Determinants of caregivers' awareness of Universal Newborn Hearing Screening in Malaysia

Abdul Halim Abdul Majid a,*, Mohd Normani Zakaria b, Nor Azimah Chew Abdullah a, Sulaiman Hamzah c, Siti Zamratol-Mai Sarah Mukari d

a School of Business Management, UUM College of Business, Kedah, Malaysia
b School of Health Sciences, Health Campus, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia
c Department of Otorhinology, Hospital Raja Permaisuri Bainun, Ipoh, Perak, Malaysia
d I-HEARS – Institute of Ear, Hearing & Speech, Universiti Kebangsaan, Malaysia

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ABSTRACT
Objective: This paper aims to investigate the effects of perceived attitude and anxiety on awareness of UNHS among caregivers in Malaysia.

Methods: Using cross sectional research approach, data were collected and some 46 out of 87 questionnaires distributed to caregivers attending UNHS programs at selected public hospitals were usable for analysis (response rate of 52.8%). Partial Least Squares Method (PLS) algorithm and bootstrapping technique were employed to test the hypotheses of the study.

Results: R square value is 0.205, and it implies that exogenous latent variables explained 21% of the variance of the endogenous latent variable. This value indicates moderate and acceptable level of R-squared values. Findings from PLS structural model evaluation revealed that anxiety has no significant influence \( (\beta = 0.091, t = 0.753, p > 0.10) \) on caregivers' awareness; but perceived attitude has significant effect \( (\beta = 0.444, t = 3.434, p < 0.01) \) on caregivers' awareness.

Conclusion: Caregivers' awareness of UNHS is influenced by their perceived attitude while anxiety is not associated with caregivers' awareness. This implies that caregivers may not believe in early detection of hearing impairment in children, thinking that their babies are too young to be tested for hearing loss. Moreover, socio-economic situation of the caregivers may have contributed to their failure to honor UNHS screening appointments as some of them may need to work to earn a living while some may perceive it a waste of time honoring such appointments. Non-significant relationship between anxiety and caregivers' awareness may be due to religious beliefs of caregivers. Limitations and suggestions were discussed.

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1. Introduction

Although congenital hearing loss is highly prevalent, about half of them are preventable via primary prevention [1]. Early screening and identification of newborn hearing defect when a baby is delivered are specifically crucial to reducing future influence hearing loss on newborns development [2–6]. Thus, newborn's hearing loss should be identified shortly after the birth to ensure timely and appropriate interventions that would ward off or abate the effects of hearing loss on child speech and language development [4,7]. Also, well-timed discovery and intervention can mitigate the growing trends of hearing impairment [8,9]. Consequently, therapeutic measures can be introduced and instituted. The measures would aim to ensure avoidance of illness and enhanced quality of life for the newborns and their families. Universal Newborn Hearing Screening (UNHS) program has been initiated as a measure of early discovery and intervention.

UNHS is widely practiced across the globe, although its implementation varies depending on the financial and human resource availability. Literature has revealed the feasibility of UNHS and its efficacy in timely discovery of hearing impairment in children. Moreover, out of the 6.5 billion people in the world, about 5.3 billion live in developing countries. Population growth rates continue to rise in some countries in Asia, Africa and Latin America.
Two thirds of the newborns with severe to extreme hearing loss are in developing nations [10].

UNHS program in developing countries faces many challenges. These challenges border on low level of public awareness, limited funding, lack of manpower, insufficient support services, and the doubtfulness about the commitment of healthcare practitioners. These challenges have adversely affected UNHS exercises in the developing countries [11]. However, these challenges are not insolvable and pilot studies in each country should be done, as this will offer empirical data that will guide healthcare providers in initiating such kind of scheme at any level of healthcare delivery [11].

Besides, daily application of UNHS program enhances the awareness of caregivers regarding the problems of newborns hearing loss. It also radically abates the time prior to diagnosis of hearing loss in the newborn population. The findings of the two pilot studies, which were conducted at Hospital Alor Setar (Hospital Sultanah Bahiyah) in 2007 and Hospital Raja Perempuan Zainab II, Kota Bharu in 2009, indicate that shortage of awareness regarding the value and worth of UNHS program among the hospital employees and caregivers is one the major problems facing the program. Hence, this paper aims to examine the effects of perceive attitude and anxiety on caregivers’ awareness of UNHS in Malaysia (a selected developing country).

Moreover, in developing nations, there is no enough ear-care experts [12]. However, ear-care experts are numerous in the developed nations. There are as many as 320 otolaryngologists per million children under 15 in the developed nations while less than one otolaryngologist per million children is recognized in some regions of the developing nations. More so, the developing nations still lag behind as they have not had their shares in the advances and progresses recorded in the fields of audiology and audiological medicine in the last 20 years in the developed nations [13]. Majority of higher institutions of learning in the developing nations are devoid of official full-time training on audiology and speech pathology.

Geographical locality and socio-economic background of the caregivers exert influence on the accomplishment of the screening process from prompt detection to proper intervention. In some circumstances, lack of interest by the caregivers of impaired newborns can disrupt the continuation of screening process as some caregivers may disinterest if the newborns fail the preliminary screen [11].

Regarding attitudes, cultural and religious beliefs of the developing countries, it has been observed that, unlike the trends in the developed world are largely given attention to. Exceptional provision for the people with disabilities is rare in the public amenities. Thus, the social stigma linked to an impairment such as hearing impairment usually make these people seclude themselves from the society. Some parents, whenever feasible, are hesitant towards the adoption of hearing devices for their kids fearing that the devices are manifest for people to see. Culture, religion and the parental idealistic expectations also play a big role in the total rejection of clinically fitting intervention alternatives. Thus, this research attempts to investigate the effect of attitude and anxiety on caregivers’ awareness through the following hypotheses:

H1. There is a significant relationship between caregivers’ perceived attitudes and awareness of UNHS program.

H2. There is a significant relationship between caregivers’ anxiety and awareness of UNHS program.

The findings of this study will establish the worth of educating caregivers about the need, value and ease of hearing screening exercise, the implications of the results and the effect of undiagnosed hearing loss, and stakeholders could possibly benefit from the findings.

2. Methods

This study adopted cross sectional survey method in which data collection and analysis were done to test hypotheses. The respondents of the study are caregivers of the newborns in selected Malaysian public hospitals. Selection of public hospitals is informed by the fact that nearly all the caregivers attend public hospitals because it is free and government has invested hugely on UNHS program in the hospitals. In addition, public hospitals, being the major centers of UNHS program, were selected with the aim to offer suggestions and recommendations to the government regarding the aspects of UNHS program that need improvement.

In defining the population of this research, inclusion and exclusion criteria were employed. Caregivers with babies diagnosed with hearing impairment who attend the hospitals for
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