

Knowledge and attitude of nurses towards infant hearing impairment in North India

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Abstract

As research indicates that nurses are one of the core medical professionals who play a key role in the ICU as they can identify high risk babies who need audiological intervention, provided they should have adequate knowledge available in relation to different facts about pediatric hearing loss. To provide appropriate information to the nurses, audiologists should have basic layout regarding the status of the nurses in respect to the knowledge and attitude-related pediatric hearing loss and significant audiological management. The present research is being conducted to assess the knowledge and attitude of issues in pediatric hearing loss among nurses across various range of hospital set up in northern India. A questionnaire-based study (online survey) of 22 questions was designed and adopted from similar studies to assess the knowledge and attitude among nurses regarding hearing impairment among pediatric population. A total of 115 nurses from primary nursing care, corporate and government hospitals participated in the present study. The outcome of the present study revealed poor knowledge and attitude towards hearing impairment of infants among nurses across north India. Henceforth, there is an urgent need to educate these professionals as prevention is better than cure.

Keywords: Newborn hearing screening, Nurses, India.

Introduction

Hearing is one of the most important primary senses which help us to communicate smoothly with the hearing world. Unfortunately, the sense of hearing is often being kept neglected and people usually fail to realize its importance unless it is diminished or reduced gradually. According to WHO (2015) 6.3% of Indians are suffering from significant auditory loss.¹ According to a study being conducted by Varshney (2016), in India 4 in every 1000 children suffer from severe to profound hearing loss.² The impact of delayed diagnosis and proper intervention in infants with hearing loss has a severe negative effect on the overall speech and language, as well as the cognitive and social skills.^{3,4} However there are studies being conducted which states that these negative consequences can be reduced to some extent or prevented through early identification and intervention.^{5,6} Sharma et al., (2015) who aimed to determine the incidence of permanent hearing loss in neonates ranging from moderate to severe hearing loss in a tertiary care rural based hospital in Gujarat which revealed that the follow-up rate for infants was 72.7 %. They also found that there was lack of awareness and knowledge regarding the neonatal hearing screening program among the Non specialist staff resulting in poor satisfactory referral rate with two stage hearing screening protocol.⁷ There is a adverse need for educating nurses regarding the effectiveness of hearing screening programs and hearing impairment as there is a scarcity and dearth of knowledge with respect to identification of hearing loss, rehabilitation options, various communication strategies and learning needs for acquiring education.⁸

Henceforth, more initiatives should be taken to spread the awareness regarding the effectiveness of hearing screening among the medical professionals including nurses. A study being conducted on nursing in Australia suggested that a nurse can play significant role in five additional areas such as: a general practice environment, namely organiser, quality controller, problem solver, educator and agent of connectivity.⁹ The nurse also plays a key role in speciality sectors, such as those carried out within the neonatal intensive care unit (ICU).⁵ As the role of nurse is being diversified within the healthcare setting, the role of screening for disability within a neonatal or pediatric medical set-up could be promoted by the nurse.¹⁰ A similar kind of survey was conducted by Goedert & Moeller, (2011) to evaluate knowledge, attitudes, and practices of midwives related to newborn hearing screening and intervention across 5255 American nursing colleges. Results showed that midwives had lack of knowledge regarding various screening procedures, steps for referral, and also the availability of resources when an infant doesn't pass a test.¹¹ Hendershot et al., (2011) did a survey regarding the services and practices being delivered by the elementary and middle school nurses' concerning noise induced hearing loss screening and prevention. Results indicated that 48% of the nurses were not aware of many educational programs being addressed for screening NIHL in students. Thus, they concluded that School nurses need to become advocates and trained regarding the various hearing screening policies and educational programs in order to help reduce hearing loss.¹² A questionnaire based study was conducted by

Chapmann and Burchfield (2008) which showed that majority of the nurses they have inadequate training and knowledge regarding the healthcare assistance for hearing impaired individuals. Result also suggested that there is an extreme need to provide additional training with respect to hearing loss and care regarding hearing aids among nurses.¹³ Barbosa et al., (2013) had conducted a study to check the knowledge regarding hearing loss among pediatric nurses after initiation of various education actions for nurses. Results indicated that there was a significant change among the nurses after the educational actions in most of the variables such as the ideal age to detect and diagnose an infant with hearing loss provided with adequate intervention options.¹⁴

As research indicates that nurses are one of the core medical professionals who play a key role in the ICU as they can identify high risk babies who need audiological intervention, provided they should have adequate knowledge available in relation to different facts about pediatric hearing loss. To provide appropriate information to the nurses, audiologists should have basic layout regarding the status of the nurses in respect to the knowledge and attitude-related pediatric hearing loss and significant audiological management. The present research is being conducted to assess the knowledge and attitude of issues in pediatric hearing loss among nurses across various range of hospital set up in northern India. The aim of the study is to investigate knowledge and attitude regarding the pediatric hearing loss among nurses in northern India.

Method

A questionnaire-based study (online survey) of 22 questions was designed and adopted from similar studies to assess the knowledge and attitude among nurses regarding hearing impairment among pediatric population.^{[15],[11]} All the participants were selected randomly based on their encouragement to participate in the present study. All the participants were explained in detail about the purpose of the study. They were belonging from a good socioeconomic status and had minimum education up to graduation level (BSc. Nursing). Primarily, the mother tongue of all the participants was Hindi simultaneously had a good knowledge of English. There were a total of 22 questions related to knowledge regarding causes of hearing loss in an infant, need of hearing screening and attitude towards hearing impairment adopted from similar studies.^{11,12,16} The questions were closed set task with 3 point rating scale i.e. yes, no and not sure. All the participants were asked to select only one option at a time based upon the nature of the question. A total of 115 nurses from primary nursing care, corporate and government hospitals participated in the present study. The questions being asked to assess the knowledge of nurses towards hearing impairment includes 'can babies

born with hearing loss', 'can high fever cause hearing loss', 'can measles cause hearing loss', 'can ear discharge cause hearing loss', 'can convulsion cause hearing loss', 'can some type of drug/medication cause hearing loss', 'can jaundice cause hearing loss', 'can prolonged noise cause hearing loss', 'can delayed crying at birth cause hearing loss', 'can consanguinity cause hearing loss'.

The questions asked to assess attitude of nurses towards hearing impairment in infants includes 'can hearing loss be identified soon after birth', 'is treatment of hearing loss available', 'can children with hearing loss able to attend normal school', 'would like baby hearing tested soon after birth', 'would let baby use hearing aids if she/he has hearing loss', 'do you consider early treatment of hearing loss will prevent further complications', 'can bewitchment cause hearing loss in infants', 'if you find child has problem of hearing, to which professional you will refer'. The data collected was analyzed using SPSS (version 17, IBM Corporation, Bengaluru, India), along with percentages of the study subjects, with respect to a particular response. The percentages and proportions of different categories of questionnaires were used to analyze the data.

Results and Discussion

The data was analyzed and percentage of responses was calculated. 64% of the nurses were aware about hearing impairment in infants, whereas, 36% of the nurses were not aware about hearing impairment in infants. 71% of the nurses were not aware of the fact that high fever can cause hearing loss. Similarly, 70% of the nurses were not aware regarding measles can cause hearing loss in infants. 43% of the nurses were unaware about ear discharge as one of the cause of hearing loss. Only 63% of the nurses were aware about ototoxic drugs. 85% of the nurses did not know the harmful consequences of hyperbilirubinemia on infant's hearing. Poor knowledge among nurses regarding hearing impairment in infants can be observed in the present study.

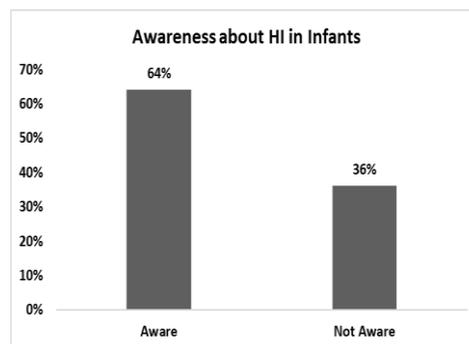


Fig. 1: Response on the question regarding awareness of hearing loss

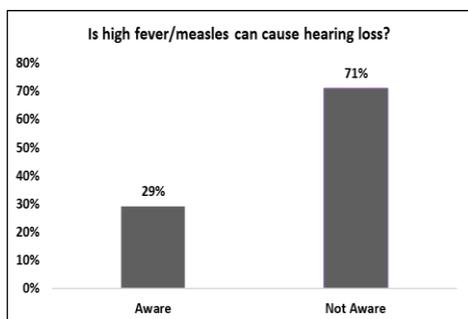


Fig. 2: Awareness regarding harmful effect of high fever/measles on infant’s hearing

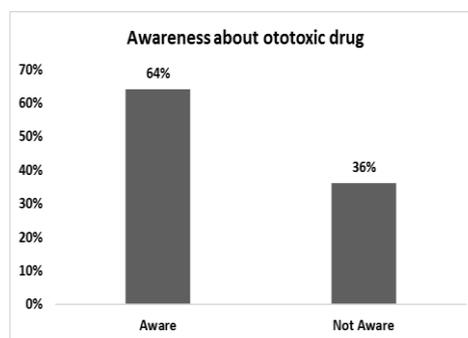


Fig. 6: Awareness regarding harmful effect of ototoxic drug on infant’s hearing

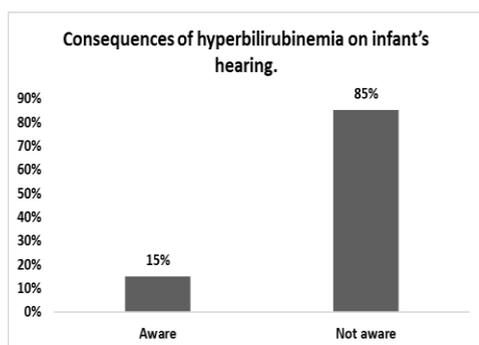


Fig. 3: Awareness regarding harmful effect of hyperbilirubinemia on infant’s hearing

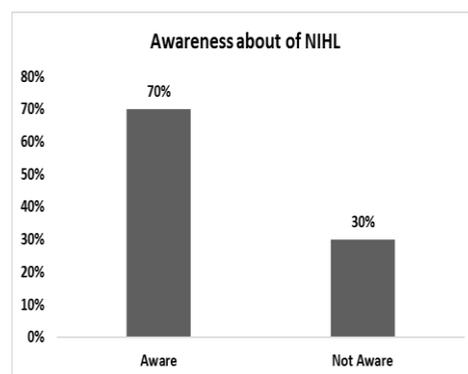


Fig. 7: Awareness regarding harmful effect of noise on hearing

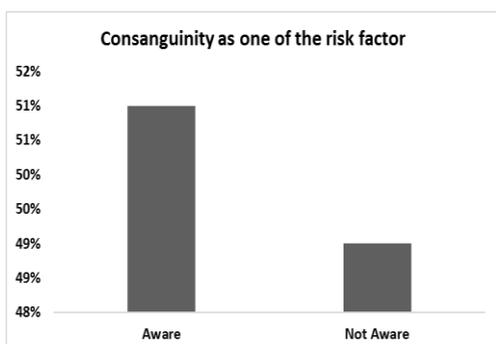


Fig. 4: Response of the question regarding consanguinity as one risk factor

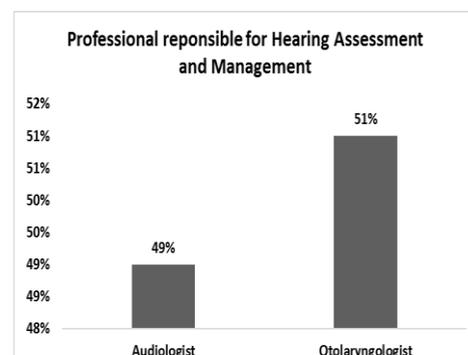


Fig. 8: Awareness regarding professional deals with hearing assessment and management

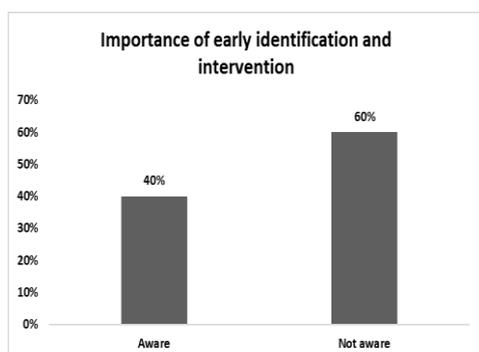


Fig. 5: Awareness regarding importance of early identification and intervention

For the questions related to attitude towards hearing impairment in infant, almost 40% of the nurse replied no for the question ‘do you think hearing loss can be identified soon after birth’. 88% of the nurses were unaware of the fact that children with hearing impairment can still hear and speak. 48% of the nurse responded that children with hearing impairment cannot attend regular school. 67% of the nurses knew the importance of hearing aid in management of children with hearing impairment. Almost half of the participants were unaware about positive consanguinity as one of the risk factor of hearing impairment in infants. For the question ‘do you think bewitchment can cause hearing impairment in infants’, 46% of the nurses

selected 'no' and 39% reported 'not sure'. The finding of the current study showed poor attitude among nurses toward hearing impairment of infant.

As per a cross-sectional descriptive study being conducted by Olusanya et al., (2007) to assess the attitude of health professionals including nurses and parents towards hearing loss in developing countries. The results showed that the attitudes of health professionals including nurses mostly gave positive response except in South Africa and Malaysia wherein some negligence was been noted.¹⁷ There are studies which also reflect that apart from infants nurses do have lack knowledge but have positive attitude towards elderly people with hearing loss.¹⁸ According to a recent systematic review study done by Ravi et al., (2017) wherein their aim was to review literature regarding Knowledge and attitude of various healthcare professionals toward, and/or experiences with NHS at various healthcare set-ups. Results revealed consistent gaps among the team members' knowledge regarding the need for outreach services and also professional education programs on NHS.¹⁹ Various other research studies reveal the attitudes of healthcare professionals wherein there are physicians who reported positive support for UNHS by mentioning that 81% screening newborns for SNHL as very important whereas 75.7% of participants mentioned that NHS is worth the cost, the remaining 24.3% were unsure or were not convinced with respect to the costs versus benefits of the program.¹⁸ There are studies which reflect negative attitude towards the implementation of Newborn hearing screening programs as the healthcare professionals questioned the reliability and cost-effectiveness of the program.^{18,20,21} Studies have also reported that New-born Hearing Screening have negative impact on parent-child bonding and results in parental anxiety.^{22,23} These findings are rather surprising and contradicting as new born hearing screening programs are well versed with the advantages of screening and its importance for early detection of hearing loss.

Conclusion

Current practices in newborn hearing screening and intervention programs can be upgraded and enhanced by improving the basic knowledge of the nurses and rationale for follow-up when an infant fail their respective hearing screening. Studies have mentioned that nurses play a vital role in bridging the gap between hearing, speech, and family interaction by persuading that each infant has the access to the best hearing screening and referrals. As, the outcome of the present study revealed poor knowledge and attitude towards hearing impairment of infants among nurses across north India. Henceforth, there is an urgent need to educate these professionals as prevention is better than cure.

References

1. World Health Organization. Deafness and Hearing Impairment – Fact Sheet; April, 2015.
2. Varshney S. Deafness in India. *Indian Journal of Otolaryngology* 2016; 22:73.
3. White KR, Forsman I, Eichwald J, Munoz K. The evolution of early hearing detection and intervention programs in the United States. In *Seminars in perinatology* 2010; 34:170-179.
4. Yoshinaga-Itano C. Early intervention after universal neonatal hearing screening: impact on outcomes. *Developmental Disabilities Research Reviews* 2003; 9:252-66.
5. Yoshinaga-Itano C. Levels of evidence: Universal newborn hearing screening (UNHS) and early hearing detection and intervention systems (EHDI). *Journal of Communication Disorders* 2004;37:451-465.
6. Kennedy C, McCann D, Campbell MJ, Kimm L, Thornton R. Universal newborn screening for permanent childhood hearing impairment: An 8-year follow-up of a controlled trial. *Lancet* 2005; 366:660-662.
7. Sharma Y, Mishra G, Bhatt SH, Nimbalkar S. Neonatal Hearing Screening Programme (NHSP): At A Rural Based Tertiary Care Centre. *Indian Journal of Otolaryngology and Head & Neck Surgery* 2015; 67:388-93.
8. Montano JJ .Knowledge and needs of nursing personnel regarding hearing impairment and hearing rehabilitation of long-term care patients. *Science Index* 1994: 6123-6123.
9. Phillips CB, Pearce C, Hall S, et al. Enhancing care, improving quality: the six roles of the general practice nurse. *Med J Aust* 2009; 191:92-97.
10. Young A, Carr G, Hunt R, et al. Informed choice and deaf children: underpinning concepts and enduring challenges. *J Deaf Stud Deaf Educ* 2006; 11:322-336.
11. M.H. Goedert, M.P. Moeller, K.R. White Midwives' Knowledge, attitudes and practices related to newborn hearing screening. *Midwifery Women's Health* 2011;56:147-153.
12. Hendershot C, Pakulski LA, Thompson A, Dowling J, Price JH. School Nurses' Role in Identifying and Referring Children at Risk of Noise-Induced Hearing Loss. *The Journal of School Nursing* 2011; 27:380-9.
13. Norwood-Chapman L, Burchfield SB. Nursing home personnel knowledge and attitudes about hearing loss and hearing aids. *Gerontology & Geriatrics Education* 2000; 20:37-47.
14. Barbosa CP, Aires JB, dos Santos Farias IY, Linhares FM, Griz SM. Newborn and infant hearing health education for nursing professionals. *Brazilian journal of otorhinolaryngology* 2013; 79:226-32.
15. R. Ravi, D.R. Gunjawate, K. Yerraguntla, L.E. Lewis, B. RajashekharA national survey of knowledge, attitude and practices among pediatricians towards newborn hearing screening in India. *Int. J. Pediatr. Otorhinolaryngol* 2017;95: 9-14.
16. Kogan, N. Attitudes toward old people: the development of a scale and examination of correlates. *Journal of Abnormal and Social Psychology* 1961; 62:44-54.
17. Olusanya BO, Chapchap MJ, Castillo S, Habib H, Mukari SZ, Martinez NV, Lin HC, McPherson B. Progress towards early detection services for infants with hearing loss in developing countries. *BMC health services research* 2007; 7:14.
18. M.P. Moeller, K.R. White, L. Shisler. Primary care physicians' knowledge, attitudes, and practices related to

- newborn hearing screening. *Pediatrics* 2006;18:1357-1370.
19. Ravi R, Gunjawate DR, Yerraguntla K, Rajashekhar B. Systematic review of knowledge of, attitudes towards, and practices for newborn hearing screening among healthcare professionals. *International Journal of Pediatric Otorhinolaryngology*. 2017.
 20. M.P. Moeller, L. Eiten, K. White, L. Shisler. Strategies for educating physicians about newborn hearing screening. *J. Acad. Rehabil. Audiol* 2006; 39:11-32.
 21. C. Dorros, E. Kurtzer-White, M. Ahlgren, P. Simon, B. Vohr Medical home for children with hearing loss: physician perspectives and practices. *Pediatrics* 2007;120:288-294.
 22. R. Crockett, A.J. Wright, K. Uus, J. Bamford, T.M. Marteau Maternal anxiety following newborn hearing screening the moderating role of knowledge *J. Med. Screen* 2006;13: 20-25.
 23. M.D.Khairi, K.N. Rafidah, A. Affizal, A.R. Normastura, M. Suzana, Z.M. Normani Anxiety of the mothers with referred baby during universal newborn hearing screening *Int. J. Pediatr. Otorhinolaryngol.* 2011;75: 513-517.