundice based on the ethnic group where the Malays had higher mean scores of knowledge than Chinese and Indians with mean scores of 8.0, 6.8 and 7.0 respectively. To add on, almost all mothers from three ethnic groups knew about neonatal jaundice and the situation was common to occur to neonates. The presenting jaundice that lasting 14 days and above was abnormal and being acknowledged by the mother. However, almost half of them were unaware that

jaundice also may present during the first 36 hours of life was abnormal. This is compared to others countries, Malaysia has emphasized taking notes of the presenting of jaundice other than only focusing on the cause or danger sign of jaundice as well they found a significant impact on the knowledge towards jaundice in the newborn with the difference of ethnic groups. This study was focused on the pregnant women and postpartum mothers at a public hospital in Negeri Sembilan.

Based on a study performed by Ng and Chong (2014), also at a public hospital in Perak were focusing on the mother that had babies aged birth to 28 days, and reported that 94.9% of the participant had heard about neonatal jaundice which 57.6% from health education and 85.9% from the home visit by the health staff. In addition, 83.3% of the mother have good attitude towards neonatal jaundice if detected by seeking the health care staff however, there were approximately less than 50% of the mother lack knowledge on causes of neonatal jaundice, complications and method on how to prevent neonatal jaundice.

Furthermore, based on both studies in Malaysia emphasized that the knowledge on neonatal jaundice able to be improved by assessing the health staff's knowledge of the topic as well enhanced the method of delivery and the clarify the content on the topic however, there were only provided with the information and assess against the mother herself not to both parents. This is in contrast with the findings by Alfouwais et al. (2018) in Saudi Arabia where the parent's knowledge was assessed but more than half of the participants had no knowledge of jaundice and also suggested having an educational setting to overcome the gap.

Moreover, the researcher realized that from the previous study either local or overseas were more focused on the knowledge and the awareness of the respondent towards jaundice. Among all the researchers above mostly were focused on the mother as the person responsible towards jaundice in the newborn but were limited to the role of both parents in managing the care of jaundice in a newborn. To the researcher's knowledge, the research paper about the relationship between the knowledge and awareness of neonatal jaundice and the understanding of participants on how to manage the problem was difficult to find. Therefore, the researcher would like to assess the knowledge and awareness of jaundice in newborns among parents and to determine its relationship with the understanding of parents in treating jaundice in newborns.

Most of the study on knowledge, awareness and attitude toward jaundice in newborns was done in other Asian countries and this is evidenced by the latest study done by Demis et al. (2021) in Ethiopia East Africa. The study was limited to Malaysia which is one of the previous studies done by Boo et al. (2011) already almost a decade ago and focused on the respondent at a public hospital. Therefore, the researcher would like to conduct a study about jaundice in newborns in a specific region in a district at Negeri Sembilan. From here, the researcher can identify the parent's understanding of neonatal jaundice according to their level of knowledge and awareness of neonatal jaundice in specific regions mentioned.

1.3 Significance of the Study

This study was able to assess parents' level of knowledge and awareness about jaundice in newborns and the treatment appropriate for the condition. This study will be able to promote information on the knowledge and awareness about jaundice in newborns to the community for future study references. Hence, the researcher could enhance and boost the information on improving the community's health education on neonatal jaundice.

1.4 Research Question

What is the relationship between the level of knowledge and awareness with the understanding of treatment for jaundice in newborn among parents in Seremban, Negeri Sembilan?

1.5 Research Objective

1.5.1 General Objective

To assess the level of knowledge and awareness of jaundice in newborn among parents and its relationship with the type of treatment on jaundice in newborn selected among parents in Seremban, Negeri Sembilan.

1.5.2 Specific Objective

1. To determine the level of knowledge on the care of jaundice in newborns among parents.
2. To determine the level of awareness on the care of jaundice in newborns with the type of treatment selected among parents.
3. To determine the relationship between socio-demographic factors and the level of knowledge on the care of jaundice in newborns among parents.
4. To determine the relationship between socio-demographic factors and the level of awareness on the care of jaundice in newborns with the type of treatment selected among parents.
5. To determine the association between the level of knowledge and awareness on the care of jaundice in newborns with the type of treatment selected among parents

1.6 Hypothesis

1.6.1 Null Hypothesis

H_{01} = There is no significant association between socio-demographic factors and the level of knowledge on the care of jaundice in newborns among parents when ρ -value > 0.05 .

H_{02} = There is no significant association between socio-demographic factors and the level of awareness on the care of jaundice in newborns with the type of treatment selected among parents when ρ -value > 0.05 .

H_{03} = There is no significant association between the level of knowledge and awareness on the care of jaundice in newborns with the type of treatment selected among parents when ρ -value > 0.05 .

1.6.2 Alternative Hypothesis

H_{A1} = There is a significant association between socio-demographic factors and the level of knowledge on the care of jaundice in newborns among parents when ρ -value ≤ 0.05 .

H_{A2} = There is a significant association between socio-demographic factors and the level of awareness on the care of jaundice in newborns with the type of treatment selected among parents when ρ -value ≤ 0.05 .

H_{A3} = There is a significant association between the level of knowledge and awareness on the care of jaundice in newborns with the type of treatment selected among parents when ρ -value ≤ 0.05 .

1.7 Definition of Terms

1.7.1 Conceptual Definition

Knowledge

Based on the Oxford Learner's Dictionaries website (2021), knowledge is a noun defined as the information, understanding and skills that gain from the education or experience. The participant will be divided into three categories poor, moderate and good knowledge based on the range score achieved on knowledge about neonatal jaundice.

Awareness

Awareness is defined as knowing that something exists and is important. Awareness also defined as when a particular situation or event occur, it give an interest and concern (Oxford Learner's Dictionaries, 2021). The participant will be asked about their awareness on neonatal jaundice prior the knowledge of it.

Neonatal jaundice

According to MedlinePlus Medical Encyclopedia (2019) neonatal is a medical term given to the newborn infant or neonate in the first 4 weeks of life. Meanwhile, jaundice is a medical term that refers to the appearance of the skin or sclera, the white of the eyes is turned yellowish due to the increased level of the pigment bilirubin in the body (Clevelandclinic, 2018).

Parent

Parent can be defined either in nouns as a person's father or mother meanwhile in verb is an act as parent to a child similarly to take care of. Parent responsible towards their role in child's mental, physical as well as social growth which may related that parent is the one be the guidance in changes, grows and maturity of the child (Kapoor, M., 2017).

1.7.2 Operational Definition

Knowledge

Knowledge is an understanding and a fact about particular things that gained either through learning, reading, experience or action such as the information, description or skill. In this study, the researcher refers to assess the parent's knowledge about their understanding on jaundice in newborns. This section will be defined from the questionnaire on knowledge of neonatal jaundice consist of several item. The level of knowledge is divided into poor, moderate and good knowledge.

Awareness

Awareness is used to define that the person is know of the things surroundings him or in the state of being conscious of something. Awareness of parent towards neonatal jaundice being assess in this study to see the wide range of knowledge of parent and their behavioral actions. This section also will be defined from the questionnaire on awareness of neonatal jaundice to appraise their interest and concern about neonatal jaundice.

Neonatal jaundice

Neonatal jaundice is common conditions occur to newborns and also happen worldwide. The prolonged detection, management and treatment of jaundice may develop severe complication to the newborn as well death also not excluded. There were several treatment can be done to treat jaundice in newborn. This section has included in the questionnaire on treatment of neonatal jaundice to assess parent information on neonatal jaundice.

Parent

Parent is the targeted group in this research by the researcher because parent played the crucial role in a family to provide care, encouragement and access of activity to the member of the family especially to children. A child's is a responsible of parent and being influenced by the parents since birth. Moreover, parent also has significant relationship towards the child as well their development and health. Hence, in this study parent is the one to be assessed on condition of the child especially in neonatal jaundice.

1.8 Conceptual Framework

Figures 1.8: Conceptual framework of knowledge and awareness on jaundice in newborn among parent

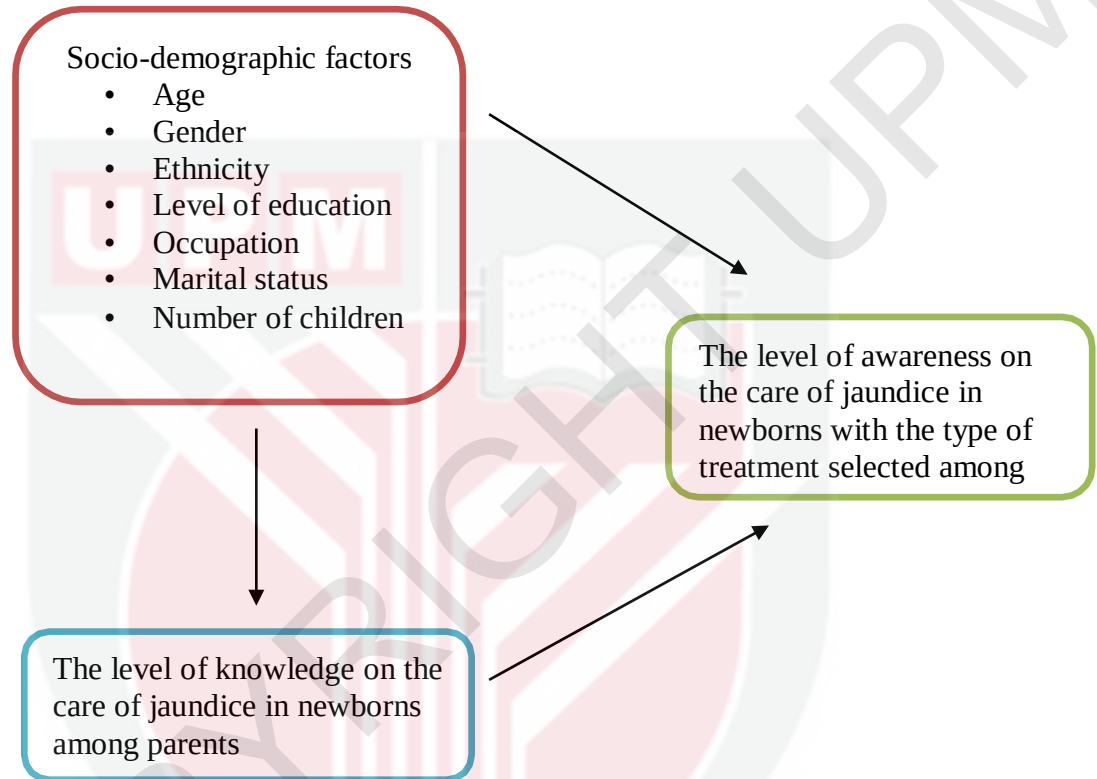


Figure above shows the conceptual framework of the study on relationship between knowledge and awareness on the care of jaundice in newborns among parents in Seremban, Negeri Sembilan. The socio-demographic factors and the level of knowledge is the independent variable (IV) meanwhile the level of awareness with the type of treatment is the dependant variable. The two variables which are level of knowledge and socio-demographic such as gender, ethnicity and level of education could influence the level of awareness on care of jaundice in newborn with the type of treatment selected among parents.

CHAPTER 2

LITERATURE REVIEW

2.1 Neonatal jaundice

According to Moawad et al. (2016), jaundice was a common condition that occurs in newborn infants by showing yellow discoloration to their skin and sclera due to unconjugated hyperbilirubinemia. Therefore, jaundice is also known as hyperbilirubinemia because bilirubin, a yellow pigment of red blood cells accumulates in the newborn blood. Unconjugated hyperbilirubinemia was a condition due to the increase of bilirubin production that loads in the newborn due to their immature liver to convert the waste product of haemoglobin into conjugated bilirubin to be excreted by the bile out from the body (Shaked & Pena, 2020).

Furthermore, according to Brits et al. (2018), jaundice was known as a sign and symptom of other diseases because of the excessive build-up of bilirubin in the body and the disease mainly may relate to the liver, pancreas or gallbladder. They also stated that jaundice occurs in over 50% of newborns both full-term and preterm babies and mostly appear to the newborn in their first week of life. Thus, it is important to recognize neonatal jaundice where the appropriate management will be able to plan and provide before further complications such as kernicterus or brain damage occur to the newborn.

Moreover, Ramachandran (2016) stated that there was readmission of neonates to the hospital because they were diagnosed with jaundice. Neonatal jaundice is seen by the increasing level of total serum bilirubin (TSB) and occurs in the first week of newborn life. Neonatal jaundice is classified into physiological jaundice and pathological jaundice by the elevated TSB level after 24 hours and less than 24 hours respectively. In addition, physiological jaundice appears in term baby around 3-4 days and preterm baby around 5-7 based on TSB level meanwhile pathological jaundice is due to other related pathology problems than TSB that give rise to jaundice appearing earlier. However, when jaundice occurs more than 2 weeks in a term baby or 3 weeks in preterm baby, this indicates prolonged jaundice that needs medical management immediately or jaundice may cause complications such as kernicterus, a type of brain damage that lead to disability to the baby.

2.2 Knowledge on neonatal jaundice

Knowledge in neonatal jaundice may vary in many aspects as knowledge in etiology, cause, complication or treatment of the condition. One of the studies done by Alfouwais et al. (2018) stated on etiology of NNJ were significantly in those participants with high education level 38.4% at the university level meanwhile 21.9% at the primary education level. However, an overall participant in the study shows more than half of them were no previous etiology on the topic. This also synonym with a study by Magfour et al. (2019) claimed the knowledge of the participant more than half were had poor knowledge meanwhile other had good knowledge with the majority of them being 44.4% achieved secondary education and 46.7% achieved university education. Thus, regardless of the education level of the participant, their knowledge on neonatal jaundice was still lacking.

According to Demis et al. (2021) stated that knowledge of NNJ including the risk factors is important to the postnatal mother in order to prevent delayed treatment if the jaundice is present after discharge. This is similar to a study done by Amegan-Aho et al. (2019) claimed that there was a high potential that NNJ evolves severe due to delay in seeking treatment as caused by the lack of knowledge on NNJ by the postnatal mother when they were unable to early detect the sign and symptoms of NNJ. Jaundice is able detected through the skin and eye assessment or by measuring the total serum bilirubin. However, knowledge on signs and symptoms of jaundice is still poor as stated from a study by Onyearugha et al., (2016) about 52.4% of the expectant mother did not know any danger signs and only a few of them provide positive attitude by seeking for medical care when jaundice occur abnormally to their baby. Hence, this inadequate knowledge and education of signs and symptoms or danger signs of jaundice raise concerns.

Based on a study by Dash (2013, as cited in Jamal & Muhammad, 2019) states that education on the care of newborns with jaundice, early detection of jaundice also complications that may arise from jaundice should be delivered ample to the mother. Neonatal jaundice may occur within their first week of life however should know that it was abnormal when jaundice lasting more than 2 weeks and during the first 36 hours (Boo et al., 2011). This may lead to complications such as severe hyperbilirubinemia, kernicterus or even death to the baby. Based on the study by Ng & Chong (2014), they listed six complications of NNJ which are kernicterus, convulsions, mental retardation, deafness, death and physical handicap but, only 22.2% of the participants recognize all the complications. On the other hand, there was a study done on the medical student by Shehu et al. (2019) showed only complication on arching of the back is not well known by them and they are familiar and aware of other complications because they definitely gained the knowledge from attending lectures and practical.

2.3 Treatment of neonatal jaundice

According to World Health Organization [WHO] Recommendations on Newborn Health Guideline Approved by The WHO Guideline Review Committee (2017), stated that phototherapy or exchange transfusion is an effective treatment that should be implement to term and preterm newborn that having jaundice. Phototherapy is a common alternative to reduce TSB level in neonates with jaundice where they will be place under conventional phototherapy light until their level of TSB below the phototherapy threshold (Pritchard et al., 2004). In 2011, Schwartz et al., noted that “the efficacy of phototherapy depends on the irradiance of the light source, the distance from the light source, and the amount of patient surface area exposed”. However, there is a misunderstanding to several individual who still practicing an attitude of sunning their baby under sunlight or placing their baby in a dark room to manage jaundice.

According to several study on management of jaundice also state breastfeeding is one of the treatment that effective and convenient to parent and baby. There was a study by Chu et al. (2019) identified that the mother will fed their baby with breast milk even though lead little effect to the serum bilirubin level as well the mother also will provide formula milk if necessary to ensure their baby receive necessary nutrient in order to manage the neonatal jaundice. In a recent study by Salia et al. (2021) also show 15.8% of the caregiver agree to manage jaundice via breastfeeding and correctly choose that the inappropriate treatment on jaundice such as usage of herbal medicine and direct expose infant to sunlight worsen the progress in treatment of jaundice.

2.4 Effect of knowledge towards treatment of neonatal jaundice

Lack of knowledge in neonatal jaundice may affect an individual in making decision on the treatment of such condition for their infant. Based on a result of study by Boo et al. (2011) stated that there were a wide gap of the mother with poor knowledge as example there were unfamiliar with condition of neonatal jaundice that need immediate treatment. The inadequate knowledge on neonatal jaundice was related with the mother education level as majority of them only received secondary education. A study by Ogunlesi & Abdul, (2015) found a similar result as maternal education and knowledge provide an effect on the treatment of neonatal jaundice as they will have an appropriate attitude in need of seeking effective care for their infant and prevent their infant from further complication. This may be focused on the mother itself as the person responsible be with the infant most of the time however, the responsibility not only should be seen the mother but as well both parents.

CHAPTER 3

METHOD

3.1 Study Design

This study was conducted using a cross sectional study to determine the association between the level of knowledge and awareness on care of jaundice in newborns with the type of treatment selected among parents in Seremban, Negeri Sembilan. The participant was given a set of questionnaire via Google form to answer and submit to the researcher during data collection. The responds received was interpreted to assess the level of knowledge and awareness with the type of treatment on jaundice in newborn selected among parents. The data was collected conveniently and required low cost to conduct.

3.2 Study Location and Duration

The study was conducted in a residential area in Seremban, Negeri Sembilan. An online questionnaire was used to collect data from the respondent. The duration of this study took almost one year from October 2021 to September 2022 for the whole process including the study report thesis to complete. The data collection and data analysis were done within two months which was August 2022 – September 2022.

3.3 Study Population

In this study, the target population is among the community in Seremban, Negeri Sembilan specifically parent. The sampling frame of the study involved a list of name of the adult in a residential area in Seremban and meet inclusion and exclusion criteria as stated in this study.

3.4 Sample Size Estimation

A single sample proportions was used to determine the appropriate sample size estimation and the calculation was derived from <https://select-statistics.co.uk/calculators/sample-size-calculator-population-proportion/>. The sample size recommendation after the calculation from the website is 278 respondents since the sample proportions of the population are unknown so this parameter was used which assumes the maximum variability in 1000 population.

The formula given is used to determine the number of respondents that were selected for this study.

Formula sample size:

$$n = \frac{N \times X}{X + N - 1}$$

where,

$$X = \frac{Z_{1-\alpha/2}^2 P(1 - P)}{d^2}$$

n = sample size

N = population size

$Z_{1-\alpha/2}$ = confidence interval, confidence level of 95%, $\alpha = 0.05$ and standard error

(Z) = 1.96

P = estimated proportions

d = desired precision, margin of error = 0.05 or 5%

According to the previous study by Demis et al., (2021), they received overall response rate was 100% from the respondent and the proportion of the mother with good knowledge of NNJ and favourable attitude towards jaundice is 39.2% and 48.9% respectively.

The sample size estimation on the knowledge of mother:

$$\begin{aligned}
 X &= \frac{Z^2_{\alpha} P(1-P)}{d^2} & n &= \frac{N \times X}{X + N - 1} \\
 X &= \frac{(1.96)^2 (0.39)(1-0.39)}{0.05^2} & n &= \frac{1000 \times 366}{366 + 1000 - 1} \\
 X &= \frac{(1.96)^2 (0.39)(0.61)}{0.0025} & n &= \frac{366000}{1365} \\
 X &= 365.57 & n &= 268.13 \\
 X &\approx 366 & n &\approx \mathbf{268}
 \end{aligned}$$

The sample size estimation on the attitude of mother:

$$\begin{aligned}
 X &= \frac{Z^2_{\alpha} P(1-P)}{d^2} & n &= \frac{N \times X}{X + N - 1} \\
 X &= \frac{(1.96)^2 (0.49)(1-0.49)}{0.05^2} & n &= \frac{1000 \times 384}{384 + 1000 - 1} \\
 X &= \frac{(1.96)^2 (0.49)(0.51)}{0.0025} & n &= \frac{384000}{1383} \\
 X &= 384.01 & n &= 277.66 \\
 X &\approx 384 & n &\approx \mathbf{278}
 \end{aligned}$$

Another study by Magfour et al., (2019) on the knowledge of the mother towards jaundice resulted in 60.4% of them lack of knowledge meanwhile 39.6% had good knowledge. So, the sample size in the study was 270.

$$X = \frac{Z^2 \alpha P(1 - P)}{d^2}$$

$$X = \frac{(1.96)^2(0.40)(1 - 0.40)}{0.05^2}$$

$$X = \frac{(1.96)^2(0.40)(0.60)}{0.0025}$$

$$X = 368.79$$

$$X \approx 369$$

$$n = \frac{N \times X}{X + N - 1}$$

$$n = \frac{1000 \times 369}{369 + 1000 - 1}$$

$$n = \frac{369000}{1368}$$

$$n = 269.73$$

$$n \approx 270$$

Based on the calculation of single sample proportion and the calculation from the previous study, the highest sample size was selected. Then the sample size is adjusted with a 10% of non-response rate where 10% out of 278 is 27.8 which given the final total sample size, $n = 250$.

$$Adjusted\ n = \frac{10}{100} \times 278$$

$$n = 27.8$$

$$n \approx 28$$

$$n = 278 - 28$$

$$n = 250$$

3.5 Sampling Method and Subject Recruitment

A cross-sectional study was used by the researcher. In research from McCombes (2022), the probability sampling method is a sampling method that is mainly suitable to be implemented for quantitative research. In the selection of the study location, the researcher used a wheel of names to randomly select the location via a website which is Seremban, Negeri Sembilan.

Furthermore, the researcher planned to conduct simple random sampling in the study during the collection of data. However, because of the restriction of time and unable to access the participant's data from the head of the committee, the researcher changed the simple random sampling method to convenience sampling for the data collection.

Convenience sampling, a type of non probability sampling method was used to recruit the respondent. Convenience sampling was an inexpensive way to gather the data where the samples are based on the accessibility of the researcher (McCombes, 2022). Thus, the targeted population were easy to access and involve in this study.

Therefore, the researcher distributes the questionnaire link to the community through the Whatsapp group. The participants were recruited based on availability, willingness and were required to complete the questionnaire given. Also, the researcher recruited the participant through the requirement stated in the participant's selection criteria. An online questionnaire via Google Forms was open for responses until the researcher achieved the required sample size, $n = 250$ as planned for the study.

3.6 Participant's Selection Criteria

The table below shows the inclusion and exclusion of participants in this study.

Table 3.6 Participant's inclusion and exclusion criteria

Inclusion Criteria		Exclusion Criteria	
I.	Malaysian Citizen	I.	Respondent who is unable to understand and converse in English and/ or Malay languages
II.	Age of 18 to 65 years old		
III.	Married/Divorce/Widow		

3.7 Research Instruments/ Tools

The study instrument used in this study is a set of self-administered questionnaire. The questionnaire was derived from three different questionnaire from the related previous study conducted by Olatunde et al (2020) on neonatal jaundice perception in pregnant women, Jamal Hamad & Muhammad Khalil (2019) on knowledge of neonatal jaundice among mothers, and K H Amegan-Aho et al (2019) on awareness, perception and preventive practices on neonatal jaundice in expectant mother. The permission to use the questionnaire was granted from the corresponding author of the stated studies via email. The questionnaire has been altered and adapted into four sections which are to collect the socio-demographic data of the respondent and to assess the knowledge, awareness and type of treatment on jaundice in newborns.

Section A consists of socio-demographic characteristics of the respondent such as age, gender and ethnicity, level of education, occupation, marital status and number of children.

Section B is related to the awareness of the respondent toward jaundice in newborn consists of five items. Based on previous study by K H Amegan-Aho et al (2019), they put a question to respondent if the respondent had ever heard about jaundice in order to appraise their interest and concern about neonatal jaundice.

Section C is a questionnaire on the knowledge of respondent on neonatal jaundice. The answer choice for “yes” was given 1 score meanwhile the answer choice for “no” or “not sure” was given 0 score. According to the Jamal Hamad & Muhammad Khalil (2019), there are three categories to assess the knowledge which is; score ≤ 6 considered as poor knowledge, score 7–13 considered as average knowledge and score ≥ 14 considered as good knowledge. As the questionnaire was modified, for some negative question the answer choice was given 1 score for “no” and 0 scores for “yes” or “not sure”. The score to assess knowledge also modified as follows: score ≤ 8 considered as limited knowledge, score 9–15 considered as average knowledge and score ≥ 16 considered as excellent knowledge.

Section D is about type of treatment on jaundice in newborn mainly to assess what treatment was selected from the parent to treat newborn with jaundice. Phototherapy was the main treatment provided to treat neonatal jaundice and there were other alternatives to help in manage the jaundice.

3.8 Validity and Realibility

The validity and reliability of the questionnaire was conducted via face validity and Cronbach's alpha. The questionnaire was modified by the researcher hence, the face validity was done where the researcher sent the questionnaire to the supervisor, Associate Professor Dr Lee Khuan and a nursing lecturer of Faculty of Medicine and Health Sciences, Madam Rosna Binti Abdul Rahman to review before the questionnaire was able to be distributed for the pre- test to the community in Seremban.

Then, Cronbach's alpha (α) was used to measure how closely related and consistency of the questionnaire used in this study (SPSS FAQ, n.d.). The interpretation of alpha coefficient by George and Mallery (2003) from a website is as following: ≥ 0.9 is excellent, ≥ 0.8 is good, ≥ 0.7 is acceptable, ≥ 0.6 is questionable, ≥ 0.5 is poor and ≤ 0.5 is unacceptable (*Introduction to Cronbach's Alpha – Dr. Matt C. Howard*, n.d.). Hence, the study instrument for this study will be accepted when the alpha coefficient value is in between 0.70 and 0.8 or higher. The validity and reliability is important to ensure and determine those participants easily understood the questionnaire given before conducting the actual data collection.

3.9 Pre - test

The pre-test of this study was conducted to 10% of estimated sample size which were 28 participants in the community via the questionnaire. The result from the pre-test were analysed by using the Statistical Package for Social Science (SPSS) Version 26 to get the value of the Cronbach alpha (α). The result showed that the questionnaire was good with the Cronbach alpha (α) value was 0.818 as mentioned that it is nevertheless standard procedure to regard alpha as a reliable indicator of an instrument's internal consistency when it reaches the somewhat arbitrary value of 0.70 (Taber, 2017).

3.10 Data Analysis

Statistical Package for Social Sciences (SPSS) version 26 was used for the data analysis. The appropriate statistical procedure used was depending on the study objectives. Descriptive analysis and inferential analysis were used to analyse conclusion of the study.

3.10.1 Descriptive analysis

Variables	Types of variable	Statistical measurements
Age	Continuous	Mean and standard deviation
Gender	Categorical	Frequency and percentage
Ethnicity	Categorical	Frequency and percentage
Education level	Categorical	Frequency and percentage
Occupation	Categorical	Frequency and percentage
Number of children	Categorical	Frequency and percentage
Knowledge of neonatal jaundice	Categorical	Frequency and percentage
	Continuous	Mean and standard deviation
Awareness of neonatal jaundice	Categorical	Frequency and percentage
	Continuous	Mean and standard deviation
Type of treatment on neonatal jaundice	Categorical	Frequency and percentage
	Continuous	Mean and standard deviation

Table 3.10a: Descriptive analysis

3.10.2 Inferential analysis

Objective	Dependent variable	Independent variable	Analysis
To determine the relationship between socio-demographic factors and the level of knowledge on the care of jaundice in newborns among parents.	Knowledge on the care of jaundice in newborns (Continuous)	Age (Continuous)	Spearman Correlation
		Gender (Categorical)	Kruskal Wallis Test
		Ethnicity (Categorical)	
		Education level (Categorical)	
		Occupation (Categorical)	
		Number of children (Categorical)	
To determine the relationship between socio-demographic factors and the level of awareness on the care of jaundice in newborns with type of treatment selected among parents.	The level of awareness on the care of jaundice in newborn with the type of treatment selected among parents (Categorical)	Age (Continuous)	Point – Biserial correlation
		Gender (Categorical)	Pearson chi-square
		Ethnicity (Categorical)	
		Education level (Categorical)	
		Occupation (Categorical)	
		Number of children (Categorical)	

Objective	Dependent variable	Independent variable	Analysis
To determine the association between the level of knowledge and awareness on the care of jaundice in newborns with the type of treatment selected among parents	The level of awareness on the care of jaundice in newborn with the type of treatment selected among parents (Categorical)	Knowledge on the care of jaundice in newborns (Categorical)	Pearson chi-square

Table 3.10b: Inferential Analysis

3.11 Ethical Consideration

The ethical approval to conduct this study was obtained from *Jawatankuasa Etika Universiti Untuk Penyelidikan Melibatkan Manusia (JKEUPM)*. The researcher then submitted to the chief of the residential area or *Jawatankuasa Kemajuan dan Keselamatan Kampung (JKKK)* after receiving the JKEUPM approval to proceed with data collection. The researcher received permission to conduct the study in the residential area however, unable to get the list of names of the participant in the community due to privacy issues.

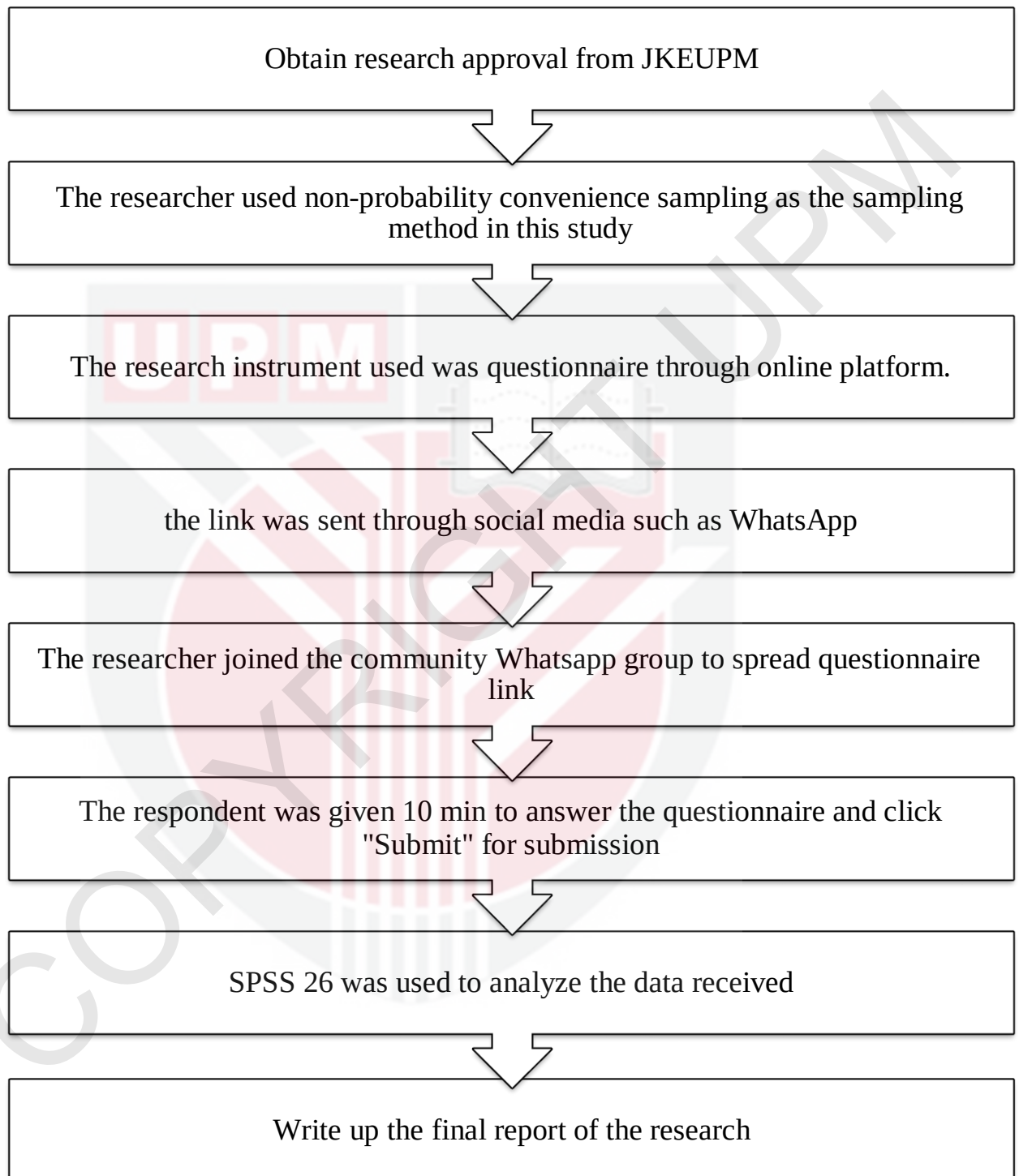
The participants accessed the questionnaire link via the Whatsapp group and were provided with the Participant Information Sheet and Informed Consent Form. After the participants fill in both forms, they were directed to the questionnaire page and answered all four sections provided. The participant had the right to withdraw from joining the study however, they are free to contact the researcher or supervisor with the contact information provided when any doubt arises. The participant who was a volunteer and willing to contribute to the collection of data was not be asking for identifying information such as name, identification card number or home address to ensure confidentiality and remained anonymous. Hence, the researcher will keep the data confidentially and will not be accessible to other individuals as it is kept in the researcher's Google Account privately.

3.12 Data Collection

The researcher performed the data collection via an online platform after receiving the approval to conduct the study from JKEUPM. The online platform used for the study instrument was Google Forms. The distribution of Google form links was more convenient and easy to reach out to the respondent as well to prevent face to face meeting during the Covid-19 outbreak. The link was distributed or blasted through social media such as WhatsApp groups in the community. The researcher joined the Whatsapp community group in order to ensure the link reach the participants.

The questionnaire also provided the Participant Information Sheet on the first page of it to keep the participant's privacy and confidentiality. The participant had to read, understand and fill in the informed consent form before answering the questionnaire. The respondents were given 10-15 min to answer the questionnaire and clicked button "Submit" for submission. All the information given to this study was kept and used only for the researches purpose therefore, the submission of questionnaire only able to be viewed by the researcher's.

Figures 3.12: Data collection flowchart of the study



3.13 Expected Outcome

It was expected that this study able to provide information regarding the relationship between knowledge and awareness on jaundice in newborns among parents in Seremban, Negeri Sembilan. The participant was giving the best cooperation throughout the limited data collection period to the researcher. From this study, it was able to view the need of action on early detection and appropriate treatment of neonatal jaundice. Last but not least, it was expected that this study helps in identify the factor and improve the lack of information regarding neonatal information for future reference.

CHAPTER 4

RESULTS

4.1 Response rate

A sample size of 250 respondents live in a community in Seremban, Negeri Sembilan were targeted to participate in this study. Only 142 respondents participated and the respondents were screened based on the participant's inclusion and exclusion criteria making the final number of respondents were 139, hence the response rate for this study was 55.6%.

4.2 Socio-demographic characteristics of participants

The total number of respondents involved in this study was 139 respondents which the mean age of the participants was $36.48 \pm \text{SD } 12.18$ years old. Out of the 139 involved in this study, majority 58.3% were female and 41.7% were male. In addition, the ethnicity distribution of Malay, Chinese, Indian and Others were 56.1%, 24.5%, 16.5% and 2.9% respectively. The majority of the respondents had a certificate level 28.1%, a non-government employees 33.8% and had two to five numbers of children 48.2%. The detail of the data has stated in Table 4.2.

Table 4.2 Descriptive analysis of participant's socio-demographic characteristics

Socio-demographic Characteristics	Frequency (n)	Percentage (%)	Mean	Standard Deviation
Gender				
Male	58	41.7		
Female	81	58.3		
Age			36.48	12.178
Ethnicity				
Malay	78	56.1		
Chinese	34	24.5		
Indian	23	16.5		
Others	4	2.9		
Level Of Education				
Primary school	3	2.2		
Secondary school	32	23.0		
Certificate (STPM/Matriculation/Foundation)	39	28.1		
Diploma	29	20.9		
Degree (Bachelor/Master/Doctor of Philosophy)	36	25.9		

Socio-demographic Characteristics	Frequency (n)	Percentage (%)	Mean	Standard Deviation
Occupation				
Unemployed	25	18.0		
Self-employed	18	12.9		
Government employee	39	28.1		
Non-government employee	47	33.8		
Student	10	7.2		
Number Of Children				
No child	35	25.2		
One child	30	21.6		
2 – 5 children	67	48.2		
>5 children	6	4.3		

4.3 Knowledge on care of jaundice in newborn

The respondent's knowledge on the care of jaundice in newborns was assessed by the adaptation and modification questionnaire. Five items were asked to the respondents which are presentation site, danger sign, causes, complication and way to diagnose the jaundice in newborn. Approximately all respondents know that the presentation site of jaundice is commonly at the skin (92.1%), followed by palm and sole foot (79.1%), eyes (78.4%) and stool and urine (50.4%). Furthermore, the respondent addressed the majority danger signs of neonatal jaundice as poor suck of milk (89.2%), followed by fever (74.1%), refusal to eat (67.6%), high pitched cry (61.9%) and seizures (2.5%). Moreover, the cause of neonatal jaundice was found more than half of the participants addressed yes to prematurity of the baby (79.9%) and no to infectious disease (69.1%). In addition, more than half of the respondents similarly found that brain damage and neonatal death as the complication of neonatal jaundice which is 74.1%. Appearance was known the best way to diagnose neonatal jaundice with the higher percentage, 88.5% however, the result was almost equivalent to blood analysis (87.8%). Details of the data as described in Table 4.3a.

Table 4.3a Responses of knowledge on care of jaundice in newborn

Knowledge of jaundice in newborn	YES	NO/NOT SURE	NO	YES / NOT SURE
	n (%)	n (%)	n (%)	n (%)
What is the presentation site of neonatal jaundice?				
Skin	128 (92.1)	11 (7.9)		
Eyes	109 (78.4)	30 (21.6)		
Palm and sole foot	110 (79.1)	29 (20.9)		
Stool and urine			70 (50.4)	69 (49.6)
What is the danger sign of neonatal jaundice?				
Refusal to eat	94 (67.6)	45 (32.4)		
Poor suck of milk	124 (89.2)	15 (10.8)		
High pitched cry	86 (61.9)	53 (38.1)		
Fever	103 (74.1)	36 (25.9)		
Seizures	73 (52.5)	66 (47.5)		
What is the cause of neonatal jaundice?				
Blood group incompatibility between mother and baby	86 (61.9)	53 (38.1)		
Hereditary disease	43 (30.9)	96 (69.1)		
*Infectious disease			96 (69.1)	43 (30.9)
*Delayed breastfeeding			37 (26.6)	102 (73.4)
Prematurity of baby	111 (79.9)	28 (20.1)		
G6PD deficiency	83 (59.7)	56 (40.3)		

Knowledge of jaundice in newborn	YES n (%)	NO/NOT SURE n (%)	NO n (%)	YES / NOT SURE n (%)
What is the complication of neonatal jaundice?				
Brain damage	103 (74.1)	36 (25.9)		
Deafness	29 (20.9)	44 (31.7)		
Discoloration of teeth	76 (54.7)	63 (45.3)		
Convulsion later in life	87 (62.6)	52 (37.4)		
Mental retardation	93 (66.9)	46 (33.1)		
Neonatal death	103 (74.1)	36 (25.9)		
What is the best way of diagnosis the neonatal jaundice?				
Urine analysis	82 (59.0)	57 (41.0)		
Blood analysis	122 (87.8)	17 (12.2)		
Appearance	123 (88.5)	16 (11.5)		

*. Negative answer

The total score of the knowledge part were modified to a minimum score of 0 and a maximum score of 24 hence, the scoring was classified into three levels which were limited knowledge (score ≤ 8), average knowledge (score 9 – 15) and excellent knowledge (score ≥ 16). The mean score for knowledge of care on jaundice was 16.16 $\pm$ SD 4.41 score. Furthermore, there were more than half (56.8%) of the total participants were having excellent knowledge meanwhile 38.8% and 4.3% of the participants were having average knowledge and limited knowledge respectively. Details of the data as described in Table 4.3b.

Table 4.3b Descriptive analysis of knowledge on jaundice in newborn

	Frequency (n)	Percentage (%)	Mean	Standard Deviation
Knowledge on care of jaundice in newborn			16.16	4.41
Level of knowledge				
Limited Knowledge	6	4.3		
Average Knowledge	54	38.8		
Excellent Knowledge	79	56.8		

4.4 Awareness and type of treatment selected on care of jaundice in newborn

The respondents being asked on have they heard about jaundice and the response were positive with more than half respondent (72.7%) heard about jaundice than (27.3%) no or not sure have heard about jaundice. Approximately all respondents were worried if their baby present jaundices (97.8%), and went to seek medical attention (97.8%), breastfeed the baby (77.7%) and expose the baby to sunlight (58.3%). Furthermore, the respondent addressed majority will immediately or less than 24 hour seeks medical treatment after neonatal jaundice is noticed as well aware that jaundice in newborns is curable with 77.7% and 88.5% respectively. Details of the data as described in Table 4.4a.

Phototherapy was the majority treatment selected by the respondents followed by breastfeeding and blood transfusion with 95.7%, 89.2% and 66.9% respectively. There was half of the total respondents selected to expose baby under sunlight (51.8%) and surgery (54.7%). Furthermore, the effective colour of light for phototherapy shows blue (56.1%) was lower compared to purple (73.4%) selected by the respondent. Details of the data as described in Table 4.4b.

Table 4.4a Responses of awareness on care of jaundice in newborn

Awareness of jaundice in newborn	YES	NO/NOT SURE	NO	YES / NOT SURE
	n (%)	n (%)	n (%)	n (%)
Have you ever heard about neonatal jaundice?	101 (72.7)	38 (27.3)		
Will you worry if your baby is having jaundice?	136 (97.8)	3 (2.2)		
What will you do if your baby present jaundice?				
*Nothing			133 (95.7)	6 (4.3)
Seek medical attention	136 (97.8)	3 (2.2)		
Breastfeed the baby	108 (77.7)	31 (22.3)		
*Exposure to sunlight			58 (41.7)	81 (58.3)
How soon will you seek for medical treatment after neonatal jaundice is noticed?				
Immediately/<24hrs	108 (77.7)			
24 – 48hrs	29 (20.9)			
>5 days	0 (0.0)			
After other treatment are failed	2 (1.4)			
Did you aware jaundice in newborn is curable?	123 (88.5)	16 (11.5)		

*. Negative answer

Table 4.4b Responses of type of treatment on care of jaundice in newborn

Type of treatment for jaundice in newborn	YES	NO/NOT SURE	NO	YES / NOT SURE
	n (%)	n (%)	n (%)	n (%)
What type of treatment do you choose for neonatal jaundice?				
*No treatment			133 (95.7)	6 (4.3)
Phototherapy	133 (95.7)	6 (4.3)		
Blood transfusion	93 (66.9)	6 (33.1)		
Breastfeeding	124 (89.2)	15 (10.8)		
*Exposed baby under sunlight			72 (51.8)	67 (48.2)
Use of antibiotics	78 (56.1)	61 (43.9)		
Use of herbal medication	69 (49.6)	70 (50.4)		
*Surgery			76 (54.7)	63 (45.3)
What is the effective color of light for phototherapy?				
*White			123 (88.5)	16 (11.5)
Blue	78 (56.1)	61 (43.9)		
*Green			130 (93.5)	9 (6.5)
*Purple			37 (26.6)	102 (73.4)

*. Negative answer

The total items of the awareness part were modified to a minimum score of 0 and a maximum score of 8 hence, the scoring was classified into insufficient awareness (score ≤ 4) and sufficient awareness (score ≥ 5). The mean score for awareness of care on jaundice was $7.01 \pm \text{SD } 1.08$ score, hence this shows that almost all respondents had sufficient awareness (97.1%) compared to insufficient awareness (2.9%). Besides that, the treatment selected by the participants also being categorized into poor treatment selected and good treatment selected with a score of 1 to 6 and a score of 7 to 12 respectively. The mean score for the type of treatment selected for jaundice was $8.24 \pm \text{SD } 1.47$ score, hence this shows that almost all respondents had good treatment selected (89.9%). Details of the data as described in Table 4.4c and Table 4.4d.

Table 4.4c Descriptive analysis of awareness on care of jaundice in newborn

	Frequency (n)	Percentage (%)	Mean	Standard Deviation
Awareness on care of jaundice			7.01	1.08
Level of awareness				
Insufficient Awareness	4	2.9		
Sufficient Awareness	135	97.1		

Table 4.4d Descriptive analysis of type of treatment selected for jaundice in newborn

	Frequency (n)	Percentage (%)	Mean	Standard Deviation
Type of treatment selected for jaundice			8.24	1.47
Level of treatment selected				
Poor treatment selected	14	10.1		
Good treatment selected	125	89.9		

Through the descriptive analysis as shown in Table 4.4c and Table 4.4d, the level of awareness on the care of jaundice in newborns and type of treatment selected among parents were classified into two levels which is unsatisfactory awareness and satisfactory awareness as shown in Table 4.4f to ease the researcher to determine association with other variables such as socio-demographic factor and the level of knowledge the on care of jaundice. However, there was no significant relationship between the awareness and type of treatment selected for jaundice in newborns where $p\text{-value} > 0.05$ as shown in

Table 4.4e

Table 4.4e Distribution of relationship between awareness and type of treatment selected on care of jaundice in newborn

Level of awareness	Type of treatment selected for jaundice				df	p-value
	n	Poor Treatment	Good Treatment			
	(%)	Selected n (%)	Selected n (%)			
Insufficient Awareness	4 (2.9)	1 (0.6)	3 (2.2)		1	0.733
Sufficient Awareness	135 (97.1)	13 (9.4)	122 (87.8)			

Table 4.4f Distribution of level between awareness and type of treatment selected on care of jaundice in newborn

	Frequency (n)	Percentage (%)	Mean	Standard Deviation
Awareness with type of treatment selected on care of jaundice in newborn			1.97	0.17
Level of awareness with type of treatment selected				
Unsatisfactory Awareness	4	2.9		
Satisfactory Awareness	135	97.1		

4.5 Relationship between socio demographic factors and the level of knowledge on care of jaundice in newborn among parents in Seremban, Negeri Sembilan

The normality test had been conducted for the total score of knowledge on care of jaundice. There was skewness -0.373 with a standard error of 0.206 and kurtosis -0.893 with a standard error of 0.408 which shows the total score of knowledge was not normally distributed within the normal range of -1.96 and +1.96. Since it is not normally distributed, a non-parametric test had been conducted to rule out the association between the socio-demographic characteristics of respondents and knowledge on the care of jaundice in newborn.

Spearman correlation had shown that there is significant relationship between age and knowledge on the care of jaundice. However, age and the knowledge on care of jaundice show a weak positive relationship with a correlation coefficient between 0.20 and 0.29 (*Correlation Coefficient: Simple Definition, Formula, Easy Calculation Steps*, 2021).

Next the Kruskal Wallis H result had shown that there is significant relationship between ethnicity, level of education and occupation with the knowledge on the care of jaundice where $p\text{-value} \leq 0.05$ except for gender and number of children factors. Details of the data as described in Table 4.5.

Table 4.5 Distribution of relationship between socio-demographic factors and the level of knowledge on care of jaundice in newborn

Socio-demographic factors	Knowledge on care of jaundice in newborn				
	r	n (%)	Mean rank	Kruskal-Wallis H	df p-value
Gender				0.307	1 0.580 ^a
Male		58 (41.7)	72.22		
Female		81 (58.3)	68.41		
Age	0.259**				0.002 ^b
Ethnicity				9.076	3 0.028 ^a
Malay		78 (56.1)	63.04		
Chinese		34 (24.5)	87.49		
Indian		23 (16.5)	69.48		
Others		4 (2.9)	60.00		
Level Of Education				26.816	4 0.000 ^a
Primary school		3 (2.2)	75.33		
Secondary school		32 (23.0)	68.50		
Certificate (STPM/ Matriculation/Foundation)		39 (28.0)	96.23		
Diploma		29 (20.9)	59.03		

Occupation			9.327	4	0.053 ^a
Unemployed	25 (18.0)	67.84			
Self-employed	18 (12.9)	88.89			
Government employee	39 (28.1)	75.41			
Non-government employee	47 (33.8)	64.61			
Student	10 (7.2)	45.65			
Number Of Children			4.454	3	0.216 ^a
No child	35 (25.2)	62.33			
One child	30 (21.6)	62.20			
2 – 5 children	67 (48.2)	76.81			
>5 children	6 (4.3)	66.17			

a. Kruskal Wallis Test

b. Spearman Correlation

r coefficient correlation

** . Correlation is significant at the 0.01 level (2-tailed).

*p ≤0.05 considered as statistically significant

4.6 Relationship between socio demographic factors and the level of awareness on care of jaundice in newborns with the type of treatment selected among parents.

Pearson chi-square was conducted for the association between socio-demographic factors and the level of awareness on the care of jaundice with the type of treatment selected among parents. The results had shown that there is no association between the entire socio-demographic factors and the level of awareness on the care of jaundice with the type of treatment selected. Details of the data as described in Table 4.6.

Point- Biserial Correlation was used for not normally distributed data to test the relationship between the age and the level of awareness on the care of jaundice with the type of treatment selected among parents. The results had shown that there is no statistically significant between the age and the level of awareness on the care of jaundice with the type of treatment selected. There is also no or negligible relationship between both variable as the correlation coefficient is shown between 0.01 and 0.19 (*Correlation Coefficient: Simple Definition, Formula, Easy Calculation Steps*, 2021). Figure 4.6 is the results of Point- Biserial correlation between age and the level of awareness and the type of treatment on jaundice selected.

Table 4.6 Distribution of relationship between socio-demographic factors and the level of awareness on care of jaundice in newborns with the type of treatment selected

Socio-demographic factors	Awareness with type of treatment selected on care of jaundice in newborn				df	p-value
	r	Unsatisfactory		Satisfactory		
		n (%)	n (%)	n (%)		
Gender					1	0.640 ^a
Male		58 (41.7)	1 (1.7)	57 (98.3)		
Female		81 (58.3)	3 (3.7)	78 (96.3)		
Age	0.055					0.163 ^b
Ethnicity					3	0.306 ^a
Malay		78 (56.1)	1 (1.3)	77 (98.7)		
Chinese		34 (24.5)	1 (3.0)	33 (97.0)		
Indian		23 (16.5)	2 (8.7)	21 (91.3)		
Others		4 (2.9)	0 (0.0)	4 (100.0)		
Level Of Education					4	0.570 ^a
Primary school		3 (2.2)	0 (0.0)	3 (100.0)		
Secondary school		32 (23.0)	1 (3.1)	31 (96.9)		

Certificate (STPM/ Matriculation/ Foundation)	39 (28.0)	0 (0.0)	39 (100.0)		
Diploma	29 (20.9)	2 (6.9)	27 (93.1)		
Degree (Bachelor/Master/D octor of Philosophy)	36 (25.9)	1 (2.8)	35 (97.2)		
Occupation				4	0.879 ^a
Unemployed	25 (18.0)	1 (4.0)	24 (96.0)		
Self-employed	18 (12.9)	1 (5.6)	17 (94.4)		
Government employee	39 (28.1)	1 (2.6)	38 (97.4)		
Non-government employee	47 (33.8)	1 (2.1)	46 (97.9)		
Student	10 (7.2)	0 (0.0)	10 (100.0)		
Number Of Children				4	0.853 ^a
No child	35 (25.2)	2 (5.7)	33 (94.3)		
One child	30 (21.6)	1 (3.3)	29 (96.7)		
2 – 5 children	67 (48.2)	1 (1.5)	66 (98.5)		
>5 children	6 (4.3)	0 (0.0)	6 (100.0)		

a. Pearson chi-square

b. Point- Biserial Correlation

r coefficient correlation

*p ≤0.05 considered as statistically significant

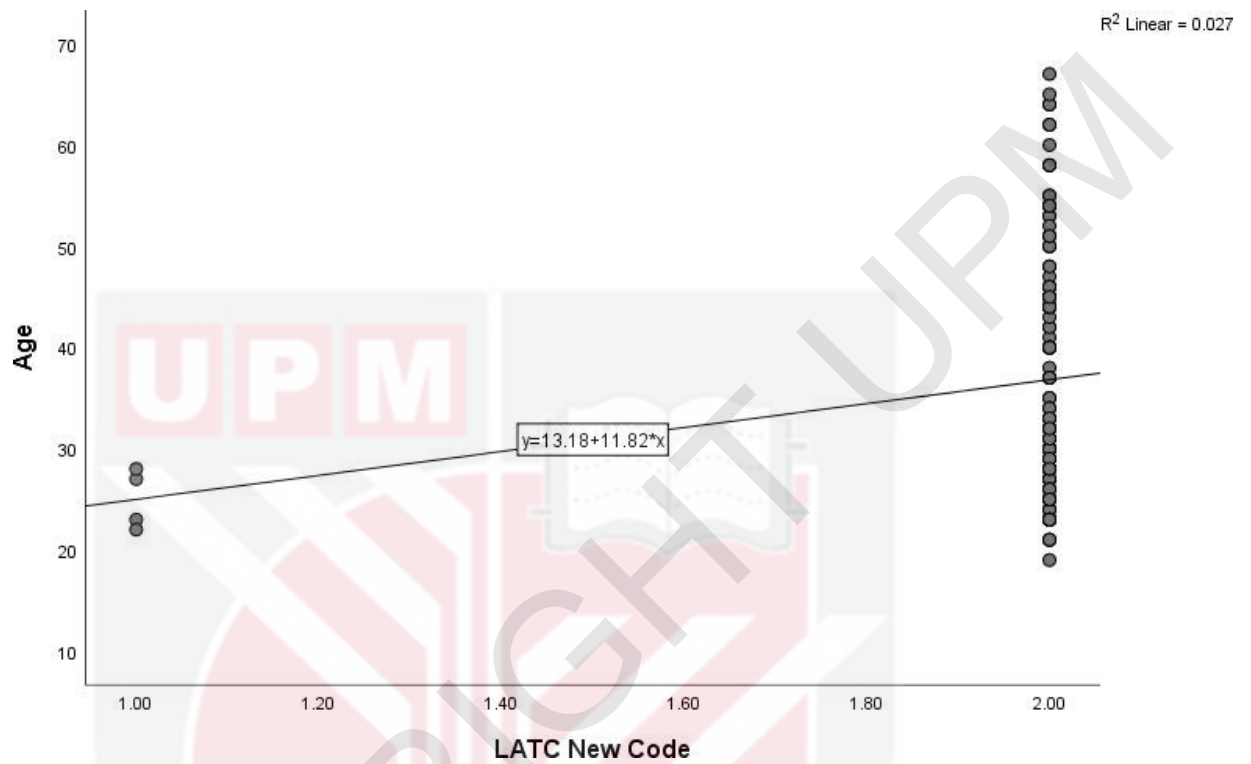


Figure 4.6 Point-Biserial Correlation between age and level of awareness on care of jaundice with the treatment selected for jaundice.

4.7 Association between the level of knowledge and awareness on care of jaundice in newborns with the type of treatment selected among parents

Pearson chi-square was conducted for the association between the level of knowledge and awareness on the care of jaundice in newborns with the type of treatment selected among parents. The results had shown that there is no association between the level of knowledge and awareness on the care of jaundice in newborns with the type of treatment selected among parents. Details of the data as described in Table 4.7.

Table 4.7 Distribution of association between the level of knowledge and awareness on care of jaundice in newborns with the type of treatment selected

Knowledge on jaundice in newborn	Awareness on care of jaundice in newborns with the type of treatment selected			χ^2 (df)	p-value
	n (%)	Unsatisfactory Awareness n (%)	Satisfactory Awareness n (%)		
Limited Knowledge	6 (4.3)	0 (0.0)	6 (4.3)	0.620 (2)	0.733
Average Knowledge	54 (38.8)	1 (0.7)	53 (38.1)		
Excellent Knowledge	79 (56.8)	3 (2.2)	76 (54.7)		

CHAPTER 5

DISCUSSION

5.1 Socio-demographic factors

The sample size targeted 250 respondents in the residential area in Seremban however; the targeted respondent reached only up to 142 and was selected based on the inclusion criteria. Hence, the final total of the respondents involved were, $n = 139$ which contributes to 55.6% response rate. A total of respondents ($n=139$), the mean age was 36.48 with standard deviation 12.18, majority were female (58.3%, $n=81$), Malay (56.1%, $n=78$), had certificate (28.1%, $n= 39$), work as non-government employee (33.8%, $n=47$) and had two to five children (48.2%, $n= 67$).

According to a previous study by Alfouwais et al., (2018) the participation of respondents in the study also involved more female with 79.4% than the male. In addition, the current study result also different with the mentioned study where 76.6% of the respondents had university level of education, 31.7% of the respondents were unemployed and 76.7% of the respondents had 1-4 children meanwhile 23.3% of the respondents had more than 4 children (Alfouwais et al., 2018).

5.2 Knowledge on care of jaundice in newborn among parents

The overall level of knowledge on the care of jaundice in newborns achieved among the parent in Seremban was excellent which indicates this study has positive findings. The majority of the respondents achieved excellent knowledge (56.8%, n=79) with the mean score of $16.16 \pm \text{SD } 4.41$. In this study, the presentation sites of jaundice is true on the skin, eyes and palm and sole foot where the majority of the parents were well known about this with 92.1%, 78.4% and 79.1% respectively. However, there is still high percentage of parents who choose stool and urine as the presentation site of jaundice (49.6%) which it was a false answer. This result also similar with approximately half of the mother wrongly answered that stool and urine were the way to determine the presence of jaundice through a previous study done by Ng & Chong (2014).

In addition, most of the causes of neonatal jaundice listed in the study instrument were known by the parents except for delayed breastfeeding as the highest answered (73.4%, n=102) were not the causes of neonatal jaundice. Study findings by Magfour et al. (2019) at Saudi Arabia, reported that breastfeeding was known as the cause of neonatal jaundice among 34.9% of the mothers meanwhile in contrast with study findings by Rabiyeepoor (2014) where 80% of the mothers did not agree breastfeeding cause jaundice as it was the best food for newborns and not to cause illness. Delayed in breastfeeding did not present the direct significance result in hyperbilirubinemia however jaundice can happen to some breastfeed baby that had the higher level of serum bilirubin (Bratton et al., 2021). Thus, serum bilirubin is

related to the liver is not functioning well rather than as the cause of jaundice in newborns.

Furthermore, brain damage and neonatal death was the complication of neonatal jaundice that was known equally among the parent in this study (74.1%, n=103). Meanwhile, poor suck of milk and fever was the danger sign of neonatal jaundice were known among 89.2% and 74.1% respectively. These findings show a slightly difference with 39.2% agreeing that jaundice could cause brain damage as a complication of neonatal jaundice and 38.4% and 37.3% of the respondents correctly chose either or both poor suck and high pitched cry respectively as the danger signs of neonatal jaundice (Olatunde et al., 2020).

Moreover, 88.5% (n=123) of the respondents knows that the best way to diagnose jaundice in neonatal was through appearance as well not far difference with the blood analysis also known among 87.8% (n=122) of the participants. This finding was similarly reported in a previous study done by Jamal & Muhammad (2019) in Soran city where the method of diagnosis of jaundice was answered appearance and blood analysis by less than half (41%) and one-fifth (19%) of the mothers respectively.

5.3 Awareness with type of treatment selected on care of jaundice in newborn among parent

The overall awareness with the type of treatment selected among parent on care of jaundice was found satisfactory awareness. This results was shown by the respondents with sufficient awareness manage to select the good treatment on care of jaundice (87.8%, n=122). Awareness was assessed by alerting the respondent on did they ever heard about neonatal jaundice and the response was good with almost all respondents 72.7% (n=101) heard on neonatal jaundice. This positive result also appeared in studies conducted in Ghana by Seneadza (2022) and in Southwest Nigeria by Olatunde et al. (2020) where the response was 85.4% (n=428) and 77.8% (n=403) respectively.

Furthermore, the present study found the respondent had sufficient awareness as they will seek medical treatment as best within 24 hours or immediately among 77.7% of the respondents similarly to the research towards Ghanaian children by Seneadza (2022) where about 92.7% of the mothers would see healthcare for jaundiced newborn. On the other hand, this study also found that 95.7% of the mother select phototherapy with 56.1% knows the effective colour of light phototherapy was blue. This was comparable to study by Shehu et al. (2019) where phototherapy was known as the treatment for neonatal jaundice among 89% of the students and 33% of them did not know effective colour of the light used for phototherapy.

5.4 Relationship between socio demographic factors and the level of knowledge on care of jaundice in newborn

According to the study results, the socio-demographic factors such as age ($p = 0.002$), ethnicity ($p = 0.012$), level of education ($p = 0.000$) and occupation ($p = 0.053$) were significantly relationship with the knowledge on the care of jaundice. Meanwhile, the socio-demographic such as gender ($p = 0.580$) and the number of children ($p = 0.216$) were not significantly associated with the knowledge on the care of jaundice.

This results were similar with study among mother in Ghana where the age, level of education and experienced of having child with jaundice previously contribute to adequate understanding and knowledge on neonatal jaundice, thus there was a significant relationship (Seneadza., 2022).

Apart from this, there was a study revealed that parents socio-demographic factors provides an association with the knowledge and attitudes related to neonatal jaundice. This was shown by the highest of knowledge on etiology about jaundice was among parents age 20 to 30 years old with university level of education however, shows lowest among unemployed group of parents (Alfouwais et al., 2018)

In contrast from other studies where the finding in the mean age of mother among three ethnic groups was no significant difference as well the study was proportionately groups into four major group which were Malay, Chinese, Indian and others (Boo et al., 2011). This was unlike to the present study where the ethnicity was randomly collected as mean rank as Malay (62.5), Chinese (89.3), Indian (68.8) and others (59.3).

5.5 Relationship between socio demographic factors and the level of awareness on care of jaundice in newborns with the type of treatment selected among parents

The results shows, there is no association between the entire socio-demographic factors and the level of awareness on care of jaundice with the type of treatment selected which is gender ($p = 0.64$), age ($p = 0.16$), ethnicity ($p = 0.31$), level of education ($p = 0.57$), occupation ($p = 0.91$) and number of children ($p = 0.79$). The correlation coefficient of age and the level of awareness with treatment selected ($r = 0.055$) was shows the positive slope however there is no statistically significant between the two variable.

The finding shows contradict with previous study by Salia et al., (2021), the ordered logistic regression was used and there were statistically significance was considered to the association between all the dependent variable (knowledge, attitude and practice regarding neonatal jaundice) and independent variable (socio-demographic characteristic). Hence, the caregivers who had prior awareness on neonatal jaundice were not necessarily means they were typically had good treatment to manage jaundice in newborn.

5.6 Association between the level of knowledge and awareness on care of jaundice in newborns with the type of treatment selected among parents

The overall results had shown that there is no association between the level of knowledge and awareness on the care of jaundice in newborns with the type of treatment selected among parents ($p = 0.73$). However, the results provided that excellent knowledge was achieved by a total of 56.8% of respondents with satisfactory awareness related to the type of treatment selected by a total of 55.4%.

Furthermore, incongruent to the finding, a study by Demis et al. (2021) mentioned that maternal attitudes, some of the variables such as previous child history of neonatal jaundice and current child history of neonatal jaundice had a significant association with knowledge of mothers on neonatal jaundice through a multivariable analysis. In addition, there were factor associated with mother's knowledge on NNJ were having good knowledge (39.2%) and poor knowledge (60.8%) with about 47.8% were having favorable attitude towards NNJ (Demis et al., 2021).

Moreover, Goodman et al., (2015) found a high level of awareness with knowledge on causes of neonatal jaundice at 75% and 74.1% respectively. This shows congruent to the findings of the present study among 139 respondents where 97.1% had sufficient awareness with 87.8% had good treatment selected leads to category of satisfactory of awareness.

CHAPTER 6

LIMITATION AND RECOMMENDATION

6.1 Limitation

In this study, there were several limitations found by the researcher. Firstly, the researcher faced problem to start collecting the data due to the time constraint. This is because the waiting time to receive ethical approval from JKEUPM too long and drag the time for the researcher to approaches the chief of residential area in order to ask for permission to conduct the study. As consequence, the researcher also unable to retrieve the list of name of the adult in the residential area to conducted the simple random sampling. Thus, convenience sampling is used in this study and it is may not be able to represent the whole population in the study.

Then, the study instrument was distributed through online to the community area randomly in short period of time affect the number of sample size. This may be one of the limitations of using the online based questionnaire as some of the residents were just ignore the link or were unfamiliar with the Google Form which lead to difficulty to participate data collection. Similarly, the internet connection or device used by the respondent may also limit their participation in the study. Hence, the researcher only received approximately half number of respondent from the total sample size for this study, $n = 139$ (55.6%).

6.2 Recommendation

Recommendation for future studies is to study more on the predisposing factors that associated to neonatal jaundice such as jaundice in diabetic mother or jaundice in asphyxiated term infants. This may be usable in order to evaluate the possible risk factor for neonate and to give exposure to the community about these unusual risk factors. Neonatal jaundice also has several type, hence focused on speuseful to manage and prevent theice may recommended to increase and improve awareness, knowledge and practice. This will be useful to manage and prevent neonatal jaundice as well enhance in early detection and timely intervention with lesser invasive treatment modalities.

Besides, the educational programme on neonatal jaundice should be improved especially at the clinic or via media platform. This is to ensure an effective and positive outcome where the latest information regarding neonatal jaundice is reachable the targeted group in the community. As in nursing practice, health education is vital to create awareness, provide knowledge and guide suitable practice to the people. Thus, the content of health education should be enhances and follows the latest news and information to serve to the community.

6.3 Conclusion

Based on the result obtained through this study, majority respondents had excellent knowledge regarding neonatal jaundice, had sufficient awareness when being asked on jaundice as well good in selected proper type of treatment should be implemented to the newborn with jaundice. Even though the result shows positive towards the community in Seremban, Negeri Sembilan, the health education regarding important to recognize, prevent and manage the jaundice should be improved to enhance the knowledge and awareness among them.

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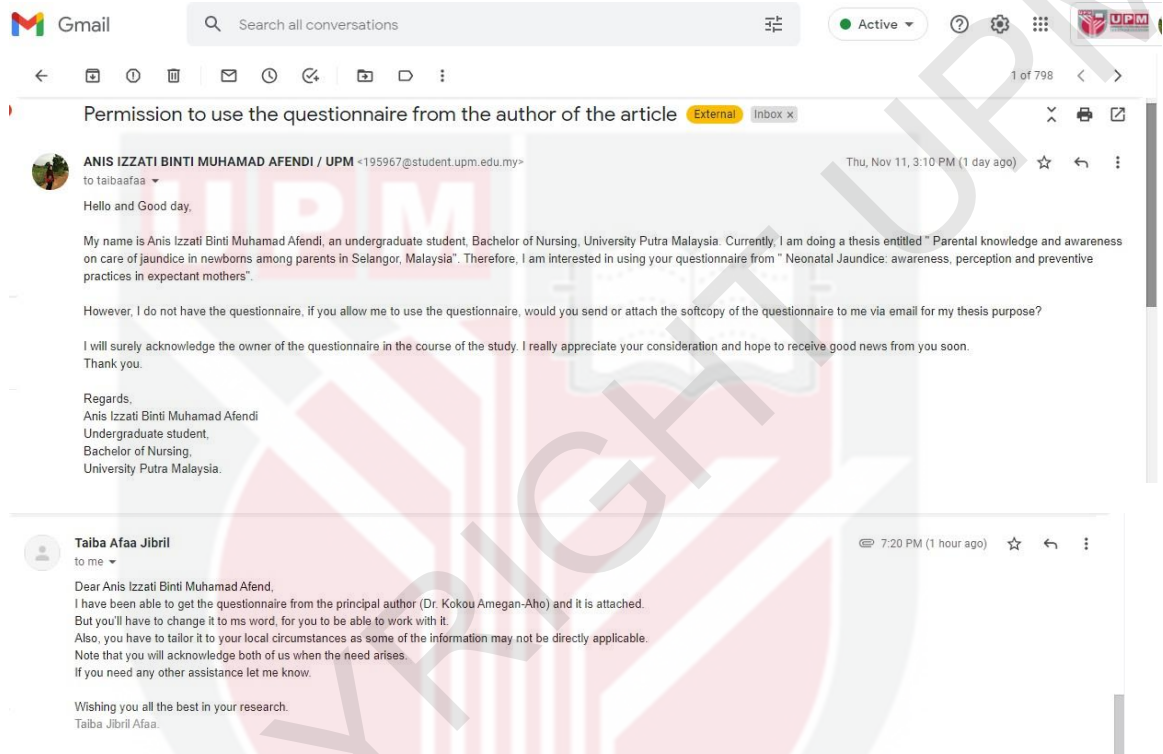
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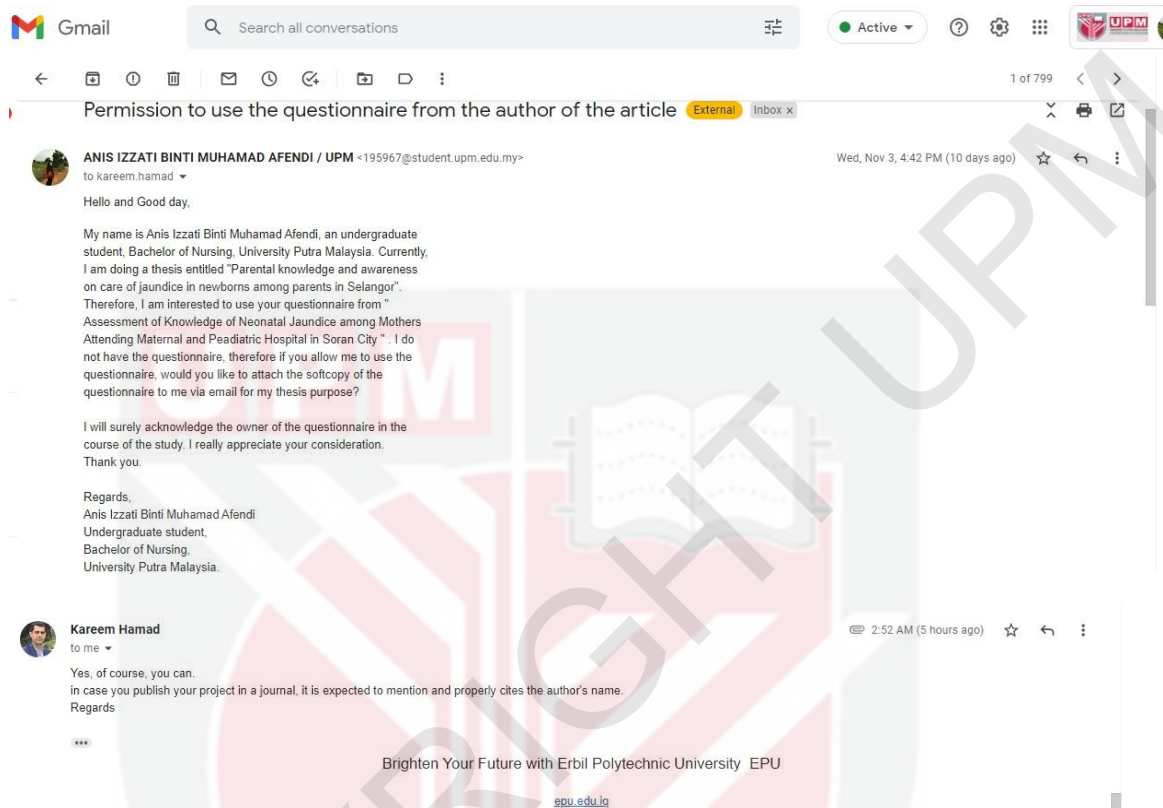
APPENDIX

Appendix 1

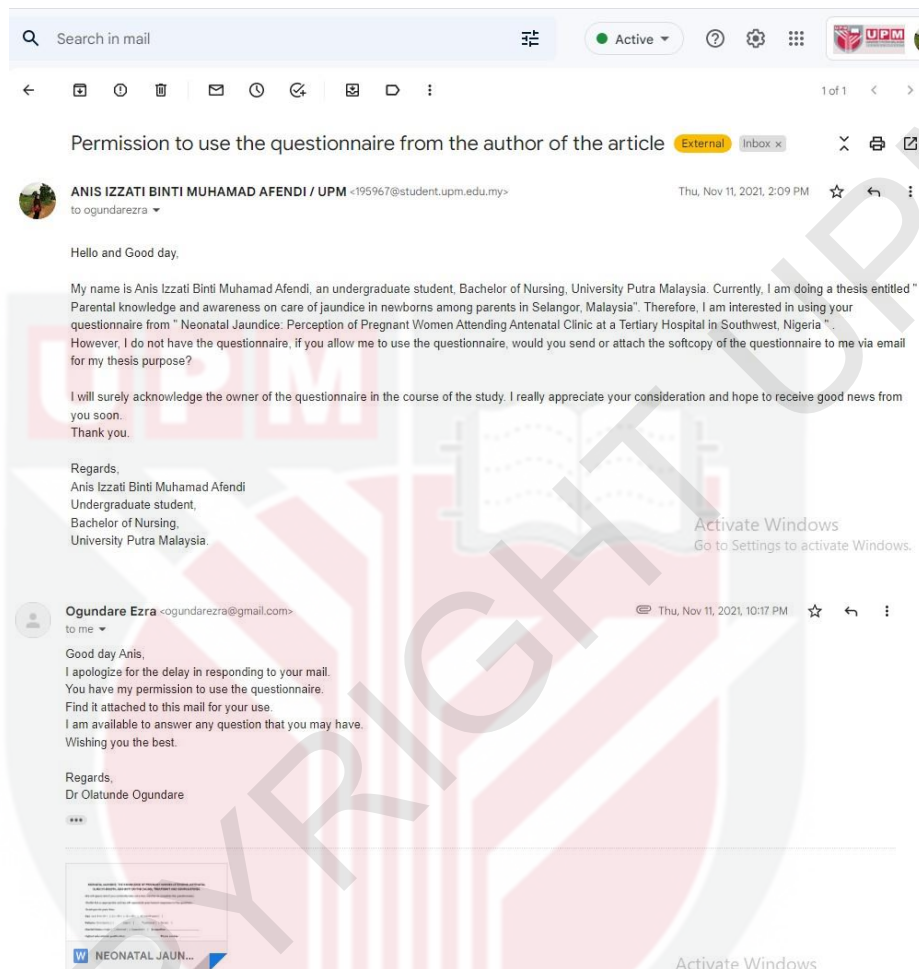
Permission for instrument (Dr Taiba Afaa)



Permission for instrument (Dr Kareem Hamad)

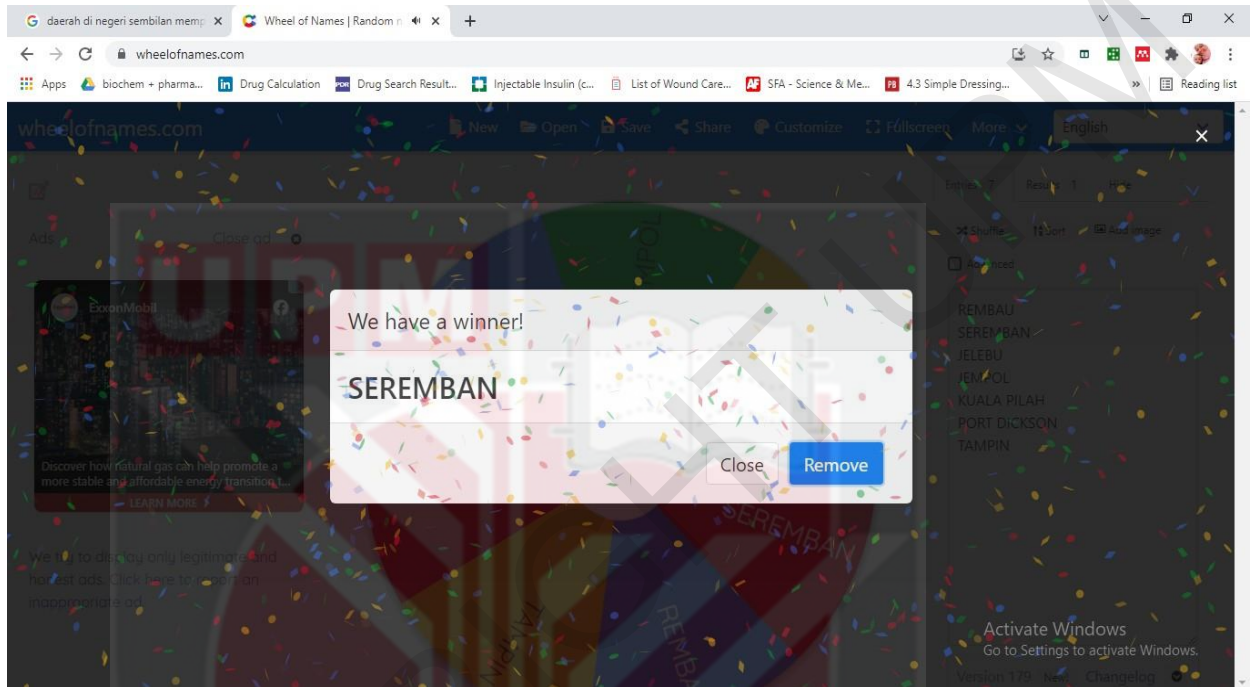


Permission for instrument (Dr Olatunde Ogundare)



Appendix 2

Wheel of names (Study location selection)



Appendix 3:

1. Participant Information Sheet and Informed Consent Form (English Version)



**JAWATANKUASA ETIKA UNIVERSITI UNTUK
PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA**

FORM 2.4: RESPONDENT'S INFORMATION SHEET AND INFORMED CONSENT FORM

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

1. STUDY TITLE : Relationship between knowledge and awareness of jaundice among parents in Seremban, Negeri Sembilan

2. INTRODUCTION: Neonatal jaundice is defined as a condition of yellowish discoloration that appears in a newborn. Newborn have immature organs causing a condition of bilirubin accumulation in the blood and unable to be excreted. This usually happens in the first week of the life and the signs and symptoms of jaundice do not last after follow up with treatment.

3. WHAT WILL YOU HAVE TO DO?

You must be a Malaysian citizen aged 18-65 years old either married, divorced or widowed and fill out an online agreement form to participate in this study. A set of online questionnaires will be given to you and the questionnaire consists of four sections: Section A, Section B, Section C and Section D. All sections on the questionnaire must be completed by you and it will only take about 10-15 minutes to complete. Your participation to answer the questionnaire is highly appreciated.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?

Respondents who are unable to understand and speak in English and/or Malay should not participate in the study

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

The information you give in this study regarding the knowledge and awareness of jaundice in newborns is highly appreciated. The information will help you in creating awareness and providing knowledge about neonatal jaundice as well this can be applied to the family or people around you. Since participation in this research study is voluntary, there will be no money

or token given to the respondents. However, if you have any interest that may be useful for you, you may contact the researcher regarding the results of the data analysis.

(b) TO THE INVESTIGATOR?

The data collected was able to help in assessing the knowledge and awareness of jaundice in newborns among parents. This also can help the researcher to determine the relationship between the knowledge and awareness of jaundice in newborns among parents. The goal of this study is to provide knowledge and increase awareness regarding jaundice in newborns to the community especially parents. Hence, this can be a piece of useful information such as the type of treatment for neonatal jaundice to the parents in the community.

6. WHAT ARE THE POSSIBLE RISKS?

There is no risk and complications in this study. Only the respondent's awareness and knowledge on neonatal jaundice being assessed in this study through an online questionnaire.

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

All the information from the respondent will be kept confidential. Only the researchers and supervisors are allowed to evaluate the information collected.

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

If you have any questions or would like to learn more about this study, you may contact the researcher or supervisor of this study during office hours.

Researcher	Supervisor	Co- Supervisor
Anis Izzati Binti Muhamad Afendi Nursing Student, Department of Nursing, Faculty of Medical and Health Science Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia Telephone Number:018-2260742 Email: 195967@student.upm.edu.my	Associate Professor Dr. Lee Khuan Nursing Lecturer, Department of Nursing, Faculty of Medical and Health Science Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia Telephone Number:+603-89472437 Email: leekhuan@upm.edu.my	Dr. Huzwah Binti Khaza'ai Biochemistry Lecturer, Department of Biomedical Science, Faculty of Medical and Health Science Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia Telephone Number:+603-97692436 Email: huzwah@upm.edu.my

Please initial here if you have read and understood the contents of this page_____

9. CONSENT

I Identity Card No.
address.....

.. hereby voluntarily agree to take part in the
research stated above *(clinical /drug trial/video recording/ focus group/interview-based/
questionnaire-based).

I have been informed about the nature of the research in terms of methodology, possible
adverse
effects and complications (as written in the Respondent's Information Sheet). I understand that
I have the right to withdraw from this research at any time without giving any reason
whatsoever. I also understand that this study is confidential and all information provided with
regard to my identity will remain private and confidential.

I* wish / do not wish to know the results related to my participation in the research

I agree/do not agree that the images/photos/video recordings/voice recordings related to me be
used in any form of publication or presentation (if applicable)

* delete where necessary

Signature
(Respondent)

Signature
(Witness)

Date :.....

Name :.....

I/C No. :.....

I confirm that I have explained to the respondent the nature and purpose of the above-
mentioned research.

Date

Signature
(Researcher)

2. Participant Information Sheet and Informed Consent Form (Malay Version)



**JAWATANKUASA ETIKA UNIVERSITI UNTUK
PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM)
UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG,
SELANGOR, MALAYSIA**

BORANG 2.4: PENERANGAN DAN PERSETUJUAN RESPONDEN

Sila baca maklumat berikut dengan teliti. Sekiranya anda mempunyai sebarang pertanyaan, sila kemukakan kepada penyelidik.

1. TAJUK KAJIAN : Hubungan Antara Pengetahuan Dan Kesedaran Jaundis Neonatal Dalam Kalangan Ibubapa Di Seremban, Negeri Sembilan.

2. PENGENALAN: Jaundis neonatal didefinisikan sebagai satu keadaan perubahan warna kekuningan yang muncul pada bayi baru lahir. Bayi yang baru lahir mempunyai organ-organ yang belum matang menyebabkan berlaku keadaan pengumpulan bilirubin dalam darah dan tidak dapat dikumuhkan. Hal ini terjadi kebiasaannya semasa minggu pertama bayi itu dilahirkan serta tanda-tanda dan gejala jaundis ini tidak kekal selepas rawatan susulan dijalankan.

3. APAKAH YANG PERLU ANDA LAKUKAN?

Anda mestilah seorang warganegara Malaysia berumur 18-65 tahun sama ada berkahwin, bercerai atau duda/balu dan mengisi borang perjanjian atas talian untuk mengambil bahagian dalam kajian ini. Satu set soal selidik atas talian akan diberikan kepada anda dan soal selidik tersebut mempunyai 4 bahagian: Bahagian A, Bahagian B, Bahagian C dan Bahagian D. Kesemua soalan dalam soal selidik ini mestilah dilengkapkan oleh anda dan ini hanya mengambil masa kira-kira 10-15 minit untuk selesai. Penyertaan anda untuk menjawab soal selidik ini amat dihargai.

4. SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?

Responden yang tidak boleh memahami dan bertutur dalam Bahasa Inggeris dan/atau Bahasa Melayu tidak boleh menyertai kajian ini.

5. APAKAH FAEDAH MENYERTAI KAJIAN INI?

a) KEPADA ANDA SEBAGAI PESERTA?

Maklumat yang anda berikan dalam kajian ini mengenai pengetahuan dan kesedaran tentang jaundis dalam bayi baru lahir amat dihargai. Maklumat tersebut akan membantu anda dalam mewujudkan kesedaran dan memberikan pengetahuan tentang jaundis neonatal malahan boleh diterapkan kepada keluarga atau orang di sekeliling anda. Oleh kerana penyertaan dalam kajian ini adalah secara sukarela, sebarang bentuk wang atau token tidak akan diberikan kepada responden. Walaubagaimanapun, jika anda mempunyai minat yang mungkin berguna untuk anda, anda boleh menghubungi penyelidik berkenaan hasil analisis data kajian ini.

b) KEPADA PENYELIDIK?

Semua data yang dikumpulkan dapat membantu dalam menilai pengetahuan dan kesedaran terhadap jaundis neonatal dalam kalangan ibu bapa. Ini juga boleh membantu pengkaji untuk menentukann hubungan antara pengetahuan dan kesedaran jaundis pada bayi baru lahir dalam kalangan ibu bapa. Matlamat untuk kajian adalah untuk memberi pengetahuan dan meningkatkan kesedaran berkaitan jaundis neonatal kepada masyarakat terutama ibu bapa. Olehh itu, ini boleh menjadi maklumat yang berguna seperti jenis rawatan jaundis nonatal kepada ibu bapa dalam komuniti.

6. ADAKAH IA BERISIKO?

Kajian ini tidak mempunyai sebarang risiko dan komplikasi. Kesedaran dan pengetahuan responden terhdap jaundis neonatal untuk dinilai dalam kajian ini hanya melalui borang soal selidik atas talian.

7. ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Semua maklumat responden akan dirahsiakan. Hanya penyelidik dan penyelia yang dibenarkan untuk menilai maklumat yang dikumpulkan.

8. SIAPA YANG SAYA PERLU HUBUNGI SEKIRANYA SAYA MEMPUNYAI SOALAN TAMBAHAN SEMASA MENGIKUTI PENYELIDIKAN INI?

Sekiranya anda mempunyai sebarang pertanyaan atau ingin mengetahui lebih lanjut mengenai kajian ini, anda boleh menghubungi penyelidk atau penyelia kajian ini pada waktu pejabat.

Penyelidik	Penyelia	Co- Penyelia
Anis Izzati Binti Muhamad Afendi	Professor Madya Dr. Lee Khuan	Dr. Huzwah Binti Khaza'ai
Pelajar Kejururawatan, Jabatan Kejururawatan, Fakulti Perubatan Dan Sains Kesihatan Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia	Pensyarah Kejururawatan, Jabatan Kejururawatan, Fakulti Perubatan Dan Sains Kesihatan Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia	Pensyarah Biokimia, Jabatan Sains Bioperubatan, Fakulti Perubatan Dan Sains Kesihatan Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia
Nombor Telefon: 018-2260742 Emel: 195967@student.upm.edu.my	Nombor Telefon: +603-89472437 Emel: leekhuan@upm.edu.my	Nombor Telefon: +603-97692436 Emel: huzwah@ upm.edu.my

Sila tandatangan di sini sekiranya anda telah membaca dan memahami kandungan halaman ini

9. PERSETUJUAN

Saya..... No Kad Pengenalan.
beralamat.....
.....dengan ini bersetuju untuk mengambil bahagian secara sukarela
dalam penyelidikan yang tersebut di atas *(kajian klinikal/percubaan ubat-ubatan/rakaman
video/kumpulan sasaran/temuduga/ soal selidik).

Saya telah diberi penjelasan secara menyeluruh mengenai penyelidikan ini dari segi metodologi,
risiko dan komplikasi (seperti tertulis pada Helaian Penerangan Responden). Saya memahami
bahawa saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberi
sebarang alasan. Saya juga memahami bahawa sebarang maklumat yang berkaitan identiti saya
akan dirahsiakan.

Saya* berminat / tidak berminat untuk mengetahui keputusan kajian yang melibatkan saya.

I setuju/tidak bersetuju untuk imei/gambar/rakaman video/ rakaman suara digunakan dalam
apa jua bentuk penerbitan atau pembentangan. (sekiranya berkaitan).

*potong yang tidak berkenaan

Tandatangan Tandatangan
(Responden) (Saksi)

Tarikh : Nama :

No. K/P:

Saya mengesahkan bahawa saya telah menerangkan kepada responden ini sifat dan tujuan
penyelidikan yang tersebut di atas.

Tarikh Tandatangan
(Penyelidik)

Appendix 4: Questionnaire

BORANG SOAL SELIDIK (QUESTIONNAIRE FORM)

Hubungan antara pengetahuan dan kesedaran jaundis pada bayi baru lahir dalam kalangan ibu bapa di Seremban, Negeri Sembilan

Relationship between knowledge and awareness of jaundice in newborn among parent in Seremban, Negeri Sembilan

BAHAGIAN A (PART A):

MAKLUMAT SOCIO-DEMOGRAFIK (SOCIO-DEMOGRAPHIC INFORMATION)

Arahan: Sila jawab semua soalan dengan menandakan (/) atau menulis jawapan yang sesuai.

Instructions: Please answer all questions by marking (/) or write the appropriate answer

NO.	PERKARA (ITEM)	
1	Umur (Age)	_____tahun (years)
2	Jantina (Gender)	() Lelaki (Male) () Perempuan (Female)
3	Kumpulan Etnik (Ethnicity)	() Melayu (Malay) () Cina (Chinese) () Indian (India) () Lain-lain. Sila nyatakan (Others. Please state): _____
4.	Tahap pendidikan (Level of education)	() Tidak bersekolah (No formal education) () Sekolah rendah (Primary school) () Sekolah menengah (Secondary school) () Sijil (STPM/Matrikulasi/Asasi/lain-lain) Certificate (STPM/Matriculation/Foundation/etc) () Diploma (Diploma) () Ijazah (Sarjana Muda/Sarjana/Doktor Falsafah) (Bachelor/Master/Doctor of Philosophy)

5.	Pekerjaan (<i>Occupation</i>)	☐ Tidak bekerja (<i>Unemployed</i>) ☐ Kerja sendiri (<i>Self – employed</i>) ☐ Kakitangan kerajaan (<i>Government employee</i>) ☐ Kakitangan swasta (<i>Non-government employee</i>) ☐ Pelajar (<i>Student</i>)
6.	Status perkahwinan (<i>Marital status</i>)	☐ Bujang (<i>Single</i>) ☐ Berkahwin (<i>Married</i>) ☐ Bercerai (<i>Divorced</i>) ☐ Lain-lain. Sila nyatakan (<i>Others. Please state</i>):
7.	Bilangan anak (<i>Number of children</i>)	☐ Tiada anak (<i>No child</i>) ☐ Seorang anak (<i>One child</i>) ☐ 2 – 5 orang anak (<i>2 – 5 children</i>) ☐ > 5 orang anak (<i>> 5 children</i>)

BAHAGIAN B (Part B)**KESEDARAN TENTANG JAUNDIS PADA BAYI** (*Awareness of jaundice in newborn*)

Arahan: Sila jawab semua soalan dengan menandakan (/) atau menulis jawapan yang sesuai.

Instructions: Please answer all questions by marking (/) or write the appropriate answer

NO	PERKARA (ITEM)	YA (YES)	TIDAK (NO)	NOT SURE (TIDAK PASTI)
1.	Pernahkah anda mendengar tentang jaundis neonatal? <i>Have you ever heard about neonatal jaundice?</i>			
2.	Adakah anda bimbang sekiranya bayi anda mengalami jaundis? <i>Will you worry if your baby is having jaundice?</i>			
3.	Apakah yang anda akan lakukan sekiranya bayi anda mengalami jaundis? <i>What will you do if your baby present jaundice?</i>			
	1. Tiada apa <i>Nothing</i>			
	2. Dapatkan rawatan perubatan <i>Seek medical attention</i>			
	3. Menyusukan bayi <i>Breastfeed the baby</i>			
	4. Mendedahkan kepada cahaya matahari <i>Exposure to the sunlight</i>			
4.	Berapa lama anda akan mendapatkan rawatan selepas mengesan jaundis neonatal? <i>How soon will you seek for treatment after neonatal jaundice is noticed?</i>			
	1. Serta-merta / <24 jam <i>Immediately / <24hrs</i>			
	2. 24 – 48 jam <i>24- 48hrs</i>			
	3. >5 hari <i>>5 days</i>			
	4. Selepas rawatan lain gagal <i>After other treatment have failed</i>			

5.	Adakah anda sedar jaundis pada bayi boleh diubati? <i>Did you aware jaundice in newborn is curable?</i>			
----	--	--	--	--

BAHAGIAN C (Part C)

PENGETAHUAN TENTANG JAUNDIS PADA BAYI (*Knowledge of jaundice in newborn*)

Arahan: Sila jawab semua soalan dengan menandakan (/) atau menulis jawapan yang sesuai.

Instructions: Please answer all questions by marking (/) or write the appropriate answer

NO	PERKARA (ITEM)	YA (YES)	TIDAK (NO)	NOT SURE (TIDAK PASTI)
1.	Apakah tempat presentasi jaundis neonatal? <i>What is the presentation site of neonatal jaundice?</i>			
	1. Kulit <i>Skin</i>			
	2. Mata <i>Eyes</i>			
	3. Tapak tangan da kaki <i>Palm and sole foot</i>			
	4. Najis dan kencing <i>Stool or urine</i>			
2.	Apakah tanda bahaya jaundis neonatal? <i>What is the danger sign of neonatal jaundice</i>			
	1. Keengganan untuk makan <i>Refusal to eat</i>			
	2. Kurang menghisap susu <i>Poor suck of milk</i>			
	3. Tangisan nada tinggi <i>High pitched cry</i>			
	4. Demam <i>Fever</i>			
	5. Sawan <i>Seizures</i>			

3.	Apakah punca jaundis neonatal? <i>What is the cause of neonatal jaundice?</i>			
	1. Ketidakserasian kumpulan darah antara ibu dan bayi <i>Blood group incompatibility between mother and baby</i>			
	2. Penyakit turun temurun <i>Hereditary disease</i>			
	3. Penyakit berjangkit <i>Infectious disease</i>			
	4. Kelewatan penyusuan <i>Delayed breastfeeding</i>			
	5. Bayi pramatang <i>Prematurity of baby</i>			
	6. Kekurangan G6PD <i>G6PD deficiency</i>			
4.	Apakah komplikasi jaundis neonatal? <i>What is the complication of neonatal jaundice?</i>			
	1. Kerosakan otak <i>Brain damage</i>			
	2. Pekak <i>Deafness</i>			
	3. Perubahan warna gigi <i>Discoloration of teeth</i>			
	4. Sawan di kemudian hari <i>Convulsion later in life</i>			
	5. Kerencatan mental <i>Mental retardation</i>			
	6. Kematian neonatal <i>Neonatal death</i>			
5.	Apakah cara terbaik untuk mendiagnosis jaunidis neonatal? <i>What is the best way of diagnosis the neonatal jaundice</i>			
	1. Analisis air kencing <i>Urine analysis</i>			
	2. Analisis darah <i>Blood analysis</i>			
	3. Penampilan <i>Appearance</i>			

BAHAGIAN D (Part D)**JENIS RAWATAN JAUNDIS PADA BAYI** (*Type of treatment of jaundice in newborn*)

Arahan: Sila jawab semua soalan dengan menandakan (/) atau menulis jawapan yang sesuai.

Instructions: Please answer all questions by marking (/) or write the appropriate answer

NO	PERKARA (ITEM)	YA (YES)	TIDAK (NO)	NOT SURE (TIDAK PASTI)
1.	Apakah jenis rawatan yang anda pilih untuk jaundis neonatal? <i>What type of treatment do you choose for neonatal jaundice?</i>			
	1. Fototerapi <i>Phototherapy</i>			
	2. Pertukaran transfusi darah <i>Exchange blood transfusion</i>			
	3. Peyusuan badan <i>Breastfeeding</i>			
	4. Mendedahkan bayi dibawah cahaya matahari <i>Exposed baby under sunlight</i>			
	5. Penggunaan antibiotik <i>Use of antibiotics</i>			
	6. Penggunaan ubatan tradisional <i>Use of herbal medication</i>			
	7. Pembedahan <i>Surgery</i>			
	8. Tiada rawatan <i>No treatment</i>			
2.	Apakah warna lampu yang efektif untuk fototerapi? <i>What is the effective color of light for phototherapy?</i>			
	1. Putih <i>White</i>			
	2. Biru <i>Blue</i>			
	3. Hijau <i>Green</i>			
	4. Merah <i>Red</i>			

TERIMA KASIH ATAS KERJASAMA ANDA (*THANK YOU FOR YOUR COOPERATION*)

Appendix 5: Gant Chart and Milestone

Project Activites	Year 2021			Year 2022									
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct
Identify the research problem													
Discussion with supervisor regarding the research title													
Gather and review relevant information													
Search and select appropriate questionnaire													
Preparing draft research proposal													
Proposal correction with supervisor													
Proposal presentation													
Submit proposal for ethical approval from JKEUPM													
Data collection													
Meeting and writing for thesis													
FYP presentation													
Correction and submission final													

Figure A5: Gant chart and milestone of this study

Appendix 6: Budget

NO	ITEM	COST PER UNIT	ESTIMATED TOTAL COST
1.	Monthly Internet	RM 30 X 6	RM 180
2.	Printing • Printer cartilage • A4 paper • Stationery	RM 30 RM 12 RM 10	RM 52
ESTIMATED TOTAL EXPENSES			RM 232

Table A6: Estimated budget of the study

Appendix 7: Approval from JKEUPM

Ref. no: UPM/TNCPI/RMC/JKEUPM/1.4.18.2 (JKEUPM)

Date: 14 August 2022

Dear Prof./Dr./Mr./Ms.,

APPLICATION FOR JKEUPM ETHICAL CLEARANCE: APPROVED

With reference to the above, I am pleased to inform you that your application for ethical clearance for the research project entitled '**Relationship Between Knowledge and Awareness of Jaundice in Newborn Among Parent in Seremban, Negeri Sembilan**' has been approved.

The approval is **valid from 14 AUGUST 2022 until 14 AUGUST 2023**.

Please note that the official letter of approval will be issued as soon as possible. However, the ethical clearance is considered effective from the date of this email, and you may now proceed with your research.

Kindly remind the ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

Researchers should also complete a Study Final Report upon study completion. The form can be obtained from the Ethics Committee for Research Involving Human Subjects (JKEUPM) website (<http://www.tncpi.upm.edu.my/faildokumen>).

If you have any enquiries, please contact at number 03-97691244/1602.

Note: Please use this reference number for any transaction:- **JKEUPM-2022-359**

Thank you.

Yours faithfully,

Prof. Dr. Zamberi Sekawi
Chair
Ethics Committee for Research Involving Human Subjects
Universiti Putra Malaysia

Appendix 8: Permission letter to conduct study



UPM
UNIVERSITI PUTRA MALAYSIA
BERILMU BERBAKTI



FAKULTI PERUBATAN DAN SAINS KESIHATAN
FACULTY OF MEDICINE AND HEALTH SCIENCE

Tarikh: 30 Julai 2022

Encik Khalid Bin Ali Osman,
Pengerusi Kawasan Rukun Tetangga,
Bandar Seremban Selatan Fasa 2,
71450 Seremban,
Negeri Sembilan Darul Khusus.

Tuan/Encik,

**MEMOHON KEBENARAN UNTUK MENJALANKAN PROJEK ILMIAH TAHUN AKHIR DI
KALANGAN PENDUDUK BANDAR SEREMBAN SELATAN, SEREMBAN, NEGERI
SEMBILAN.**

Dengan segala hormatnya merujuk perkara di atas,

2. Adalah dimaklumkan bahawa Anis Izzati Binti Muhamad Afendi, nombor matrik 195967, pelajar tahun akhir Bachelor Kejururawatan dikehendaki menjalankan projek ilmiah tahun akhir (NUR4999) untuk memenuhi keperluan syarat untuk bergraduat. Kajian yang akan dijalankan adalah seperti berikut:

Tajuk Kajian

**: Hubungan Antara Pengetahuan Dan Kesedaran Jaundis Neonatal
Dalam Kalangan Ibubapa Di Seremban, Negeri Sembilan**

Tempoh Kajian

: Julai – September 2022

3. Sehubungan dengan itu, kami ingin memohon jasa baik tuan untuk membenarkan pelajar tersebut membuat pengumpulan data projek beliau dari penduduk di Bandar Seremban Selatan. Pihak kami ingin memohon kebenaran untuk mendapatkan senarai nama para penduduk bagi tujuan persampelan dan sokongan kepada permohonan etika kajian.

4. Sebarang pertanyaan sila berhubung dengan pelajar-penyelidik terbabit di e-mel beliau, 195967@student.upm.edu.my atau saya sebagai penyelia leekhuan@upm.edu.my. Dengan itu, kerjasama, pertimbangan dan kelulusan daripada pihak tuan amat dihargai dan didahului dengan ucapan ribuan terima kasih.

Sekian,

**“WAWASAN KEMAKMURAN BERSAMA 2030”
“BERILMU BERBAKTI”**

Yang menjalankan amanah,

PROF. MADYA DR LEE KHUAN
(Penyelia Utama)
Pensyarah Kejururawatan,
Jabatan Kejururawatan,

Fakulti Perubatan dan Sains Kesihatan,
Universiti Putra Malaysia.

s.k. Dr Huzwah Binti Khaza'ai (Penyelia Bersama), Jabatan Sains Bioperubatan, FPSK, UPM

LAMPIRAN B

**BORANG MAKLUMBALAS PERMOHONAN KEBENARAN UNTUK MENJALANKAN
PENYELIDIKAN**

Tajuk Penyelidikan: **Hubungan Antara Pengetahuan Dan Kesedaran Jaundis Neonatal Dalam
Kalangan Ibubapa Di Seremban, Negeri Sembilan**

Tempoh Penyelidikan: **Ogos – September 2022**

Pihak SAYA sedia maklum dengan perkara di atas dan dengan ini membuat keputusan seperti
berikut:

- ☒ Membenarkan projek penyelidikan dijalankan
- ☐ Tidak membenarkan projek penyelidikan dijalankan

Saya yang menjalankan amanah,

.....
ENCIK KHALID BIN ALI OSMAN,
Pengerusi Kawasan Rukun Tetangga,
Bandar Seremban Selatan Fasa 2,
71450 Seremban,
Negeri Sembilan Darul Khusus

Appendix 9: Summary of turnitin report

195967_ANIS IZZATI			
ORIGINALITY REPORT			
8%	6%	3%	3%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS
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4	Submitted to Universiti Putra Malaysia Student Paper	<1%	
5	Klaudia Majder, Paweł Więch, Agnieszka Wojniak, Dariusz Bazaliński. "Knowledge and skills in chest auscultation among nurses", <i>Pielęgniarstwo XXI wieku / Nursing in the 21st Century</i> , 2020 Publication	<1%	
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