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Effect of training among Medical students about Awareness of Speech & Hearing Disorders : A post then pre comparison study

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ABSTRACT

Introduction: Although medical education prepares medicos' for the common issues in practice, medical college and residency curricula do not adequately teach the professional students about the speech and hearing disorder, unless the college has appointed an audiologist or speech pathologist who can train them. **Objective:** To evaluate the awareness of speech and hearing disorders by post and then pre test evaluation method. **Subjects:** 100 Medical students (medicos). **Material:** A questionnaire about five topics in speech and hearing disorders-normal development, tests used to assess, early identification, rehabilitation and general awareness containing 5 questions each with multiple choices were used. **Procedure:** Subjects were first given training/lecture in post test and instructed to tick one correct answers and later pre test was conducted where they had to tick one correct answer thinking what would have been their answers if training/lecture was not given. **Analysis:** The mean values of post and pre-test's answers for each of the groups and 2 sub groups (males and females) were calculated and converted into percentages and compared between different groups and category. **Results:** Results indicated that after the training medico's improved substantially in their knowledge or awareness about speech and hearing disorders from 64% to 92%, with relation to various topics with relation to the categories in the questionnaire about speech and hearing disorders- tests used to assess (60% to 96.6%), both the normal development and general awareness (70% to 96.6%), early identification (53.3% to 70%) and Rehabilitation of speech and hearing disorders (60% to 70%). The study showed a difference between post and pre test awareness regarding awareness of speech and hearing disorders. The results provided which aspects of the training may give more priorities in the future training **Conclusion:** Hence there is an improvement of awareness or knowledge after training; therefore, there is a need of educating medicos and other medical professional in the medical education curriculum.

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1. Introduction

Communication impairments affect- any segments of population. There is an acute lack of awareness about speech and hearing problems, which constitute 8% of all disabilities/disorders¹. Many association aims to assist those in the professional health fields addressing problems with speech and hearing disorders, however there is a lack of such association in Indian Medical Education². This also should prepare physicians for the common issues they will face in practice, medical college

curricula which do not adequately teach the professional students about the speech and hearing disorder, unless the college has appointed an audiologist or speech pathologist². Although there are many programs in Indian health and medical education department like National Program on prevention and control of deafness (NPPCD) aiming about training and creating awareness level to train the medical doctors, no such implementation carried out as there is lack of man power of speech and hearing professional and no data's available how much the doctors have awareness³. To evaluate these awareness in best way to use the retrospective post then pre designs rather than pre and post evaluation methods, because the retrospective post-then-pre design is a popular way to assess learners' self-reported changes in

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knowledge, awareness, skills, confidence, attitudes or behaviors. It takes less time, is less intrusive and, for self-reported change, avoids pretest sensitivity and response shift bias that result from pretest overestimation or underestimation. In the traditional pre-post design, learners answer questions before an educational program, engage in the lesson, activity or course, and then answer the same questions again after finishing the program. In the retrospective post-then-pre design, both before and after information is collected at the same time. After the educational program, learners are asked:

1. To rate their current knowledge, skill, attitude, behavior Now or after as a result of the program.

2. Then, to reflect back and rate that same knowledge, skill, attitude, behavior before participating in the program⁴.

A study sought to investigate the effects of response shift bias on outcomes using a self-report measure in a leadership development course, at the end of the course, significant differences were found between their self-report ratings using the pre and posttest and the post then pre test approach. The findings from this study together with other studies cited suggest that when employing self-report measures, the then/post approach provides a less conservative and more accurate means of assessing leadership skill development than would the traditional pretest/posttest approach⁵. Effects of a disability awareness and skills training workshop on senior medical students was assessed with self ratings and performance on a standardized patient case and concluded that the disability and rehabilitation issue are not well covered in most North American Medical School Curricula. When targeted educational intervention strategies were employed on these medical students, their knowledge, skills and attitudes towards patients with disabilities had a positive effect⁶. Early diagnosis and intervention of communicational disorders are directly influenced by the medical professional. When these medical professional was evaluated for the attitude and knowledge of hearing loss professional selected for a residency in audiology showed slightly better results than the others⁷. When a Health care study conducted focusing a groups of medical students, their medical education towards disabilities suggested a need for teaching future medical students after being trained and given lectures/workshops about the disabilities⁸. Communicating with deaf and hard of hearing people, a guide was prepared for medical education; educating medical students suggested that there is a need for improved communication between medical college to facilitate the spread of educational activities on this topic⁹. Teaching disability and rehabilitation to medical students, in a survey of UK medical schools determined that there is a need for improved communication between medical

2. Method

Objective: To evaluate the awareness of speech and hearing disorders in a group of medical students (medicos) by a post and then pre test study. ^{10,11,12,13}

Subjects: 100 medical students (medicos) who had clinical posting in the department of ENT were participated.

Material: A questionnaire of 5 categories with 5 questions in each of the category about speech and hearing disorders were prepared. Each question in the category carried 1 marks. The following are the different category contained in the questionnaire:
I. Normal Speech & Hearing development,

II. Tests used to assess Speech & Hearing disorders,

III. Early identification of Speech & Hearing disorders

IV. Rehabilitation for Speech & Hearing disorders.

V. General Speech & Hearing Disorders Awareness.

Procedure: Post and then pre test design were used.

a. Post test: First the medicos were given training/lecture about speech and hearing disorders with relation to the 5 categories in the questionnaire. They were asked to tick one correct answer out of four choices in a response sheet.

b. Pre test: after the post test or training/lecture, these medicos were asked to tick one correct answer in a similar way, thinking if training or lecturing was not given, what would have been their answers? The answers were recorded in a different response sheet.

Analyses:

Mean values of multiple choice questions with the post and pre tests responses given by medicos was calculated and converted into percentages. Post test & pre test results of medicos and the different categories were analyzed ^{10,11}

3. Results

Effects of the Medicos:

Results of percentage scores of the medico's post then pre test indicated that 28% improvement was seen after training. Post test result was improved from 64% to the 86%

The results are shown in the table I.

Table no I. Medico's post then pre test and over all Percentage scores

Subject	Overall Score (Post-test)	Overall Score (Pre-test)	Differences (%)
Medicos	1150 (92%)	810 (64%)	28

Effects of the Categories

Results of percentage scores of the each category's post and then pre test indicated that over all, category no. II had the high difference followed by III.

The results are shown in the table II.

Table no II. Category's post then pre test and over all Percentage scores

Category	Overall Score (Post-test)	Overall Score (Pre-test)	Differences (%)
I	470 (94%)	290 (58%)	36**
II	480 (96%)	250 (50%)	46*
III	435 (87%)	375 (75%)	12****
IV	435 (87%)	385 (77%)	10*****
V	480(96%)	300 (60%)	36***

*-indicates the ranks in the increasing order

Discussion

The result indicated in three ways. First, post then pre test results with the training or lecture, those medicos substantially improved. Second, the data of the results indicated that such a training or lecture supports the improvement of the knowledge or awareness of the medicos. Third, the results provided which aspects of the training may given more priorities in the future.

In this study we used post then pre test design because to avoid response shift . Response shift occurs when a subject uses a different way of understanding about a question between the pre and post periods. It can create a problem when assessing self-reported change. Subjects may not accurately assess their pre-program knowledge or behaviors. Then, at the end of the program, their new understanding of the program content may affect their response on the post self-assessment. They are actually responding based on two different way of reference. If we had to give a training or lecture program to those medicos in our study to evaluate the awareness of speech and hearing disorders. A pretest to each medicos of one question reads "Early identification of hearing loss is as early as" and the respondents are to answer on a four multiple choice answers (8-12 months, <1year, >1year, <2years, Any age). One respondent indicates he "Any age". After the training or lecture, he will realize early identification is by 8-12months more than he realized and that he actually does not know when it has to be identified. Thus, on the course posttest, he responds to the same question with "8-12months". It appears that the training had a negative effect on the awareness whereas the subject's way of reference on the pretest and posttest had changed. This difference is called response shift and can cause misleading or inaccurate results. Hence post then pre test was used 4,5.

Prior to the training Medicos in their pre test were aware about 64%, in the post test had a 92% from the pre test. This means because of training there is a good improvement found by 28%. This difference may be attributed to the fact that the respondents in this study were medicos in III year MBBS with ENT being one subject in their curriculum⁷. Regarding different category in the questionnaire, the result of post test evaluation, there was a good improvement in the category II (Tests to assess) because behavioral tests and electrophysiological aspects of testing like Auditory Brain

Stem Evoked Response (ABR) is quite familiar in the department of speech and hearing. Similar improvements have been observed in the category I & V (normal development and general awareness), however category III and IV (Early identification & rehabilitation) had a less improvement implying this has to be focused in the future training^{6,7}.

Summary & conclusion

The study evaluated the awareness of speech and hearing disorders in a group of medical students (medicos) and compared post and then pre test results.

Results indicated after training, medicos improved substantially in their knowledge or awareness about speech and hearing disorders from 64% to 92% with relation to various category of questionnaire about speech and hearing disorders- 'Tests used to assess' (58% to 94%), 'normal development' (58% to 94%) and 'general awareness' both (70% to 96%), 'early identification' (75% to 87%) and 'rehabilitation' (77% to 87%). The study showed a difference between post and pre test awareness regarding speech and hearing disorders. The higher the improvement observed was because of training and clinical postings in the department of speech and hearing. The results provided which aspects of the training may give more priorities in the future.

Hence there is an improvement of awareness or knowledge after training; therefore there is need of educating medicos in their medical education curriculum and implementing programs on prevention and control of speech and hearing disorders.

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