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DEVELOPMENT AND EVALUATION OF COUNSELING TOOLS FOR PREVENTING COMMUNICATION BARRIERS AMONG DIFFERENTLY ENABLED IN SPEAKING AND HEARING POPULATION

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ABSTRACT

This study aims to develop and evaluate the counseling tools for effective communication between differently enabled in speaking and hearing population and the healthcare professionals that helps to provide better healthcare facilities that includes appropriate diagnosis, treatment rationalization and patient counseling. The main objectives in this study were to identify the participants, barriers and the factors associated with poor communication among the specifies populations. This study certainly reveals that a healthcare professional can fulfill this communication gap and could provide better health care service. It is recommended that every health care team must have a skilled professional (pharmacist, nurse, etc.,) to overcome these barriers. This study initiated with development of tools like pictorial and graphical, predominantly the sign language (Indian sign language) is the significant tool to communicate with the participants. A total of 106 members (above 13 years) were included and the major participants were from Priyadarshini Deaf and Dumb Ashramam, Rajamahendravaram and it was carried out for a period of 6 months (Feb 2016 to July 2016). To implement the tools two instruments 1 and 2 were developed; each instrument consists of a set of questions from specific topics. Preliminary test was conducted with instrument-1 without skilled healthcare professional intervention and the post test was conducted with instrument-2 after the professional intervention using the tools. A feedback has been taken from the participants to assess the healthcare professional skills. The results have been analyzed by the Pearson Chi-square test.

KEYWORDS: differently enabled in speaking and hearing population – barriers - healthcare professional – tools - Indian sign language.

1. INTRODUCTION

In the world population about 5% or 360 million people has disabling hear loss, In this 328 million were adults and 32 million were children. The majority of people with disabling hearing loss live in low- and middle-income countries. Approximately one-third of people over 65 years of age are affected by disabling hearing loss there are about 70 million deaf people who use sign language as their first language or mother tongue. There are about 12.3 million people in India with moderate to complete hearing loss. Only four and a half million of these would not be able to succeed in a school for hearing but could obtain an education in a school for the deaf if available. These deaf would then be exposed to sign language and might become part of the Deaf community. The Indian Sign Language (ISL) is a language of broader communication in India. When a normal person approaches a health care professional, the health care professional encounters some barriers in dealing with them, if the person is differently enabled in speaking and hearing than it will be more difficult for a health care professional to deal with them and that may include.

1.1 Communications Barriers

Communication barrier is the un concentrated or neglected health care service problem in clinical setup, poor communication carries potential adverse clinical consequences and in case of people with differently enabled in speaking and hearing the consequences are more critical since communication barrier cause inadequate interaction between health care professional and these people and that inadequate interaction leads to treatment failure.

1.2 Attitudinal Barriers

Attitudinal barriers are attitudes that discriminate against people with disabilities. Thinking that people with disabilities are inferior. Assuming that a person who has speech impairment can't understand you.

1.3 Illiterates

The illiterates in this population may feel difficult or shy to communicate with the people.

1.4 Geriatric

Most of the population in this community are geriatric, but they are least concerned due to their old age.

1.5 Age

Children in this population are little different from the normal children and is difficult to handle and communicate with them.

1.6 Various Problems Associated With Hearing Disabled Population

Social and Emotional

Limited access to services and exclusion from communication can have a significant impact on everyday life, causing feelings of loneliness, isolation and frustration, particularly among older people with hearing loss. In India, this population are least concerned by their parents itself and so the level of social impact will be more.

Economic

In developing countries, children with hearing loss and deafness rarely receive any schooling that results in improper communication.

Community Discrimination

This category people may be discriminated due to their inabilities in the community that may lead to psychological depression.

Health

In the health care practice the communication between patient and health care professional is a very critical factor to be prevented. so, communication between patient pharmacist nurse and physician is important to improve patient outcome practically the normal human being cannot be able to communicate with the health care professional when they have any health issue , when we consider the population who are differently enabled in speaking and hearing may have health problems and may find difficult to express their feelings with health care professionals or family members, this is because there is no special concern about this population. Especially lack of awareness among health care professionals and due to these reason this population are not willing to visit the hospital.

Hearing Impairment Population in Health Care

Various problems encountered due to the communication barrier between health care professional and the people who are differently enable in hearing and speaking

- When a patient approaches a physician due to any complication, the patient will be able to express his symptoms and complaints, but the physician will not be able to understand the patient's condition and that may lead to mis diagnosis, mis interpretation of laboratory data and treatment that may result in very severe irrationality and may also leads to drug toxicity and sometimes fatal response.
- Health care professional cannot provide proper counseling to the patient due to communication barriers so it leads to medication non adherence and medication error and the health care professional will not be able to provide life style modification and if the patient is uneducated than he may not be willing to face the physician.
- In the above mentioned points the major barriers is the communication, In order to overcome those barriers, there is a need of skilled pharmacist. The skilled pharmacist will play a major role by counseling, educating and providing life style modification to the patient, thus results in creating awareness and confidence among this population.

2. Aim

This study aims to develop and evaluate a counselling educational tool and skilled pharmacist for effective communication among differently enabled in speaking and hearing.

2.1 Objectives

The study was carried out by following objectives

- Identifying the population.
- Finding barriers and factors associated with poor communication among hearing impairment population.
- Developing the tools (picture, video, communication tools).
- To counsel the patients.
- Evaluation of counseling (feedback).
- Evaluating the developed tools.

3 Methods of Collecting Data

3.1 Study Site

The study was conducted at, **Priyadarshini Deaf and Dumb Ashramam,** Rajamahendravaram.

3.2 Study Duration

The study was carried out for a period of 6 months from **Feb 2016 to July 2016.**

3.3 Study Criteria

The participants in the school were enrolled into the study by considering the following inclusion and exclusion criteria after taking consent from the guide/trainers of the participant in a suitably designed informed consent form.

3.4 Inclusion Criteria

1. All male and female students who are differently enabled in speaking and hearing
2. Above 13 years people.

3.5 Exclusion Criteria

1. Male and female who are speaking and hearing disabled people with psychiatric problems.
2. Speaking and hearing disabled people who are not willing to participate.

3.6 Analysis of Data

The data was analysed by applying Pearson chi-square test.

3.7 Study Procedure

Learning Sign Language and Development of Tools

In order to prevent the communication barrier between health care professionals and speaking and hearing disabled population, an attempt has been made to acquire and learn their sign language (ISL-INDIAN SIGN LANGUAGE and ASL-AMERICAN SIGN LANGUAGE). First we have tried to learn the sign language (ISL and ASL) by using internet sources and different individuals who can teach the sign language (ISL and ASL) with an attempt we are unable to communicate affectively to speaking and hearing disabled population. Finally we are able to learn ISL from professionals in Deaf enabled foundation (Hyderabad). We took an intensive training, provided with Institutional certificate (enclosed in Annexure).Then we developed the counselling tools with the help of our guide. The counselling tools includes pictorial representation, video tools, and the pharmacist him/her self. Using these tools we

made direct and indirect assessment, in which indirect assessment consists of two instruments which are Instrument-1 and Instrument-2 consisting of 5 questions each on the specific topics(diseases, infections and general health topics) like malaria, cancer, HIV, smoking and alcohol consumption. We did preliminary test on 10% of participants (speaking and hearing disabled people) out of 106 participants (speaking and hearing disabled people) in Priyadarshini School for deaf and dumb. Without any prior Intervention we requested them to answer Instrument-1 and after Intervention with the participants, we requested them to answer instrument-2. Indian sign language, American Sign Language, Pictorial representation and video tools were used in the Intervention to participants. Then we made direct assessment using Instrument-3, which consists of set of questions which assess our Sign language skills and need of our services by the participants.

Then we evaluated the Instrument-1 and Instrument-2 and the marks of both the instruments were compared with each other to know how affective the Intervention is

3.8 Socio Demographic Data

- Name
- Age
- Gender
- Education
- Nativity
- Intelligence quotient.

3.9 VARIABLES

3.9.1 Independent Variables

The independent variables for this study are the following

- Age.
- Gender.
- Nativity.
- Intelligence quotient.

3.9.2 Dependent Variables

The dependent variables for this study are the following

- Language skill ability of skilled pharmacist.

- Comfortability of participants.
- Quality of counseling aids.
- Usefulness to their society.
- Need of study in future.

3. RESULTS

3.1 In order to prevent communication barriers among differently enabled in speaking and hearing population, we have learned sign language in Hyderabad and we have evaluated our language skills at Priyadarshini orphanage school, Rajahmundry.

- The demographic data of the participants were represented in table -1
- Total number of participants (n) = 106
- Total percentage = 100 %

Table -1: Demographic Data of the Participants.

CATEGORY	SUB CATEGORY	NUMBER OF PARTICIPANTS	PERCENTAGE (%)
Gender	Male	68	64%
	Female	38	36%
Age	18 & below	82	77%
	> 18	24	23%
Nativity	Urban	62	58%
	Rural	44	42%
IQ	Excellent	13	12%
	Good	67	63%
	Average	20	19%
	Poor	6	6%

3.2 In order to evaluate the two kinds of tools (the skilled pharmacist and visual/counseling aids), we have developed three kinds of instruments. Instrument 1 and instrument 2 were utilized to evaluate indirect assessment of our tools. So the indirect assessment were done using pre and post method, as we planned pretest was conducted before skilled pharmacist intervention by distributing instrument 1, so the pre-test instrument carries the questions based on conventional pharmacist intervention, post test was evaluated using instrument 2 after skilled pharmacist intervention, the score obtained in pre/post test of the participants according to their demographic data were depicted in Table-2.

Table 3: Pre test * Post test Cross tabulation of direct assessment of quality of skilled pharmacist.

	Before					After				
Score categorization	**n**		**%**		**Pearson Ch-Square (p<0.01)**	**n**		**%**		**Pearson Ch-Square (p<0.05)**
	Male		Female		.681	Male		Female		.490
Excellent	0 (0%)		0 (0%)			32 (30%)		17(16%)		
Good	2 (2%)		1 (1%)			26 (34%)		12(11%)		
Average	34 (32%)		15 (14%)			10 (9%)		9(8%)		
Poor	32 (30%)		22 (21%)			0 (0%)		0 (0%)		
	18 &under		>18		.246	18 & under		>18		.122
Excellent	0 (0%)		0 (0%)			38 (36%)		11 (10%)		
Good	3 (0%)		0 (0%)			27 (26%)		11 (10%)		
Average	34 (32%)		15 (14%)			18 (17%)		1 (1%)		
Poor	46 (43%)		8 (8%)			0 (0%)		0 (0%)		
	Urban		Rural		.089	Urban		Rural		.041
Excellent	0 (0%)		0 (0%)			30 (28%)		19 (18%)		
Good	3 (3%)		0 (0%)			17 (16%)		21 (20%)		
Average	23 (22%)		26 (25%)			15 (14%)		4 (4%)		
Poor	36 (34%)		18 (27%)			0 (0%)		0 (0%)		
	Excellent	Good	Average	Poor	.539	Excellent	Good	Average	Poor	.001
Excellent	0 (0%)	0(0%)	8 (8%)	5 (5%)		8 (8%)	5 (5%)	0 (0%)	0 (0%)	
Good	0 (0%)	3(3%)	32 (30%)	32 (30%)		36 (34%)	24 (23%)	7 (7%)	0 (0%)	
Average	0 (0%)	0(0%)	8 (8%)	12 (11%)		5 (5%)	7 (7%)	8 (8%)	0 (0%)	
Poor	0 (0%)	0(0%)	1 (1%)	5 (5%)		0 (0%)	2 (2%)	4 (4%)	0 (0%)	

Table. 4: Chi-Square Test Results for Direct Assessment of Quality of Skilled Pharmacist.

		Post test				Total
			Good	Average	Excellent	
Pre test						
	Poor	0	13	12	17	42
	Average	4	2	14	16	36
	Good	6	0	6	11	23
	Excellent	2	0	0	3	5
Total		12	15	32	47	106

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	20.309[a]	8	.009
Likelihood Ratio	24.831	8	.002
Linear-by-Linear Association	14.783	1	.000
N of Valid Cases	106		

Pre test * Post test Cross tabulation

Count

Table 5: Paired Samples Test results of direct assessment.

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pre test - post test	-5.377	1.978	.192	-5.758	-4.996	-27.986	105	.000

P<0.01 considered statistically significant.

3.3 After indirectly assessing the quality of skilled pharmacist and visual/counseling aids, we have planned to evaluate using direct method using instrument 3, the instrument 3 questions are set for directly asking the quality of developed tool and so the question 1 of the instrument carries the Comfortability of the participants during the communication with skilled pharmacist. The results of the Comfortability of participants during communication were represented in Table-6.

Table No- 6: Comfortability Of Participants With Skilled Pharmacist During Communication.

		Yes	No	Pearson x^2 value (P<0.05)
Gender:	Male	55 (52%)	13 (12%)	.389
	Female	28 (26%)	10 (9%)	
Age	18 & below	63 (59%)	20 (19%)	.255
	>18	20 (19%)	3 (3%)	
Nativity	Urban	15 (14%)	12 (11%)	.487
	Rural	33 (31%)	11 (10%)	
IQ	Excellent	9 (8%)	4 (4%)	.737
	Good	52 (49%)	15 (14%)	
	Average	17 (16%)	13 (12%)	
	Poor	5 (5%)	1 (1%)	

3.4 The second question is about the rating of language skills of the skilled pharmacist by the participants, participants were asked to select any one of the predetermined criteria such as

excellent, good, average and fair. So, the participants provided the ratings of the skilled pharmacist language skills and the results were depicted in Table-7.

Table No-7: Rating the Language Skills of Skilled Pharmacists by the Participants.

Category	Sub category	Excellent	Good	Average	Fair	Pearson x^2 value (P<0.05)
Gender	Male	21 (20%)	31 (29%)	14 (13%)	3 (3%)	.165
	Female	7 (7%)	16 (15%)	13 (12%)	1 (1%)	
Age	18 & below	21 (20%)	38 (35%)	21 (20%)	3 (3%)	.616
	>18	9 (8%)	7 (7%)	6 (6%)	1 (1%)	
Nativity	Urban	18 (17%)	25 (24%)	18 (17%)	1 (1%)	.467
	Rural	11 (10%)	20 (20%)	10 (9%)	3 (3%)	
IQ	Excellent	4 (4%)	5 (5%)	3 (3%)	1 (1%)	.996
	Good	18 (17%)	29 (27%)	18 (17%)	1 (1%)	
	Average	5 (5%)	8 (8%)	6 (6%)	1 (1%)	
	Poor	2 (2%)	3 (3%)	1 (1%)	1 (1%)	

3.5 After evaluating the language abilities of the skilled pharmacist, the participants evaluated the quality of counseling/visual aids and the results were depicted in Table-8.

Table No-8: Rating the Quality Of Counseling Aids By The Participants.

Category	Sub category	Excellent	Good	Average	Fair	Pearson x^2 value (P<0.05)
Gender	Male	25 (24%)	27 (25%)	15 (14%)	1 (1%)	.809
	Female	11 (10%)	16 (15%)	10 (9%)	1 (1%)	
Age	18 & below	28 (26%)	34 (32%)	21 (20%)	1 (1%)	.236
	>18	10 (9%)	9 (8%)	2 (2%)	1 (1%)	
Nativity	Urban	24 (23%)	23 (22%)	14 (13%)	1 (1%)	.607
	Rural	13 (12%)	20 (19%)	10 (10%)	1 (1%)	
IQ	Excellent	5 (5%)	4 (4%)	3 (3%)	1 (1%)	.991
	Good	23 (22%)	28 (26%)	14 (13%)	1 (1%)	
	Average	6 (6%)	9 (8%)	5 (5%)	1 (1%)	
	Poor	1 (1%)	2 (2%)	2 (2%)	1 (1%)	

3.6 The last two questions of instrument 3 were fixed to assess the attitude and usefulness of this tool, the questions were asked directly to the participants about the usefulness of the

skilled pharmacist to their community (results were depicted in table-9) followed by the last question whether they will call in the future for service and results were depicted in table-10.

Table No-9: Participants Response about the Usefulness of Skilled Pharmacist for This Society.

Category	Sub category	Yes	No	Pearson x^2 value (P<0.05)
Gender	Male	62 (58%)	6 (6%)	.506
	Female	36 (34%)	2 (2%)	
Age	18 & below	79 (75%)	4 (4%)	.403
	>18	19 (18%)	4 (4%)	
Nativity	Urban	59 (56%)	3 (3%)	.210
	Rural	39 (37%)	5 (5%)	
IQ	Excellent	12 (11%)	1 (1%)	.771
	Good	63 (59%)	4 (4%)	
	Average	18 (17%)	2 (2%)	
	Poor	5 (5%)	(1%)	

Table No-10: Participants Response about the Need of Skilled Pharmacist Services In Future.

Category	Sub category	Yes	No	Pearson x^2 value (P<0.05)
Gender	Male	57 (54%)	10 (9%)	.826
	Female	34 (32%)	5 (5%)	
Age	18 & below	71 (67%)	12 (11%)	.863
	>18	20 (19%)	3 (3%)	
Nativity	Urban	53 (50%)	9 (8%)	.898
	Rural	38 (36%)	6 (6%)	
IQ	Excellent	11 (10%)	2 (2%)	.129
	Good	61 (58%)	6 (6%)	
	Average	15 (14%)	5 (5%)	
	Poor	5 (5%)	1 (1%)	

Table 11: Showing the Multivariate Regression Results of Association of Demographic Factors and the Comfortable Of Participants during Communication with Skilled Pharmacist.

Parameter Estimates									
Comfortable with pharmacist		**B**	**Std. Error**	**Wald**	**df**	**Sig.**	**Exp (B)**	**95% Confidence Interval for Exp(B)**	
								Lower Bound	**Upper Bound**
Yes	Intercept	2.108	1.326	2.528	1	.112			
	[Gender= male]	.411	.523	.617	1	.432	1.508	.541	4.200
	[Gender= female]	0[b]	.	.	0	.	.	.	.
	[Age=18 & below]	-.779	.696	1.252	1	.263	.459	.117	1.796
	[Age=>18]	0[b]	.	.	0	.	.	.	.
	[Nativity=Urban]	-.527	.520	1.029	1	.310	.590	.213	1.635
	[Nativity=rural]	0[b]	.	.	0	.	.	.	.
	[marks=Excellent]	-.653	1.269	.264	1	.607	.521	.043	6.266

	[marks=Good]	-.224	1.152	.038	1	.846	.799	.084	7.642
	[marks=Average]	.156	1.281	.015	1	.903	1.169	.095	14.403
	[marks=Poor]	0[b]	.	.	0	.	.	.	.

Table 12: Showing the Multivariate Regression Results of Association of Demographic Factors and the Language Ability Rating Of Skilled Pharmacist.

Parameter Estimates									
Language ability rating[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Excellent	Intercept	34.741	2202.696	.000	1	.987			
	[Gender= male]	-15.716	2202.695	.000	1	.994	1.495E-007	.000	.[b]
	[Gender= female]	0[c]	.	.	0	.	.	.	.
	[Age=18 & below]	-.759	1.290	.347	1	.556	.468	.037	5.865
	[Age=>18]	0[c]	.	.	0	.	.	.	.
	[Nativity=Urban]	-1.639	1.327	1.525	1	.217	.194	.014	2.617
	[Nativity=rural]	0[c]	.	.	0	.	.	.	.
	[marks=Excellent]	-16.508	2.074	63.321	1	.000	6.774E-008	1.162E-009	3.951E-006
	[marks=Good]	-15.552	1.890	67.695	1	.000	1.761E-007	4.332E-009	7.155E-006
	[marks=Average]	-16.444	1.405	136.960	1	.000	7.218E-008	4.596E-009	1.134E-006
	[marks=Poor]	0[c]	.	.	0	.	.	.	.
Good	Intercept	34.492	2202.696	.000	1	.988			
	[Gender= male]	-15.806	2202.695	.000	1	.994	1.367E-007	.000	.[b]
	[Gender= female]	0[c]	.	.	0	.	.	.	.
	[Age=18 & below]	.070	1.280	.003	1	.957	1.072	.087	13.164
	[Age=>18]	0[c]	.	.	0	.	.	.	.
	[Nativity=Urban]	-1.205	1.302	.857	1	.355	.300	.023	3.844
	[Nativity=rural]	0[c]	.	.	0	.	.	.	.
	[marks=Excellent]	-16.841	2.032	68.670	1	.000	4.854E-008	9.042E-010	2.606E-006
	[marks=Good]	-15.612	1.855	70.804	1	.000	1.659E-007	4.372E-009	6.298E-006
	[marks=Average]	-16.466	1.336	151.895	1	.000	7.061E-008	5.147E-009	9.685E-007
	[marks=Poor]	0[c]	.	.	0	.	.	.	.
Average	Intercept	34.607	2202.696	.000	1	.987			
	[Gender= male]	-16.631	2202.695	.000	1	.994	5.990E-008	.000	.[b]
	[Gender= female]	0[c]	.	.	0	.	.	.	.
	[Age=18 & below]	-.894	1.310	.466	1	.495	.409	.031	5.330
	[Age=>18]	0[c]	.	.	0	.	.	.	.
	[Nativity=Urban]	-1.504	1.342	1.257	1	.262	.222	.016	3.082
	[Nativity=rural]	0[c]	.	.	0	.	.	.	.
	[marks=Excellent]	-16.090	1.691	90.511	1	.000	1.029E-007	3.739E-009	2.830E-006
	[marks=Good]	-14.861	1.418	109.777	1	.000	3.514E-007	2.180E-008	5.665E-006
	[marks=Average]	-15.384	.000	.	1	.	2.085E-007	2.085E-007	2.085E-007
	[marks=Poor]	0[c]	.	.	0	.	.	.	.

Table 13: Showing the Multivariate regression results of association of demographic factors and the quality of counselling aids rating by the participants.

Parameter Estimates									
Language ability rating[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Excellent	Intercept	34.741	2202.696	.000	1	.987			
	[Gender= male]	-15.716	2202.695	.000	1	.994	1.495E-007	.000	.[b]
	[Gender= female]	0[c]	.	.	0	.	.	.	.
	[Age=18 & below]	-.759	1.290	.347	1	.556	.468	.037	5.865
	[Age=>18]	0[c]	.	.	0	.	.	.	.
	[Nativity=Urban]	-1.639	1.327	1.525	1	.217	.194	.014	2.617
	[Nativity=rural]	0[c]	.	.	0	.	.	.	.
	[marks=Excellent]	-16.508	2.074	63.321	1	.000	6.774E-008	1.162E-009	3.951E-006
	[marks=Good]	-15.552	1.890	67.695	1	.000	1.761E-007	4.332E-009	7.155E-006
	[marks=Average]	-16.444	1.405	136.960	1	.000	7.218E-008	4.596E-009	1.134E-006
	[marks=Poor]	0[c]	.	.	0	.	.	.	.
Good	Intercept	34.492	2202.696	.000	1	.988			
	[Gender= male]	-15.806	2202.695	.000	1	.994	1.367E-007	.000	.[b]
	[Gender= female]	0[c]	.	.	0	.	.	.	.
	[Age=18 & below]	.070	1.280	.003	1	.957	1.072	.087	13.164
	[Age=>18]	0[c]	.	.	0	.	.	.	.
	[Nativity=Urban]	-1.205	1.302	.857	1	.355	.300	.023	3.844
	[Nativity=rural]	0[c]	.	.	0	.	.	.	.
	[marks=Excellent]	-16.841	2.032	68.670	1	.000	4.854E-008	9.042E-010	2.606E-006
	[marks=Good]	-15.612	1.855	70.804	1	.000	1.659E-007	4.372E-009	6.298E-006
	[marks=Average]	-16.466	1.336	151.895	1	.000	7.061E-008	5.147E-009	9.685E-007
	[marks=Poor]	0[c]	.	.	0	.	.	.	.
Average	Intercept	34.607	2202.696	.000	1	.987			
	[Gender= male]	-16.631	2202.695	.000	1	.994	5.990E-008	.000	.[b]
	[Gender= female]	0[c]	.	.	0	.	.	.	.
	[Age=18 & below]	-.894	1.310	.466	1	.495	.409	.031	5.330
	[Age=>18]	0[c]	.	.	0	.	.	.	.
	[Nativity=Urban]	-1.504	1.342	1.257	1	.262	.222	.016	3.082

	[Nativity=rural]	0[c]	.	.	0	.	.	.	.
	[marks=Excellent]	-16.090	1.691	90.511	1	.000	1.029E-007	3.739E-009	2.830E-006
	[marks=Good]	-14.861	1.418	109.777	1	.000	3.514E-007	2.180E-008	5.665E-006
	[marks=Average]	-15.384	.000	.	1	.	2.085E-007	2.085E-007	2.085E-007
	[marks=Poor]	0[c]	.	.	0	.	.	.	.

Table 14. Showing the multivariate regression results of association of demographic factors and the usefulness of skilled pharmacist service.

Quality of counselling aids[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Excellent	Intercept	31.694	3685.395	.000	1	.993			
	[Gender= male]	-15.312	2357.731	.000	1	.995	2.240E-007	.000	.[b]
	[Gender= female]	0[c]	.	.	0	.	.	.	.
	[Age=18 & below]	16.755	1873.146	.000	1	.993	18900185.394	.000	.[b]
	[Age=>18]	0[c]	.	.	0	.	.	.	.
	[Nativity=Urban]	16.588	2159.535	.000	1	.994	16002945.535	.000	.[b]
	[Nativity=rural]	0[c]	.	.	0	.	.	.	.
	[marks=Excellent]	-.480	4677.220	.000	1	1.000	.619	.000	.[b]
	[marks=Good]	-16.268	2832.532	.000	1	.995	8.605E-008	.000	.[b]
	[marks=Average]	-.950	1.199	.628	1	.428	.387	.037	4.056
	[marks=Poor]	0[c]	.	.	0	.	.	.	.
Good	Intercept	31.575	3685.395	.000	1	.993			
	[Gender= male]	-15.732	2357.731	.000	1	.995	1.472E-007	.000	.[b]
	[Gender= female]	0[c]	.	.	0	.	.	.	.
	[Age=18 & below]	17.048	1873.146	.000	1	.993	25331256.269	.000	.[b]
	[Age=>18]	0[c]	.	.	0	.	.	.	.
	[Nativity=Urban]	17.300	2159.535	.000	1	.994	32591963.664	.000	.[b]
	[Nativity=rural]	0[c]	.	.	0	.	.	.	.
	[marks=Excellent]	-.826	4677.220	.000	1	1.000	.438	.000	.[b]
	[marks=Good]	-16.293	2832.532	.000	1	.995	8.395E-008	.000	.[b]
	[marks=Average]	-.512	1.153	.197	1	.657	.600	.063	5.745
	[marks=Poor]	0[c]	.	.	0	.	.	.	.
Average	Intercept	31.411	3685.395	.000	1	.993			
	[Gender= male]	-15.814	2357.731	.000	1	.995	1.356E-007	.000	.[b]
	[Gender= female]	0[c]	.	.	0	.	.	.	.
	[Age=18 & below]	17.350	1873.146	.000	1	.993	34269042.398	.000	.[b]
	[Age=>18]	0[c]	.	.	0	.	.	.	.
	[Nativity=Urban]	17.305	2159.535	.000	1	.994	32768427.492	.000	.[b]

	[Nativity=rural]	0[c]	.	.	0	.	.	.	.
	[marks=Excellent]	-.880	4677.220	.000	1	1.000	.415	.000	.[b]
	[marks=Good]	-17.019	2832.532	.000	1	.995	4.064E-008	.000	.[b]
	[marks=Average]	-1.138	.000	.	1	.	.320	.320	.320
	[marks=Poor]	0[c]	.	.	0	.	.	.	.

Table 15: Showing the Multivariate Regression Results of Association Of Demographic Factors And The Willingness Of Participants Calling The Skilled Pharmacist Service.

Parameter Estimates.

Helpful for you[a]		B	Std. Error	Wald	df	Sig.	Exp (B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Yes	Intercept	1.075	1.391	.597	1	.440			
	[Gender= male]	.084	.934	.008	1	.929	1.087	.174	6.787
	[Gender= female]	0[b]	.	.	0	.	.	.	.
	[Age=18 & below]	1.331	.800	2.769	1	.096	3.785	.789	18.150
	[Age=>18]	0[b]	.	.	0	.	.	.	.
	[Nativity=Urban]	-.930	.854	1.186	1	.276	.394	.074	2.105
	[Nativity=rural]	0[b]	.	.	0	.	.	.	.
	[marks=Excellent]	.803	1.560	.265	1	.607	2.232	.105	47.505
	[marks=Good]	1.365	1.270	1.156	1	.282	3.916	.325	47.162
	[marks=Average]	.402	1.372	.086	1	.769	1.495	.102	21.989
	[marks=Poor]	0[b]	.	.	0	.	.	.	.

Table 16: Depicts the Correlation analysis of the Pre Vs Post test of the Skilled Pharmacist intervention.

Parameter Estimates.

Call us for service[s]		B	Std. Error	Wald	df	Sig.	Exp (B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Yes	Intercept	1.644	1.327	1.535	1	.215			
	[Gender= male]	.081	.643	.016	1	.900	1.084	.307	3.821
	[Gender= female]	0[b]	.	.	0	.	.	.	.
	[Age=18 & below]	-.020	.744	.001	1	.979	.980	.228	4.212
	[Age=>18]	0[b]	.	.	0	.	.	.	.
	[Nativity=Urban]	-.217	.630	.119	1	.731	.805	.234	2.767
	[Nativity=rural]	0[b]	.	.	0	.	.	.	.
	[marks=Excellent]	.115	1.346	.007	1	.932	1.122	.080	15.684
	[marks=Good]	.748	1.184	.400	1	.527	2.114	.208	21.521
	[marks=Average]	-.784	1.209	.421	1	.516	.456	.043	4.880
	[marks=Poor]	0[b]	.	.	0	.	.	.	.

Correlations			
		pre test	**post test**
pre test	Pearson Correlation	1	.375**
	Sig. (2-tailed)		.000
	N	106	106
post test	Pearson Correlation	.375**	1
	Sig. (2-tailed)	.000	
	N	106	106
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 17: Shows the Correlation analysis of Language ability of skilled Pharmacist Vs Comfortability of the participants.

Correlations			
		Launguage ability rating	**Comfortable with pharmacist**
Launguage ability rating	Pearson Correlation	1	.262**
	Sig. (2-tailed)		.007
	N	106	106
Comfortable with pharmacist	Pearson Correlation	.262**	1
	Sig. (2-tailed)	.007	
	N	106	106
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 18: Shows The Correlation Analysis Of Quality Of Counseling Aids Vs Comfortability Of The Participants.

Correlations			
		Quality of couseling aids	**Comfortable with pharmacist**
Quality of couseling aids	Pearson Correlation	1	.122
	Sig. (2-tailed)		.214
	N	106	106
Comfortable with pharmacist	Pearson Correlation	.122	1
	Sig. (2-tailed)	.214	
	N	106	106

Table 19: Shows The Correlation Analysis Of The Language Ability Of Skilled Pharmacist Vs Usefulness For The Participants.

Correlations			
		Launguage ability rating	**Helpful for you**
Launguage ability rating	Pearson Correlation	1	.107
	Sig. (2-tailed)		.276
	N	106	106
Helpful for you	Pearson Correlation	.107	1
	Sig. (2-tailed)	.276	
	N	106	106

Table 20: Correlation Between The Language Ability Of The Skilled Pharmacist Vs Willingness To Call For The Skilled Pharmacist Services.

Correlations			
		Launguage ability rating	**Call us for service**
Launguage ability rating	Pearson Correlation	1	.098
	Sig. (2-tailed)		.315
	N	106	106
Call us for service	Pearson Correlation	.098	1
	Sig. (2-tailed)	.315	
	N	106	106

Table 21: Correlation Between The Comfortability Of Participants During Communication With The Skilled Pharmacist Vs Willingness To Call For The Skilled Pharmacist Services.

Correlations			
		Comfortable with pharmacist	**Call us for service**
Comfortable with pharmacist	Pearson Correlation	1	.115
	Sig. (2-tailed)		.242
	N	106	106
Call us for service	Pearson Correlation	.115	1
	Sig. (2-tailed)	.242	
	N	106	106

4.0 DISCUSSION

No appropriate studies were done on communication barriers/counselling of patients who are differently enabled in speaking and hearing till date. Since these people accounts for 5% of the total population around the world and about 12.3 million in India, so there is a need to focus on these people too when providing health care services. In a health care system to communicate with these people there is a need of a trained person Ex; skilled pharmacist/nurse, etc. who are able to communicate with them in their own sign language. Before conducting this study on them, we have got trained in sign language and conducted this study in a school for deaf and dumb by considering 106 participants who are differently enabled in speaking and hearing. We have selected the school children as a participant since finding differently enabled in speaking and hearing population in the society/community is difficult.

We have done an indirect assessment and direct assessment in order to assess the developed tools such as Skilled Pharmacists, Counselling aids (Pictorial, Video). Indirect assessment

consists two sets of questionnaire (Instrument No: 1 and 2, See Anex) which were answered by the participants before and after intervention respectively. The direct assessment is also a questionnaire which consists of a set of questions which assess our Sign language skills, comfort of participants during communication, quality of counselling aids, willingness to call in the future and need of our services.

In evaluating the indirect assessment, maximum numbers of participants have secured a score average and poor before intervention, but the maximum number of participants secure excellent and good after intervention (Table 2). This shows the impact of skilled pharmacist in counselling. Cross tabulation was performed in the pre/post test, there was a statistically significant difference were observed P=0. 009 for before and after skilled pharmacist intervention. Table 3 & Figure 1 shows Pre - test/Post - test Cross tabulation of direct assessment of quality of skilled pharmacist and Table 4. Chi-Square Test results for the direct assessment of quality of skilled pharmacist. Demographic factors affecting the Pre - test/Post – test were evaluated by person Chi-square test (Table 2). Among all factors, nativity (p=.041) and IQ level of the participants (P=0.001) showed significant association. Paired Samples Test results of direct assessment also shows that there was a significant impact of skilled pharmacist intervention during the communication with differently enabled in speaking and hearing population (Table 5).

In the direct assessment of developed tools, we fixed five types of criteria such as Comfortability of participants with skilled pharmacist during communication, Rating the language skills of skilled pharmacists by the participants, rating the quality of counselling aids, participants response about the usefulness of skilled pharmacist for their society/population and participant's response about the need of skilled pharmacist services in future. For the first criteria; Comfortability of participants with skilled pharmacist during communication, 83 (78.3%) participants were reported that there are comfortable and 23 (21.7%) were not comfortable during the communication. Table No 6 shows the Comfortability of participants with skilled pharmacist during communication, Pearson chi-square analysis depicts that there were no significant (P<0.05) demographic factor associated with the response of the participants and multivariate regression results also shows the same. Table 11. Showing the multivariate regression results of association of demographic factors and the Comfortability of participants during communication with skilled pharmacist.

For the first criteria; Rating the language skills of skilled pharmacists, among 106, 29 (27.4%) participant's reported excellent, 45 (42.5%) replied good, 28 (26.4%) average and 4 (3.8%) given a score of fair. Pearson chi-square analysis depicts that there were no significant (P<0.05) demographic factor associated with the response of the participants and Table No 7 shows the rating for the language skills of skilled pharmacists by the participants. Multivariate regression results show that the factor IQ level of the participants was a significant association (p<0.01) with the rating for language ability. All the participants who rated "Excellent" have significant association with an IQ level, who rated "Good", have significant association with an IQ level except poor IQ level participants and who rated "Average" have significant association only with Excellent, good IQ level participants. Table 12. Showing the multivariate regression results of association of demographic factors and the language ability rating of skilled pharmacist.

For the first criteria; rating the quality of counselling aids, among 106, 37 (34.9%) reported excellent, 43 (40.6%) replied good, 25 (23.6%) average and 1 (0.9%) given a score of fair. Pearson chi-square analysis depicts that there were no significant (P<0.05) demographic factor associated with the response of the participants and Table No 8 shows rating the quality of counselling aids by the participants. Multivariate regression results shows that the all demographic factors such as gender, age, nativity and IQ level of the participants were a significant association (p<0.01) with the rating for the quality of counselling aids. Table 13. Showing the multivariate regression results for the association of demographic factors and the quality of counselling aids rating by the participants. Multivariate regression results showed that male, age 18 & below, urban, IQ level (only excellent, good, average) are the significant factors (P<0.001) influencing the quality of counselling rating "Excellent" and male, age 18 & below, urban, IQ level (only excellent, good) are the significant factors (P<0.001) influencing the quality of counselling rating "Good". The quality of counselling rating "Average" were influenced by the significant factors (P<0.001) such as male, age 18 & below, urban, IQ level (only excellent, good, average).

In the direct assessment, out of 106, 98 (92.5%) participants reported that a skilled pharmacist will be helpful for differently enabled in speaking and hearing population and the rest of them 8 (7.5%) replied not useful. These results show that differently enabled in speaking and hearing population was satisfied with the language ability of the skilled pharmacist. Table No 9 shows participants response about the usefulness of skilled

pharmacist for this society and Chi square data for demographic characteristics. Pearson Chi-square and multivariate regression results shows that no association of demographic factors with the participant's response. Table 14. Showing the multivariate regression results of association of demographic factors and the usefulness of skilled pharmacist service.

Finally, a question about the willingness to call the skilled pharmacist services in the future; 91 (85.8%) of respondent were showed willing and only 15 (14.2%) were not willing to call the skilled pharmacist services in the future. This result depicts that differently enabled in speaking and hearing population is struggling to communicate with the health care team and they are expecting sign language skilled medical person. Moreover, the participants were satisfied with developed tools such as skilled pharmacist, counselling aids. Table No10 depicts the participant's response about the need of skilled pharmacist services in future. Chi-square results and multivariate regression results shows that no association of demographic factors with the participants response. Table 15. Showing the multivariate regression results of association of demographic factors and the willingness of participants calling the skilled pharmacist service. Correlation analysis was performed in the Pre Vs Post test of the Skilled Pharmacist intervention. The results showed that there was a significant ($P<0.01$) positive correlation for pre Vs Post intervention. This shows that significant influence skilled pharmacist compared with the conventional pharmacist during the communication to the participants. Table 16. Depicts the Correlation analysis of the Pre Vs Post test of the Skilled Pharmacist intervention. Moreover, positive, statistically significant ($p<0.01$) correlation also observed for the Language ability of skilled Pharmacist Vs Comfortability of the participants. This shows that trained, skilled pharmacists were leaned the sign language efficiently and they can communicate easily with the differently enabled in speaking and hearing population. Moreover, participants are more comfortable during the communication since skilled pharmacist learned the sign language effectively. Table 17. Shows the Correlation analysis of Language ability of skilled Pharmacist Vs Comfortability of the participants.

Correlation analysis of Quality of counselling aids Vs Comfortability of the participants (Table 18), language ability of skilled pharmacist Vs Usefulness for the participants (Table 19), language ability of the skilled pharmacist Vs willingness to call for the skilled pharmacist services (Table 20) and Comfortability of participants during communication with the skilled pharmacist Vs willingness to call for the skilled pharmacist services (Table 21) not showed any significant ($P<0.01$) correlation. This results said that counselling aids quality

must be improved and need of special counselling aids instead of conventional counselling aids for the comfort of differently enabled in speaking and hearing population. Language ability of skilled Pharmacist Vs Comfortability of the participants showed a positive correlation. However, language ability of skilled pharmacist Vs Usefulness for the participants, language ability of the skilled pharmacist Vs willingness to call for the skilled pharmacist services and Comfortability of participants during communication with the skilled pharmacist Vs willingness to call for the skilled pharmacist services showed negative correlation. This depicts that skilled pharmacist are still improving their sign language ability in order to provide better services to the differently enabled in speaking and hearing population, which helps in better diagnosis and treatment that improves the level of health care services.

5.0 CONCLUSION

Now a day's health care services are providing individualized care, such as personalized medicine and precision medicine, but on the other hand differently enabled in speaking and hearing population is totally neglected by the society, their family and health care providers only due to the communication barrier. Indeed, this population is seeking for health care services and this is definitely possible by health care providers learning their sign language. This study reveals clearly, pharmacist can fulfil this communication GAP and could provide better health care service. We recommend that every health care team must have a skilled person (pharmacist, nurse, etc.,) who can able to communicate with differently enabled in speaking and hearing population.

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7.0 BIBLIOGRAPHY

1. Strnadová, V. Jaké je to neslyšet. ČUN, Praha, p. 22 (odkaz na článok v učebných textoch), 1995.
2. Krahulcová, B. Komunikace sluchově postižených. Univerzita Karlova v Praze: Nakladatelství Karolinum, 2003. ISBN 80-246-0329-2.
3. Nádaská, I., Líšková, M. Medzikultúrna komunikácia a jej bariéry. In Sestra, Sanoma Magazines Slovakia, s. r. o.Bratislava, 2006; XV(7-8): 20. ISSN 8588001 398064.

4. Tutková, J. Komunikace sestra-pacient. In Sestra, Mladá fronta, a. s., 2007; 17(1): 22-23. ISSN 9771210-0404.
5. Horňáková, A. Multikulturní komunikace pri ošetrování klienta jiné kultury. In Sestra, Mladá fronta, a.s., 2008; 18(9): 23-24. ISSN 9771210-0404.
6. Sušinková, J. Miera záťaže u sestier pri uspokojovaní potrieb pacienta v paliatívnej starostlivosti.II. Celoslovenská konferencia geriatrických sestier konaná dňa 15.-16. októbra 2010 [elektronický zdroj]. Košice: Slovenská komora sestier a pôrodných asistentiek, 2010; 1-11. ISBN 9788097048211 et al.
7. The Rehabilitation Council of India Act, 1992, Ministry of Law, Justice & Company Affairs, 1992; (34 of 1992), New Delhi. Available at rehabcouncil.nic.in/engweb/rciact.pdf. Accessed on 13th Dec 2011.
8. Contact A Resource for Staff Working with Children who are Deaf and Blind, Edinburgh, 1993; 7. (Moray House) Available at
9. http://www.ssc.education.ed.ac.uk/resources/db/contact.pdf.Accessed on 13th Dec 2011.
10. The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 Ministry of Law, Justice & Company Affairs (No. 1 of 1996), New Delhi: The Gazette of India, 1996; 24. Available at http://socialjustice.nic.in/pwdact1995.php. Accessed on 13th Dec 2011.
11. Geneva: WHO; Report of informal consultation on prevention of noise induced hearing loss held on, October 1997; 28-30. Available from: http://www.who.int/pbd/deafness/en/noise.pdf.
12. Global burden of hearing loss in the year 2000. Colin Mathers, Andrew Smith, Marisol Concha.
13. Kemperman MH, Hoefsloot LH and Cremers CW. Hearing loss and Connexin 26. J R Soc Med., 2002; 95(4): 171-177. et.al
14. Isaacson J and Vora N; American Family Physician Review: Differential Diagnosis and Treatment of Hearing Loss.; Am Fam Phys, Sep 15, 2003; 68(6): 1 125-1 134; Excellent overview of clinical approach and investigation, with good auroscopy images, for this common clinical scenario.
15. Hearing impairment - cochlear implants; NICE T echnology Appraisal Guidance, January 2009.
16. Schreiber BE, Agrup C, Haskard DO, et al; Sudden sensorineural hearing loss. Lancet, April 3, 2010; 375(9721): 1203-1. 1 Otitis media with effusion; NICE CKS, March 201 1 (UK access only)

17. Chou R, Dana T, Bougatsos C, et al; Screening for Hearing Loss in Adults Ages 50 Y ears and Older: A Review of the Evidence for the U.S. Preventive Services T ask Force. Agency for Health Care Research and Quality (US); 2011 Mar. Report No.: 1 1-05153-EF-1.
18. Edmiston R, Mitchell C; Hearing loss in adults. BMJ., Apr 25, 2013; 346: f2496. doi: 10.1 136/bmj.f2496.