Knowledge, Attitude of Sikkim Primary School Teachers About Paediatric Hearing Loss

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Received: 7 January 2016 / Accepted: 28 January 2017 / Published online: 17 February 2017
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Abstract Our purpose of the study was to assess the knowledge and any gaps of early educators regarding hearing impairment, and to attempt to delineate the attitudes and perceptions of the educators regarding the outcomes of their students with hearing disabilities and their views on inclusive teaching, using a questionnaire based study. Only 71 respondents completed the questionnaire. The present questionnaire based study was conducted on 100 primary school teachers, undertaken on randomly selected schools from Gangtok, East Sikkim. Their knowledge and attitudes regarding hearing impairment in children in the areas of cause, diagnosis, investigations, treatment, prevention, special care and inclusion into mainstream schools were assessed. Our study showed that the knowledge of causes, investigation and treatment of hearing impairment [HI] among respondents/teachers was poor. The data was shown statistically significant

with $P < 0.001$. However, responses testing behavior and attitudes towards HI was encouraging. 52.9% respondents disagreed that HI was a social handicap and 88.2% felt that teachers need special training before a HI child is admitted to the school. The results were statistically significant with $P < 0.001$. The biggest obstacle found for inclusive education of HI children was a lack of proper training to teachers (40.8%) and attitude of other students (29.5%).

Keywords Paediatric hearing loss · Primary school teacher · Knowledge · Questionnaire

Abbreviations

BERA	Brainstem evoked response audiometry
BTE	Behind the ear
E.N.T.	Ear nose and throat
IEC	Information, education and communication
IQ	Intelligence quotient
ITC	In the canal
LKG	Lower kindergarten
OAE	Otoacoustic emissions
PTA	Pure tone audiometry
SLPs and As	Speech language pathologists and audiologists
UKG	Upper kindergarten

Electronic supplementary material The online version of this article (doi:[10.1007/s12070-017-1095-4](https://doi.org/10.1007/s12070-017-1095-4)) contains supplementary material, which is available to authorized users.

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Introduction

Hearing impairment [HI] in infants and children has been implicated in deficits of speech language acquisition, understanding and communication [1]. Recent figures suggest that in India, 63 million people (6.3%)

suffer from significant auditory loss [2]. An NSSO survey reports, currently there are 291 persons per one lakh population who are suffering from severe to profound HI (NSSO, 2001). Of these, a large percentage is children between the ages of 0 and 14 years [3]. Many guesstimate that the prevalence is of about three million deaf children, out of which one in ten deaf children go to school. Fifty percent of them drop out of school at 13 years of age [4].

There is a global health care dilemma, in that many with hearing loss cannot access the services they need. This results from multiple factors including the lack of hearing healthcare professionals, poor public and professional awareness, limited resources and geographical and natural barriers. These problems are not limited to developing countries or remote rural regions, but are also present in inner-city communities [5].

To improve this situation the Ministry of Health and Family Welfare, Government of India launched the National Programme for Prevention and Control of Deafness [NPPCD] in 2008. Sikkim was included in the second phase of NPPCD in 2008–2009. An integral component of the NPPCD is awareness generation through IEC (Information, Education and Communication) activities—for early identification of hearing impaired, especially children so that timely management of such cases is possible and to remove the stigma attached to deafness [3].

Inclusive education aims to enable all children to learn and participate effectively within mainstream school systems. It does not segregate children with different abilities or needs. However, negative attitudes and misconceptions have begun to be reflected in a researches conducted in some schools [6].

Thus, not only the knowledge and concepts of the primary educators but also their attitudes regarding HI, particularly amongst their students must be known if the programme has to be successful.

Aims and Objectives

1. To identify the knowledge and any gaps therein of primary school educators of Gangtok, Sikkim regarding hearing impairment.
2. To delineate the attitudes and perceptions of the educators regarding the outcomes of students with hearing disabilities,
3. To delineate the attitudes and perceptions of the educators regarding their views on inclusive teaching.

Materials and Methods

Study Design

Questionnaire based study.

The questionnaire was prevalidated on 10 primary school teachers not included in the final statistical analysis.

Setting

The study was conducted in the primary wing of 10 randomly selected schools of Gangtok on 10 randomly selected consenting teachers in each school.

Study Population

10 randomly selected consenting teachers of both sexes from the primary wing of 10 randomly selected schools of Gangtok.

Duration of Study

The study was conducted over a period of 10 weeks.

Data Collection Procedure

Ten primary schools was selected randomly from the list of schools provided by the education department using draw of lots. Ten similarly randomly selected consenting teachers of the primary wing of each of these schools were asked the questionnaire after explaining them the reasons for the study and ensuring strict confidentiality. Informed written consent was taken prior to data collection as per [Appendix 2 of supplementary material]. The questionnaire administered had 54 questions. Seven broad variables assessed were causes of hearing loss, clinical features, investigation, treatment and practices, prevention, special care and attitude towards inclusive education.

The 34 questions testing knowledge were loosely formulated on the basis of WHO material, as multiple choice questions where only one option was correct. Twelve questions on Attitudes regarding hearing impaired students and inclusive education were framed using the Likert scale all these questions had 5 possible responses to aid in statistical analysis. Two additional optional essay type questions will also be asked regarding obstacles faced by the teachers while teaching hearing impaired students and their experiences. Six initial questions were for collecting basic

demographic information about the respondents. No diagnostic or therapeutic procedure was performed.

The data was analysed using SPSS V21. The study would proceed as per the attached questionnaire (Appendix 1 of supplementary material).

Results

A data sample of 100 primary school teachers/respondents was studied and the final data of 71 individual teachers/respondents who completed the questionnaire, was analysed. The remaining 29 respondents who gave incomplete answers were excluded from the study. The data was analysed by using appropriate statistical tests like Chi square test and also the *P* value was calculated whenever possible.

The first six questions that were analysed, included demographics. The female respondents (84.5%) were more as compared to male (15.4%). The age of the respondents were analysed and the highest percentage (32.3%) of respondents was within the age group of 41–50 years followed by age group of >50 years (25.3%). These results express that the faculty of young teachers teaching primary schools is perhaps lacking in Sikkim. The qualification of respondents/teachers were evaluated and we found that the primary school teachers were not very qualified in Sikkim as the results showed that the highest number of primary school teachers (49.2%) were those with only standard tenth or twelfth pass certificate, that is secondary or senior secondary qualified followed by graduates (36.6%). The post graduate qualified respondents were only 2.8% and there was none doctorate qualified respondent. This suggested a lack of standardization in the norms for primary school teachers in Sikkim. Only 9.8% respondents were teaching HI student/s in their class, perhaps an indirect indicator of lack of inclusive education in their schools.

In the second phase of analysis the 46 questions were analysed under five different groups such as causes, diagnosis, investigation, treatment of HI and attitude related questions. The response rate of respondents towards particular groups were analysed as shown in tables and figures.

Causes of HI

This group includes questions from Q7–Q13. The results showed that there was a little knowledge of causes of HI among the respondents. The mean percentage was calculated and it showed that only 23% of respondents were able to mark correctly as compared to 46.4% respondents who were unable to mark correct answers. The data is statistically significant with *P* < 0.001 (Fig. 1).

*Group 1=Percentage of respondents/teachers marked correct answers to particular questions.

**Group 2=Percentage of respondents/teachers marked incorrect answers to particular questions

Fig. 1 Response of teachers towards the causes of HIP related questions

*Group 1=Percentage of respondents/teachers marked correct answers to particular questions.

**Group 2=Percentage of respondents/teachers marked incorrect answers to particular questions.

Fig. 2 Response of teachers towards the diagnosis of HIP related questions

Diagnosis of HI

Questions from Q14–Q23 were included in this group. The results of this group were contradictory to that of causes of HIP. 39.9% of respondents showed positive response that is marked correctly as compared to 31% who were unable to mark correct responses. This showed that the knowledge of diagnosis of HI among respondents was satisfactory. The data was statistically shown significant with *P* < 0.001 (Fig. 2).

Investigation and Treatment of HI

The questions from Q24–29 tested knowledge about HI and the questions from Q30–Q40 asked about treatment of HI.

*Group 1=Percentage of respondents/teachers marked correct answers to particular questions.

**Group 2=Percentage of respondents/teachers marked incorrect answers to particular questions.

Fig. 3 Response of teachers towards the investigation of HIP related questions

In both of the above groups the results were similar to the causes of HIP. In case of investigation group the data was analysed and it was shown that only 33% respondents were able to mark correct answers as compared to 64% of respondents which were unable to mark correct answers. Similarly in case of treatment of HIP related questions mean percentage was calculated and it was shown that only 37.3% respondents were competent to mark correct answers as compared to 62.5% which were not competent to mark correct answers. This results showed that the knowledge of investigation and treatment of HI among respondents/teachers were poor. The data was shown statistically significant with $P < 0.001$ (Figs. 3, 4).

Attitude of Respondents/Teachers Towards HI Children

Attitude related questions were assembled in a group including Q41 and from Q46–Q50. It was shown that the 59.9% respondents were positively agreed to proposed questions and only 28.6% disagreed. The questions were in favour of good behaviour and attitude towards the HIP children and we found that a large proportion of respondents were agreed. For example Q46 which asks that hearing loss is a social handicap and it was shown that 52.9% disagrees with this thought. Similarly in Q49, 88.2% respondents were agreed with the thought that teachers need special training before a HI child is admitted to the school. Also in Q48, it was highlighted and 66.1% disagreed that government is actively involved in looking after the interest of hearing impaired persons. The results were statistically significant with $P < 0.001$ (Table 1).

*Group 1=Percentage of respondents/teachers marked correct answers to particular questions.

**Group 2=Percentage of respondents/teachers marked incorrect answers to particular questions.

Fig. 4 Response of teachers towards the treatment of HIP related questions

The biggest obstacle to integrating a child with hearing impairment in mainstream school was Q53 of the questionnaire, where the respondents were asked their opinion.

The results showed that the teacher's felt the biggest obstacle to integrating a child with HI in a mainstream school was lack of proper training to teachers (40.8%) and Attitude of other students (29.5%).

Discussion

Hearing impairment is the most frequent sensory deficit in human populations, affecting more than 250 million people in the world. [7] The National Sample Survey (NSS) 58th round (2002) surveyed disability both in urban and rural households and found that hearing disability was the second most common cause of disability after locomotor disability [8].

According to the 2005 estimates of WHO, 278 million people have disabling hearing impairment. The prevalence of deafness in Southeast Asia ranges from 4.6 to 8.8%. In India, 63 million people (6.3%) suffer from significant auditory loss. Nationwide disability surveys have estimated hearing loss to be the second most common cause of disability [2].

India has over 3.6 million deaf children [9] and 25,000 children are born deaf every year in India. [10] There is around 6.0% incidence of hearing loss, out of which approximately 50% suffer from conductive hearing loss [11]. According to professional estimates only 1 in 10 is in school and an even fewer number of deaf children go to

Table 1 Attitude related questions and response rate among respondents/teachers

Attitude related questions and response rate among respondents/teachers										
Questions		Options						Chi square value	Df#	P value
		Agree*	%Age mean	Neither agree nor disagree		Disagree**	%Age mean			
Q41	No.	52	59.9	10	11.1	9	28.6	164.7	14	<0.0001
	%age	73.2				12				
Q46	No.	23		9		36				
	%age	33.8		13.2		52.9				
Q47	No.	31		7		30				
	%age	45.5		10.2		44.1				
Q48	No.	45		16		7				
	%age	66.1		23.5		10.2				
Q49	No.	60		3		5				
	%age	88.2		4.4		7.3				
Q50	No.	36		1		31				
	%age	52.9		1.4		45.5				

* Includes both agree and strongly agree respondents

** Includes both disagree and strongly disagree marked respondents

Degrees of Freedom

school [9]. Fifty per cent of deaf children in school drop out at the age of 13 [10].

Research has clearly demonstrated a link between the attitudes of regular education teachers and the success of inclusion of learners with special educational needs. A study aimed to investigate the attitudes of a group of junior primary school teachers from the Gauteng area towards the inclusion of hearing-impaired children into regular classes utilizing a questionnaire as the research tool indicated that the teachers surveyed were relatively positive in their attitudes towards inclusion. The findings from this research project highlighted the need for an adequate training and support system for teachers prior to the implementation of an inclusive educational policy, and the potential role of Speech Language Pathologists (SLPs) and Audiologists (As) in this regard. [12].

In the present study, the results showed that the knowledge of causes, investigation and treatment of HI among respondents/teachers were poor. The data was shown statistically significant with $P < 0.001$. Moreover, in Q49, 88.2% respondents were agreed with the thought that teachers need special training before a HI child is admitted to the school. Also in Q48, it was highlighted and 66.1% disagreed that government is actively involved in looking after the interest of hearing impaired persons. The results were statistically significant with $P < 0.001$.

This includes the Q53 of the questionnaire. The data was investigated and the results have shown that the biggest obstacle to integrate a child with HI in a mainstream school

is lack of proper training to teachers (40.8%) and Attitude of other students (29.5%).

In a study to systematically address the attitudes to hearing loss and deafness in less developed countries a standardized questionnaire to 357 teachers from as uniform a sample as possible within 20 countries in Africa, Latin America, and Asia and compared the results with those obtained from 107 teachers in Western Europe was applied. The questions tapped into their responses toward developing hearing loss themselves, hearing loss in children they encountered, and which group of children with disabilities they would prefer to teach. It was found that the geographical origins of the teachers influenced all measures except their view of the contribution that deaf children could make to society. This was influenced solely by the age of the responding teacher [13].

In our study, the age of the respondents were analysed and it was shown that the highest percentage (32.3%) of respondents fall within the age group of 41–50 followed by age group of >50 (25.3%). Moreover, attitude related questions were assembled in a group including Q41 and from Q46–Q50. It was shown that the 59.9% respondents were positively agreed to proposed questions and only 28.6% were disagreed. As the questions were in favour of good behaviour and attitude towards the HI children thus a large proportion of respondents were agreed. For example Q46 which quests that hearing loss is a social handicap and it was shown that 52.9% disagrees with this thought.

The NPPCD stresses at preventing avoidable hearing loss, early identification and treatment of ear problems, medically rehabilitating persons with deafness and preventing auditory impairments via outreach activities and public awareness through innovative and effective IEC strategies. Despite this 66.1% disagreed that government is actively involved in looking after the interest of hearing impaired persons, as seen in response of Q48, which was statistically significant with $P < 0.001$.

Currently available literature has no studies on the awareness and knowledge of primary school teachers regarding hearing impairment or their attitude towards inclusive education either in Sikkim or in India. In such a scenario, this study would provide valuable insights into an affliction that is expected to be fairly common in this part of the world.

Conclusion

The present study showed that the knowledge of causes, investigation and treatment of HIP among respondents/teachers were poor. There was a lack of norms found in the educational qualification of the primary school teachers, suggesting a need for standardization in primary school teaching in India. However, there was a positive attitude of teachers towards HI children. They had a favourable attitude towards inclusive teaching provided the Government of India undertook some special training towards this and if other students were also sensitized. Most felt that the Indian Government was not actively involved in looking after the interests of HI, suggesting a poor awareness of NPPCD, at least in Sikkim. If inclusive education has to be successful, these factors must be looked into.

Compliance with Ethical Standards

Conflict of interest The authors declare that there is no conflict of interests.

Ethical Approval This article does not contain any studies with animals performed by any of the authors. All procedures performed in this study involving human participant was in accordance with the

ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from the participants included in the study.

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