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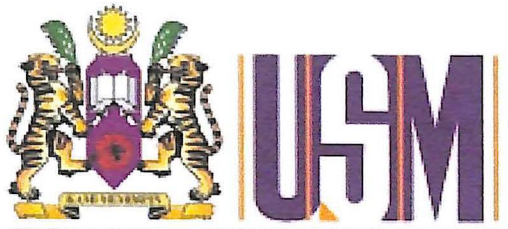

MATERNAL ANXIETY DURING UNIVERSAL NEWBORN HEARING SCREENING AT HOSPITAL UNIVERSITI SAINS MALAYSIA

By

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Dissertation submitted in partial fulfillment of the requirements for the Degree Of Bachelor of Health Sciences (Audiology)

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CERTIFICATE

This is to certify that the dissertation entitled Maternal Anxiety during Universal Newborn Hearing Screening Program is the bonafide record of research work done by Noor Rafidah Binti Kamaruddin, 89080 during the period of July 2008 to April 2009 under my supervision. This dissertation submitted in partial fulfillment for the degree of Bachelor of Health Sciences (Audiology). Research work and collection of data belong to Universiti Sains Malaysia

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LIST OF ABBREVIATIONS

AABR	: Automated Auditory Brainstem Response
AR	: At Risk
BAI	: Beck Anxiety Inventory
CI	: Confidence Interval
DPOAE	: Distortion Product Otoacoustic Emissions
DT	: Distraction Test
EHDI	: Early Hearing Detection and Intervention
HUSM	: Hospital universiti Sains Malaysia
HVDT	: Health Visitor Distraction Test
JCIH	: Joint Committee of Infant Hearing
NIH	: National Institute of Health
NIMH	:National Institute of Mental Health
OAE	: Otoacoustic Emissions
SPSS	: Statistical Package for Social Sciences
STAI	:State-Trait Anxiety Inventory
TEOAE	: Transient Evoked Otoacoutic Emissions
UNHS	: Universal Newborn Hearing Screening
VIHSP	: Victorian infant hearing screening program

ABSTRACT

The purpose of this study was to investigate the maternal anxiety during Universal Newborn Hearing Screening (UNHS) at Hospital Universiti Sains Malaysia (HUSM). A sample of 50 mothers who had given birth at HUSM was surveyed using a set of questionnaire. The instruments were based upon demographic profile, knowledge about hearing screening and Beck Anxiety Inventory (BAI). BAI is a set of questionnaire used to assess the level of maternal anxiety. The data was coded and analyzed using Wilcoxon signed Rank Test of SPSS version 11.5. The findings indicated that majority of the mothers were having mild anxiety during the first screening and before they undergone the second screening. The result also showed that there was significant difference of maternal anxiety level between the first screenings and before the second screening. There was also significant difference in the level of maternal anxiety between mothers whose babies failed the first screening and passed the second screening. Even though both results showed that there was a significant reduction in the level of maternal anxiety, but some of them are still in anxiety state. Therefore, actions need to be taken to improve the failure rate in UNHS.

ABSTRAK

Kajian ini dijalankan untuk melihat kebimbangan ibu semasa program Ujian Saringan Pendengaran Universal (UNHS) di Hospital Universiti Sains Malaysia (HUSM). Kajian telah dijalankan dengan menggunakan satu set borang kaji selidik kepada sampel yang terdiri dari 50 orang ibu yang melahirkan bayi di HUSM. Borang kaji selidik terdiri dari bahagian demografi responden, pengetahuan ibu berkaitan ujian saringan pendengaran dan Inventori Kerisauan Beck ,"Beck Anxiety Inventory" (BAI). BAI adalah satu set kajiselidik yang digunakan untuk menilai tahap kerisauan ibu. Data yang diperoleh dianalisis menggunakan pakej computer SPSS 11.8 dengan menggunakan ujian Wilcoxon Signed Rank. Dapatan kajian menunjukkan bahawa kebanyakan ibu mempunyi tahap kerisauan yang ringan ketika ujian saringan pertama dan sebelum menjalani ujian saringan kedua. Dapatan kajian juga menunjukkan terdapat perbezaan yang ketara terhadap tahap kerisauan ibu diantara ujian saringan pertama dan sebelum menjalani ujian saringan kedua. Terdapat juga perbezaan yang ketara terhadap tahap kerisauan ibu diantara ibu-ibu yang anak mereka gagal ujian saringan pertama dan lulus pada ujian saringan kedua. Walaupun dapatan kajian menunjukkan terdapat penurunan ketara terhadap kedua – dua dapatan tersebut, tetapi terdapat segelintir ibu masih dalam keadaan risau. Oleh itu, tindakan perlu di ambil untuk mengurangkan kadar kegagalan semasa program UNHS.

CHAPTER 1

INTRODUCTION

CHAPTER 1

INTRODUCTION

1.1 Background of The Study

Hearing loss is usually hidden and significant hearing loss is the most common major abnormalities present at birth. According to National of Health (NIH) Consensus Statement (1993), approximately one in every thousand children is born deaf. The prevalence of moderate to profound hearing loss including both sensorineural and conductive hearing loss is in the range one to three in every thousand newborns (Jennifer and Martin, 2002).

Hearing is important for speech and language development in babies. Hearing will provide early experience in brain development to encourage and ensure learning opportunities for all infants (Kuhl, William, Lacerda et al., 1992). Early identification of hearing loss enabled the intervention to take full advantage of the plasticity of the developing sensory system (Abdullah, Hazim, Sani et al., 2006). A study by Yoshigana-Itano (1995), showed that children that was identified earlier with hearing loss and received extensive intervention by the age of six months developed better speech and communication compared to those who were identified later.

Universal Newborn Hearing Screening (UNHS) is a method to detect hearing loss among newborns. The aim of this program is to prevent delays in detecting

hearing impairment among newborn (Weichbold and Mueller, 2001). UNHS has been proposed as a means to speed diagnosis and treatment and thereby improve language outcomes in these children (Thompson, McPhilips, Davis et al., 2001). National Institute of Health (NIH, 1993) recommended hearing screening of all infants within the first three months of life. NIH recommended UNHS because hearing screening for high risk infants only detects less than 50% of infants with hearing loss. Northen and Hayes (1994) confirmed that high risk screening infants will only identify less than 50% of infants with significant hearing loss. Early identification of hearing loss and early intervention services improved outcomes for children (Joint Committee of Infant Hearing [JCIH], 2000; Moeller, 2000; Yoshigana-Itano, 2003; Yoshigana-Itano, Coulter and Thomson, 2000; Yoshigana-Itano, Sedey, Coulter and Mehl, 1998). Hospital Universiti Sains Malaysia (HUSM) has started UNHS since 1st January 2003. Babies with hearing loss are detected and implemented with appropriate intervention as early as possible. Through this program, babies with hearing impairment are fitted with hearing aids by the age of 6 months and implanted with cochlea implants by the age of 2 years old.

Various protocols or technology used in the Universal Newborn Hearing Screening (UNHS) can influence the results. According to Kerschner (2004), Otoacoustic Emissions (OAE) is generally being use in UNHS because it is more reliable, quick and inexpensive compared to Automatic Auditory Brainstem Response (AABR). Beside, OAE is adopted from most UNHS program because it is simple, ease to perform even by technicians and paramedical staff, inexpensive and fast (Kemp and Ryan, 1993). Every protocol had been chose depending on their specificity and sensitivity (Stein, 1999). OAE has been reported to have a

high false-positive rate. The rate is about 15% at the first screen on day one and then reduces by about 50% with each retest (Joseph, 2003).

A false-positive test result is a problem that needs to be looked into seriously. A false-positive test result has adverse effect including misdiagnosis, parental misunderstanding and anxiety, and unfavorable labeling (Thompson, McPhilips, Davis et al., 2001). According to Tharpe and Clayton (1997), false-positive test result is potential to cause emotional stresses to infant and parents. High referral rates of hearing screening will not only increased the stress on audiologic services but may also cause physiological stress on families (Jennifer and Martyn, 2002). Therefore, false-positive screening will result in unnecessary parental anxiety with a negative effect on the parent-child relationship.

1.2 Problem Statement

False positive test results will cause anxiety among parents especially mothers. A study by Clemens and Davis (2000) showed that a rate of false positive test result in the first UNHS at the Women's and Hospital of Greensboro is 1.9% and aroused long lasting maternal anxieties. More than 80% of the mothers reported that they worried about the positive test results during first stage test only and a few mothers exhibited long-lasting anxieties (Clemens et al., 2000).

Having child with disability gives impact to parent's emotion. For parents, positive test results in first screening is related to the possibility of hearing impairment even though the child is eventually determined to have normal hearing.

Parents predict that positive test result in a single screening test as a strong chance their baby to have hearing impairment (Weichbold et al., 2001).

Maternal anxiety, in addition, can affect family support. According to Stuart, Moretz and Yang (2000), informing the mothers that their child has hearing impairment may change their behavior toward their child, hindering the child's opportunities to develop a normal relationship with his or her parents. Moeller (2000) concluded that children will benefit most from early identification that is paired with comprehensive interventions that actively involved families. Family involvement was found to be a significant contributor to child outcomes. Therefore, the current study aims to investigate the state of maternal anxiety during universal newborn hearing screening (UNHS).

1.3 Important of the Study

The present study was conducted to investigate the maternal anxiety during the UNHS program. Mothers became more anxious if the test results were positive. The anxiety increased if their babies have to undergo many screenings. Currently, there is no study related with this perspective in Malaysia and at the same time there is no conclusive results regarding the anxiety during UNHS is due to the use of non-standardize questionnaire. In brief, maternal anxiety due to screening test result will affect the parent-child relationship and leading to weak family support during habilitation program.

The present study can be used as a reference for future study. The results from this study can be used to evaluate the level of maternal anxiety during UNHS program and further action can be taken to solve and reduce this problem. Beside that, the current study results can also be used to evaluate and improve UNHS program at Hospital Universiti Sains Malaysia specificially, and also in Malaysia generally.

1.4 Definition

1.4.1 Universal Newborn Hearing Screening

Screening is defined as preliminary acquisition of information for early detection of a condition (Khairi, 2001). According to Colorado Infant Hearing Advisory Committee (2002), Universal Newborn Hearing Screening (UNHS) is a program to support early identification and timely and is an appropriate intervention for hearing loss. UNHS is aimed to detect hearing loss earlier and prevent babies with congenital hearing loss (National Institute of Health, 1993). Early detection and identification of hearing loss can help speech and language development of child. Yoshigana-Itano (1999) reported that early identification of children with both normal development and low cognitive ability had significantly higher language development quotients than the later identified children.

UNHS is a program or procedure to identify earlier infants with congenital hearing loss earlier. In 1993, National Institute of Health recommended hearing screening for all infants within the first 3 months of life to substitute common practice for screening only for the newborn who were at risk for hearing loss.

Hearing screening for high risk infants only identified less than 50% of children with hearing loss and missing some 50% (Thompson and Mehl, 1998).

Furthermore, UNHS is one component of the Early Hearing Detection and Intervention (EHDI) program. According to Joint Committee and Infant Hearing (JCIH, 2000), EHDI consists of three components. There are universal newborn hearing screening by age 1 month, early diagnosis of hearing loss by age three months and access to appropriate early intervention services for children with confirmed hearing loss by age six months.

According to Crocket et al. (2005), newborn hearing screening program was started at England in January 2002. It substituted the old program that was called Health Visitor Distraction Test (HVDT). The reason for launching newborn hearing screening was due to limitation of HVDT. HVDT sensitivity rate varied between 36% to 88% and specificity rates was 97% compared to newborn hearing screening 80% to 100% sensitivity and 99% specificity.

As reported by Crocket et al. (2005), newborn hearing screening program in England comprises of three stages. First stage of screen is by using Otoacoustic Emission (OAE) test. If the clear response is not received either in one ear or both ears, the process is proceed to the second stage, which is repeated OAE test. The test will be proceeded to the third stage if the responses is still unclear. The screening is conducted using Automated Auditory Brainstem Response (AABR). If the result received is still unclear responses, referral for diagnostic testing for possible hearing loss is made.

Newborn hearing screening program at Hospital Universiti Sains Malaysia (HUSM) comprises of three stages. Firstly, all newborn will be screen before discharge, using Distortion Product Otoacoustic Emission (DPOAE) test. If the failed test results are received either from one or both ears, appointment will be given in the six weeks time for the second stage testing. It is a repeat DPOAE test. The third stage will proceed if it is still fail. The third stage is a diagnostic testing for any possible hearing loss.

Otoacoustic Emission (OAE) is commonly used in UNHS compared to Automated Auditory Brainstem Response (AABR). OAE method is faster, inexpensive, and noninvasive procedure than AABR (Khaleed, 2002). However by using AABR, the rate of false positive results can be minimized. The Rhode Island Hearing Assessment Program succeeds in reducing failure rate from 7% to 3% by using AABR than Transient Evoked Otoacoustic Emission (TEOAE) (Vohr et al., 2001).

1.4.2 Result Criteria in Screening

A decision matrix analysis model is typically 2 x 2 tables that is best known and frequently used to describe the results and evaluate the screening test results. The four components of the matrix table are true positive, false positive, true negative, and false negative as shown in Figure 1.

		Disorder	
		Present	Absent
Test result	Positive	True Positive	False Positive
	Negative	False Negative	True Negative

Figure 1: Matrix table (Source: Stein, 1999)

True positive is the number of hearing impaired persons correctly identified by the test. True negative is the number of persons with normal hearing who are correctly identified. False positive is the number of persons with normal hearing incorrectly labeled as hearing impairment. False negative is the number of persons truly impaired but incorrectly identified as normal.

A screening test choice would result in a high proportion of true positive rates and low proportion of false positive rates, because those with the disease would be identified, whereas healthy participants would pass the screen. The goal of any infant hearing screening is to correctly identify as many as possible infants with normal hearing loss and pass as many as possible infants with normal hearing (Stein, 1999).

Screening test results can be passed or failed. Passed screening test results mean both ears getting negative results while failed screening test results is

getting positive results either one ear or both ears. A positive test result in one ear also called as unilateral and positive test results in both ears was called bilateral.

1.4.3 Anxiety

Anxiety is a diffuse, vague, highly unpleasant feeling of fear and apprehension (Santrock, 2000). People with high levels of anxiety worry a lot, but their anxiety does not necessarily impair their ability to function in the world. According to National Institute of Mental Health (NIMH, 2001), approximately 19.1 million American Adults from 18 to 54 years of age, or about 13.3 percent of people in this age group, were diagnosed with an anxiety disorder. Any mental disorder that is characterized by anxiety is classified as an anxiety disorder (Donaldson, 2008). Anxiety disorders and depression are the most frequent emotional disorder in adult population and women are affected frequently than men (Wittchen et al., 1992).

According to Hewison et al. (2006), anxiety is a normal emotional state experienced when something an individual values is threatened. Common anxiety was induced when someone believed their performance will be evaluated and in situations concerning a person's health and well-being. Health-related anxiety ranges from relatively brief, minor episodes associated with a particular procedure, through persistent generalized concern or sensitivity to one's physical health (Lucock and Morley, 1996) to extremes of anxiety that are recognized as mental disorders (Hewison et al., 2006).

Furthermore, contemporary psychological thinking recognizes that anxiety comprises of several components which are cognitively, physical symptoms and behavioral (Rachman, 1990). According to Rachman (1990), cognitively is an experienced of feeling apprehension. Accompanying this is a mixture of mental restlessness and agitation and recurrent thoughts about the source. Efforts to suppress the thoughts are usually only partially successful and suppressed thoughts keep intruding into conscious experienced. Physical symptoms are associated with arousal of the autonomic nervous system experienced as heightened physical tension. Behavioral consequences include difficulty in maintaining an ongoing task.

Anxiety was aroused when a person perceived that a valued goal is threatened and the magnitude is proportional to the importance of the goal (Paterson and Neufeld, 1987). Based on previous research done by Marteau et al. (1992), it is clear that anxiety was associated with the perceived risk of having an abnormal baby that is the degree to which their goal of having a healthy baby was threatened.

1.5 Objective of the Study

The aims of this study are:

1.5.1 General

To study the anxiety among mothers with positive test results during Universal Newborn Hearing Screening Program at Hospital Universiti Sains Malaysia (HUSM).

1.5.2 Specific

1. To determine the level of maternal anxiety among the positive test results in first hearing screening.
2. To determine the level of maternal anxiety before undergo second hearing screening.
3. To determine the significance difference in the level of maternal anxiety between first hearing screening and before undergo for second hearing screening.
4. To determine the significance difference in the level of maternal anxiety between failed first screening and passed second screening.
5. To determine the prevalence of failure rate after second screening.

1.6 Research Questions of the study

The research questions of this study are:

1. What is the level of maternal anxiety among positive test result in the first screening?
2. What is the level of maternal anxiety before undergo second screening?
3. Is there any significance difference in the level of maternal anxiety between first hearing screenings and before undergo for second hearing screening?
4. Is there any significance difference in the level of maternal anxiety between failed first screenings and passed second screening?
5. What is the prevalence of failure rate after second screening?

1.7 Hypotheses of the study

Two hypotheses have been developed for this study.

Hypothesis 1:

- Ho: There is no significance difference in the level of maternal anxiety between first hearing screening and before undergo second hearing screening.
- Ha: There is significance difference in the level of maternal anxiety between first hearing screening and before undergo second hearing screening.

Hypothesis 2:

- Ho: There is no significance difference in the level of maternal anxiety between failed first screening and passed second screening.
- Ha: There is a significance difference in the level of maternal anxiety between failed first screening and passed second screening.

CHAPTER 2
LITERATURE REVIEW

CHAPTER 2

LITERATURE REVIEW

False positive screening test result can be identified as a factor to trigger anxiety among mother. Clemens and his colleagues (2000) conducted retrospective study at Women's Hospital of Greensboro among mothers of infants who had failed first hearing screening and completed an outpatient re-screen. The findings by Clemens et al. (2000) showed that more than 80% of mothers reported that they worried about their child's hearing before undergone re-screen. After completed re-screened, 86% of mothers reported no anxiety, 12% mild anxiety and 2% much anxiety. During waiting period of re-screen, 91% of mothers claimed that neither they nor any other family member treated their child differently and 9% of mothers reported they become alert to their child's responded toward sound. As suggested by Clemens et al. (2000), implemented Automated Auditory Brainstem Response (AABR) test during UNHS can be reduced the false positive rate. False positive rate in UNHS by using AABR is 1.9% compared to use Otoacoustic Emission (OAE) test is 3% to 8% (Clemens et al., 2000; Mehl and Thompson, 1998).

A retrospective case and control study done by Poulakis, Baker and Wake (2003) assessed the impact of false positive results to parent in the Victorian Infant Hearing Screening Program (VIHSP). Control group which consisted of infant At Risk (AR) that passed the hearing screening and baby passed twice in the Distraction Test (DT) hearing screening were compare with cases group which

consisted of AR infants that failed first screening but further assessment indicated normal hearing and babies failed DT hearing screening twice but further assessment indicated normal hearing. Questionnaire was mailed to the subject twice: after getting positive test results and after re-screen and the test results were negative. The results showed that cases group developed more emotional effect compared to control group. As reported by Poulakis et al. (2003), 71% AR and 72% DT of case parents were anxious after getting positive test results and falling to 4% and 15% before re-screen. After the re-screen, 82% AR and 79% DT reported relief but 19% and 18% continued to feel anxious. Parents become worries if their child was suspected to have hearing loss. It is because they are believed that hearing loss will affect their child's language, schooling and employment opportunities.

Furthermore, Crockett et al. (2006) investigated the anxiety level upon mother of receiving a referral for diagnostic testing following newborn hearing screening by using Speilberger State-Trait Anxiety Inventory (STAI). The result showed that the level of anxiety was in the normal range but it increased as testing increased. As reported by Crocket et al. (2006), understanding the meaning of being recalled following screening may avoid some of the anxiety during newborn hearing screening. In addition, Crocket et al. (2006) investigated the interaction between anxiety and understanding about hearing screening test results findings. As reported by Crocket et al. (2006), the result also showed that there were significant interaction between anxiety and understanding about that receipt of no clear responses does not mean to have hearing loss. Babies who admitted to

Special Care Baby Unit were excluded from this study because there was a likelihood of raised anxiety levels of mothers of these babies.

Previous study by Crockett et al. (2005) found that there was no significant different of the anxiety level between newborn hearing screening test and Health Visitor Distraction Test (HVDT). Anxiety increased as testing increased but the level of anxiety did not have significant different with the different type of hearing test used. As reported in the study, the mothers were satisfied with the screening program regardless of the result received (Crocket et al., 2005).

Vohr, Lectourneau and McDermott (2001), investigated maternal worry at the time of an initial neonatal hearing screening and re-screen at well baby nursery of Women and Infants Hospital on year 1997 and 1999. The result showed the degree of maternal worry was greater at the re-screen compared to the screen. In addition, between the year 1997 and 1999, the knowledge about hearing among mother was increased but the degree of maternal worry remained unchanged (Vohr et al., 2001). As reported by Vohr et al. (2001), mothers who reported greater worry were more likely to have socioeconomically disadvantaged. As suggested by Vohr et al. (2001), minimizing false positive rates and educating mothers about hearing screening can reduces unnecessary worry.

A case control study done by Ploeg et al. (2008) investigated whether false positive result on neonatal hearing screening cause long lasting parental concerns. Parents were asked to answer the questionnaire six months after the UNHS. Control group consisted of parent whose children passed first screening and cases

group consisted of parent whose children failed first screening but afterwards proved not to have hearing impairments. The result showed that false positive test result did not affect long-lasting parental anxiety. As reported by Ploeg et al. (2008) mothers became worried as the numbers of screen increased. In addition, results presented by Ploeg et al. (2008) showed that there was no significant different of parental anxiety between screen and re-screen parents measured by using State-Trait Anxiety Inventory. As suggested by Ploeg et al. (2008), STAI is sensitive to identify the seriousness of child's illness and parental anxiety but might not be sensitive enough to identify the raised level of anxiety due to false positive test result.

CHAPTER 3
RESEARCH METHODOLOGY

CHAPTER 3

METHODOLOGY

In this chapter there are description about the research design, population and sample, research instrument and the validation, data collection procedure, and the data analysis.

3.1 Research Design

The cross-sectional study was carried out to determine anxiety among mothers with positive test results in UNHS at Hospital Universiti Sains Malaysia (HUSM), Kelantan.

3.2 Population and Sample

3.2.1 Reference Population

The reference population of this study was mothers who delivered baby at HUSM.

3.2.2 Source Population

The source populations of this study were mothers who delivered baby at HUSM from 20th November 2008 to 20th January 2009.

3.2.3 Sampling Frame

3.2.3.1 Inclusion Criteria

Mothers delivered baby at HUSM and warded at 2 Topaz, 8 Selatan and 1 Timur were included in this study. Their babies' hearing test results were positive.

3.2.3.2 Exclusion Criteria

Babies presented with high-risk factors of having hearing impairment were excluded from this study. The criteria according to Joint Committee on Infant Hearing, Year 2000 are:

1. Family history of permanent childhood hearing loss
2. In utero infection, such as cytomegalovirus, herpes, toxoplasmosis, rubella or syphilis
3. An illness or condition requiring admission of more than or equal 48 hours to a neonatal intensive care unit.
4. Stigmata or other finding associated with a syndrome known to include a sensorineural or conductive hearing loss.
5. Craniofacial abnormalities including those that have morphologic abnormalities of the pinna and ear canal.
6. Postnatal infections associated with a sensorineural hearing loss, including bacterial meningitis.
7. Hyperbilirubinemia at a serum level requiring exchange transfusion.

8. Persistent pulmonary hypertension of the newborne associated with mechanical ventilation and conditions requiring the use of extracorporeal membrane oxygenation.
9. Posnatal asphyxia; Apgar score more or equal 5 at 1 minute, more or equal 6 at 5 minutes.
10. Birth weight less than 1.5 Kilogram.
11. Ototoxic medication.

3.2.4 Sample Size

Calculation was done using the single proportion formula. The prevalence reported is 10% -15% based from literature review (Ploeg et al. (2008)). After considering 20% drop out, the sample that should be used was 60. The power of study, β was 80% and the level of significant, α was 0.05.

$$N = \left(\frac{Z\alpha}{\Delta} \right)^2 (P)(1 - P)$$

N = the required sample size

P = expected prevalence of anxiety in UNHS = 15% = 0.15(Ploeg *et al.*, 2008)

(1-P) = 100% - 15% = 85% = 0.85

Level of confidence interval, CI = 95%, therefore Z α = 1.96

Δ = precision = 10%=0.10

Consider 20% drop out = 10 respondents

N = 60 respondents

3.2.5 Sampling Method

The subject was chosen by using simple random sampling.

3.3 Research Instrument

A set of questionnaire consist of two parts (Part A and B) was used in this study. A copy of the set of questionnaire is shown in Appendix B.

Part A

Part A of this questionnaire includes the background information of subject, baby, and family. The information consists of the demographic data, knowledge about hearing loss, medical history, and hearing screening test results. This information served as a record to the researcher in evaluation and interpretation of the results.

Part B

Anxiety among mothers was assessed using the Beck Anxiety Inventory (BAI). BAI was developed by Aaron Temkin Beck on 1988. A copy of BAI is shown in Appendix C. This questionnaire originally was written in English but was administered in Bahasa Malaysia. Translation was done to make sure is suitable for local usage. Back-translation procedure was used to achieve Bahasa Malaysia version of this instrument. Firstly, the questionnaire was translated into Bahasa Malaysia and then translated back into English. The BAI includes 21 items of

common symptoms of anxiety. The BAI used to measure the symptoms of anxiety experienced by subjects due to positive hearing test results of their baby. Each items were rated on a 4-point Likert scales with 0 = not at all, 1 = mildly, but it didn't bother me, 2 = moderately, it wasn't pleasant at time, and 3 = severely, it bothered me a lot. Higher score on the scale indicated that the subjects have higher level of anxiety. Examples of the item is *"terasa kebas"*

3.4 Research Procedure

Firstly, mothers whom their babies failed the first screening were asked to complete a set of questionnaire. Each instruction and choice of answers was described and clarification was given where necessary. Adequate time was allowed for subjects answer the questionnaire. Subjects were informed that all information regarding this research was confidential and can only be used as academic purpose. Another same a set of questionnaire was given to subject. Subjects were asked to complete the questionnaire before the second screening, 6 weeks after the first screening.

3.5 Data Analysis

The data was coded using the Statistical Package for Social Science, SPSS version 11.5. In the current study, statistical analysis was used is Wilcoxon signed Rank Test. The reliability of the questionnaire was determined by using the Cronbach's alpha method. The significant difference in the hypothesis was examined by using Wilcoxon Signed Rank Test. Wilcoxon Signed Rank Test is a

nonparametric test used when the data distribution is not normal and sample size of each group less than 30 subjects. Wilcoxon Signed Rank Test was used to evaluate differences between paired scores; either repeated or matched (Green, Salkind and Akey, 2000).

3.6 Ethical Approval

Ethical approval was obtained from Research and Ethics Committee, Universiti Sains Malaysia. Date of approval letter is 20th November 2008, and reference number: [206.4(2.2)]. A copy of ethical approval letter is shown in appendix D.

CHAPTER 4

RESULTS

CHAPTER 4

RESULTS

4.1 Questionnaire Reliability

The reliability of the Beck Anxiety Inventory (BAI) was determined by using the Cronbach's alpha method. The closer the Cronbach's alpha to 1, the higher the internal consistency. An acceptable alpha value is greater than 0.6 (Chua, 2006).

In the current study, the reliability of the questionnaire is considered to be acceptable at alpha value more than 0.6. Analysis of BAI has been done to 78 respondents of first screening. The reliability value was 0.9494 and is considered to be high.

To look the consistency reliability of BAI, analysis has been done again with 50 respondents that came for second screening. The reliability value was also high; which was 0.9618. As a conclusion, the reliability value of Beck Anxiety Inventory (BAI) is considered as acceptable to good.

4.2 Demographic Profile

78 respondents took part in this research. Only 50 respondents completed the task appropriately giving a response rate of 64%.