Report of the Project on Survey of Communication Disorders by Trained ASHA Workers & Home Maker Volunteers in the Districts of Mysore, Mandya & Chamarajanagara

(Ref: SH/CDN/ARF/3.94/2010-11 dt 16.9.2010) Duration of Level I of the project 20.9.2010 to 5.6.2012 (1 year and 9 months)



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Grants

| Source of Funds | Ref No. & Date | Amount in
Rs. |
|-------------------------------|--|------------------|
| AIISH Research Funds
(ARF) | SH/CDN/ARF/3.94/2010-11 dt 16/09/2010
(16.9.2010 - 20.3.2012) | 662000 |
| From Plan Grants | SH/CDN/ARF/3.94/2011-12 dt 21/03/2012 | 393100 |
| Release to Karuna
Trust | SH/Dir/Karuna Trust/2010-11 dt13.7.2010 | 546000 |
| Release to Karuna
Trust | SH/Dir/Karuna Trust/ 2011-12 dt 26.12.2011 | 498000 |
| | Total | 20,99,100 |

PREAMBLE

Definition of Communication, Speech, Language & Hearing

Communication is the exchange of meanings between individuals through a common system of symbols (Hegde, 2007). Communication bridges the gap between any two individual or groups of people. Communication is the essence of life and involves exchange of thoughts, messages, or information through speech or use of signs, writing etc. 'Speech' and 'Language' are parts of the larger process of communication. Speech is an established communicative system of arbitrary and conventionalized acoustic symbols, produced mainly by action of the muscles of the respiratory and upper alimentary tracts (Travis, 1957). Speech sounds are combined in various ways to form the language units that are used for verbal communication. Development of speech follows a course up to age 12 because humans acquire adult-like speech motor control by adolescence. The speech of the child changes with different stages of language acquisition and this is very important to differentiate normal individuals from those with deviant language or delay in language acquisition. Language is a complex and dynamic system of conventional symbols that is used in various modes for thought and communication (Hegde, 2007). The relationship between all the linguistic forms (individual sounds, meaningful units and the combination of these units) is specified by the rules of language (Bloom & Lahey, 1978). Every human being is born into a language or to be precise, into a linguistic condition. The *ear* is an organ of hearing, presenting a mechanism through which sound waves are conducted and converted into electrical signals. These signals are conveyed to the brain, where they are interpreted into meaningful units (Schneiderman & Potter, 2002). Hearing refers to the auditory sensation and cognitive perception of sound (Sahley & Musiek, 2015). The sense of 'hearing' plays an important role in the acquisition of speech and language process in an individual. The period from birth to 3-5 years is often considered as the "critical period" for the development of normal speech and language. Normal hearing in the first six months of life is critical for the development of normal speech and language skills.

A communication disorder is an inability to understand or use speech Communication disorders and language and relate to others in society. Communication disorders include speech disorders (articulation, fluency, voice problems etc.), language disorders (impaired comprehension and/or use of spoken, written, and other types of symbols) or hearing disorders (impaired hearing sensitivity). Communication disorders express themselves with or without co morbid disorders in children, adults and geriatric population. There are a variety of communication disorders due to hearing impairment, mental retardation, cerebral palsy, learning disability, autism, brain injury, etc. Speech and Language disorders may be acquired before, during or after birth. Language disorders could be acquired or seen from birth or during developing years. These disorders are generally categorized as Adult language disorders (For example Aphasia) and child language disorders (For example, Specific language impairment, Learning disability, Autism Spectrum Disorders etc.) depending on the age of onset of these disorders.

Effective communication skills are central to a successful life for all the individuals. Any impairment leading to communication disorders affects communication because there are restrictions in communicating meaning, thoughts, ideas etc in an attempt to create shared understanding. Communication disorders are one of the common and

widespread problems that affects social and emotional well-being, cognition, behaviour, academic and psychosocial well being (Baker & Blackwell, 2004). They also have a devastating, detrimental and an invariably adverse impact on the individuals and their family's psychological well-being. Communication is an essential part of maintaining a healthy family. The way a family functions is based on how the family communicates. If a member of a family has any communication disorder, the process of communication becomes complicated because it creates secondary impact on social, emotional, financial and overall lifestyle of the family.

Hearing disorder is the most prevalent congenital abnormality in newborns (Finitzo & Crumley, 1999). It is one of the most common sensory disorders and the common causes are sensorineural and/or conductive malfunctions of the ear. The impairment may occur during or shortly after birth (congenital or early onset) or caused post-natal or may have late onset (genetic factors, trauma or disease). Hearing loss may be pre-lingual (i.e., occurring prior to speech and language acquisition) or post-lingual (i.e., occurring after the acquisition of speech and language).

Need for early identification of communication disorders Early identification and appropriate intervention within the first six months of life have been demonstrated to prevent or reduce many of the adverse consequences of communication disorders and facilitate language acquisition (Yoshinaga-Itano, Sedey, Coulter, & Mehl, 1998).

Since hearing loss in infants is silent and hidden, great emphasis is placed on early detection, reliable diagnosis, and timely intervention (Spivak, Datzell, Berg, Bradley, & Cacace, 2000). Even children who have mild or unilateral permanent hearing loss may experience difficulties with speech understanding, especially in a noisy environment, as well as problems with educational and psycho-social development (Bess, Tharpe, Bess, & Tharpe, 1988; Culbertson & Gilbert 1996). Children with hearing loss frequently experience speech-language deficits and exhibit lower academic achievement and poorer social-emotional development than their peers with normal hearing.

Identification of the types of communication disorder in persons is carried out through community based screening or institutional based testing procedures. The assessment of communication disorders may take 1 to 3 hours per person. But, rehabilitation of individuals with speech and language disorders is a long process and will take a long time. This is in particular more crucial in children identified with language disorders. Hence there is ominous need for national programs which stress on early identification of communication disorders.

Status of rehabilitation and community based programs in other countries Developed countries have established a high standard of health care. Primary services include the early detection of congenital hearing loss and the initiation of auditory rehabilitation before six months of age.

In developing countries, barefoot doctors and health auxiliaries began to emerge from the mid 1950s and became a nationwide programme from the mid 1960s, ensuring basic health care (Zhu, Ling, Shen, Lane, & Hu, 1989; see also Hsiao, 1984; Sidel, 1972; Shi, 1993). Partly in response to the success of this movement and partly in response to the inability of conventional allopathic health services to deliver basic health care, a number of countries subsequently began to experiment with the village health worker concept (Sanders, 1985). The early literature emphasizes the role of the Village Health Workers (VHWs), which was the term most commonly used at that time as not only (and possibly not even primarily) a health care provider, but also as an advocate for the community and an agent of social change, functioning as a community mouthpiece to fight against inequities and advocate community rights and needs to government structures (Werner, 1981).

A widely accepted definition by WHO Study Group (WHO, 1989) states that the Community Health Workers (CHWs) should be members of the communities where they work, should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers. The use of CHWs in the US began during the 1960s to expand access to health care for underserved communities such as the poor and ethnic minorities (Heath, 1967). Initially, CHWs were trained to provide general health education, parenting education, and patient advocacy (Giblin, 1989).

Over the past 4 decades, CHWs' roles have evolved to serve as liaisons between community members and providers; promote community advocacy and community capacity building; provide cultural mediation, counseling, social support, and culturally appropriate health education; promote attendance at appointments and adherence to medication and other medical regimens; and promote delivery of direct health care services (Institute of Medicine, 2003; Rosenthal, 1998; Swider, 2002). Collective functions of CHWs are to increase access to health care, empower individual and community members, improve behavioral outcomes in individuals and communities, and decrease health care costs (Swider, 2002). In carrying out these functions, CHWs have been used in many types of programs, such as primary and secondary cancer prevention, immunizations, maternal and child care, smoking cessation, hypertension screening and management, diabetes management, nutrition, community mental health, sexual risk reduction, AIDS prevention, and asthma management (Center for Disease Control, 1994; Witmer, Seifer, Finocchio, Leslie, & O'Neil, 1995). Despite the multifaceted roles and functions of CHWs, no single accepted definition exists for CHWs or any of the other associated titles commonly applied to lay health workers (Giblin, 1989; Witmer et al., 1995).

Community Health Workers (CHW) programmes implemented as part of wider health sector reform processes, aiming to enhance accessibility and affordability of health services to rural and poor communities within a PHC approach, can be found in numerous low-income countries, including India in the 1970s and 1980s. Indonesia structured its health system in 1982, with a focus on district health development. Village Health Volunteers, selected and paid by local communities, became part of health posts set up within each district. Their activities included family planning, health education, growth monitoring, nutrition support, immunization and treatment, particularly of diarrheal diseases. Initial reports showed remarkable results.

In Nigeria, CHW programmes evolved from the work of volunteer health workers whose work started in the late 1960s in the primarily agricultural Maradi Department, along the Nigerian frontier, with a population of 7, 30,000 people (Fournier & Djermakoye, 1975). Since 1963, Niger had a rural extension service (animation rurale), which promoted community development schemes characterized by voluntary participation. In the Ministry of Health in Niger, a 10-year plan from

1965 to 1974 set out the principles governing the training of village health workers and traditional birth attendants. In Ghana, the Ministry of Health (MoH) introduced substantial number of community or village health workers in the late 1970s as part of a substantial review and reorganization of MoH activities aimed at implementing PHC strategies (Morrow, 1983). The initiative was driven by the MoH and integrated into the National Health Service structure, with the MoH providing training, technical supervision and necessary supplies.

'Programa Agente Comunitario de Saude' is a large-scale, governmentinitiated and driven CHW programme in Brazil that started in the mid-1980s in the north-eastern state of Ceara (Cufino Svitone, Garfield, Vasconcelos, & Araujo Craveiro, 2000). Primary health care lessons from the northeast of Brazil: The Agentes de Saude Program. Pan American Journal of Publich Health, 7(5): 293-302. This was integrated into the National Family Health Programme (Programa Sauda da Familia - PSF) in 1994 (Gilroy & Winch, 2006; Lobato & Burlandy, 2000; McGuire, 2002). The programme led to a 32% drop in infant mortality within five years and a substantial increase in exclusive breastfeeding (Cufino Svitone et al., 2000). As of 2004, the programme covered about 66 million people nationally and nearly 40% of the entire population. The results showed that when the programme was combined along with other socioeconomic developments, there was a consistently associated reduction in infant mortality. The policy implication is that a broad based approach to improving child health, with primary health care at its core, can make considerable improvements in outcomes (Macinko, Guanais, de. Fatima, & de. Souza, 2006). By early 2006, 60% of the population was looked after by 25,000 health teams. In areas covered by family health teams, hospitalization has dropped from 52 to 38 per 10,000 in three year's duration.

Today's renewed focus on the use of CHWs has its rationale primarily in a recognition that service needs, particularly in remote and underprivileged communities, are not met by existing health services, particularly given increased needs created by HIV/AIDS in many countries and worsening health worker shortages. CHWs are used primarily to render basic, mostly curative health services within homes and communities and to assist health professionals with their tasks. An overview of the CHW programs across the world is presented in the table 1.

Table 1:An overview of CHW programs across the world

| SI | Reported | Country | Program | Training | Service |
|----|----------|---------|---------|----------|----------|
| NO | by | - | - | - | Provided |

| | 7 ' ' ' | | | KAD | |
|---|---|-----------|---|--|---|
| | Zeighami,
Zeighami,
Javidian, &
Zimmer,
1977 | Iran | workers
knowledge,
attitude and
practice
(KAP) about
family
planning and
gender
differences
in
effectiveness
of family
planning | was
conducted
after 14
months of
training.
Sample
included
1308
eligible
couples
[from two
sites:
project
(658) and
control site
(650)] | workers (both
gender) were
effective in
implementing
family
planning
strategies
among the
eligible
couples |
| 2 | Hathirat,
1983 | Thailand | Abbots | 3 weeks | Primary
Health Care |
| 3 | Robinson &
Larson,
1990 | Colombia | Colombia
Research
National
Care | 3 Months | Primary
Health Care |
| 4 | Bender &
Pitkin, 1987 | Nicaragua | Evolution
and current
status of
VHWs | Addressed
fundamental
shift of
wealth and
power
considering
the PHC
program | Malaria
decreased
39% from
1977-1983,
polio
eradicated,
measles,
whooping
cough and
tetanus
extinct |
| 5 | Campos,
Ferreira,
Souza, &
Aguiar,
2004 | Brazil | СНА | 6 - 8 Months | Health
education,
Referrals |
| 6 | Melany,
Ron &
Jane, 2006 | USA | РІТСН | - | Health
Insurance
Enrollment,
Smoking
Cessation |
| 7 | Perez
Findley,
Mejia, &
Martinez,
2006 | USA | Community
Voices CHW
Program | 2-3 Months | Health
Insurance
Enrollment,
immunization,
Asthma
Management |
| 8 | US
Department
of Health
and Human
Services,
2007 | USA | CHW
Program | - | Member of
delivery
services,
navigator,
screening and
health
education,
out-reach
enrolling
informing
agent and
organizer for
camps in
community |

Note: CHA- Community Health Assistant; CHW- Community Health Workers; PITCH-People Improving the Community Health.

Status of rehabilitation and community based programs in India The huge burden of communication disorders are preventable and avoidable in India as well as other countries by giving much emphasis to the early identification and early intervention of the disorder, but it is estimated that only about 2% - 8% of people with disabilities have access to rehabilitation services and approaches (Hartley, 1998). Due to an apparent paucity of published data and peer-reviewed survey studies, it is difficult to assess the aggregate number of individuals in the rural areas who have communication disorders. Even a child's overall future and success can be improved greatly through early identification of communication disorders and subsequent intervention.

A large national CHW scheme was established in the late 1970s that aimed to provide one CHW for every 1000 population in order "to provide adequate health care to rural people and to educate them in matters of preventive and promotive health care" (Bose, 1983; Chatterjee, 1993). As reported by Bose (1983) and Chatterjee (1993), the programme ran into problems in most states within a few years due to resistance from the medical profession, demands for payment, vacillating government policies with regard to funding, not well anchored in and owned by communities and role confusion between CHWs and multipurpose health workers. Also, the CHWs were trained for a very limited scope of curative tasks, excluding preventive or promotive work, leading to frustration and demotivation among themselves and the communities they served. Another large-scale programme called the Mitanin Programme was initiated by the government in Chhattisgarh in 2002. Mitanin are women, selected from their communities, who receive altogether 20 days of training and who work closely with primary health staff. The programme is seen to be following the long tradition of Indian CHW programmes and was preceded by intensive studies of these previous experiences (SOCHARA, 2005). The programme was evaluated by the Society for Community Health Awareness, Research and Action (SOCHARA) at the request of the Chhattisgarh government in early 2005.

Summary of the reports on various programs in India based on studies conducted using CHWs is listed in the table 2.

Table 2

| SI.
No. | Author | Program | Training | Service
Provided |
|------------|-----------------|---------------|--------------|---------------------|
| 1 | Kumar | CHW scheme, | 6.6 weeks | Primary |
| | Deodhar, & | 1978 | | Health Care |
| | Murthy (1978) | | | |
| 2 | Leslie (1985) | CHW scheme, | 3 months | Primary |
| | | 1977 | | Health Care |
| 3 | Bhattacharji et | Project/ | 20 days | Primary |
| | al., (1986) | Vellore India | | Health Care |
| 4 | UNICEF (2004) | VHG Scheme | 3 months | Primary |
| | | | | Health Care |
| 5 | Joel, | Examine the | At the Rural | Seventy |
| | Sathyaseelan, | knowledge of | Unit for | (87.5%) of |

Reports of Indian studies conducted using CHWs

| | Jayakaran, | chronic | Health and | subjects had |
|---|---|---|---|---|
| | Vijayakumar,
Muthurath-nam
& Jacob,
(2003) | psychosis
among health
workers of a
rural
community
health
program in
South India. | Social
Affairs
(RUHSA),
included 80
CHWs
volunteers
to come up
with a
vignette
describing a
typical
patient
with
chronic
Psychosis. | at least one
non-
biomedical
explanation
for the
psychosis
(e.g. black
magic, evil
spirits as
cause, non
disease
concept,
seeking
treatment
from
traditional
healers or
temples and
not seeking |
| 6 | Kotecha &
Karkar (2005) | Health status
of integrated
child
development
service
workers | 280
Anganwadi
workers
AWW | medical help).
- Anemia
prevalence
was 72.3%
- Prevalence
of severe,
moderate and
mild anemia
among AWWs
was 0.7%,
15.7% and
55.8%
respectively.
The
fundamental
question
raised was
regarding the
capabilities of
ICDS AWWs to
provide all
the services
and their
capacity to
imbibe from
the training
provided to
them for
NHED |

Majority of the persons with communication disorders in the urban areas seek professional advice at the centers and institutions mostly located in the urban areas. The rural population in India is placed at 83.3 crores compared to the urban population of 37.7 crores as per the Census 2011 (<u>http://censusindia.gov.in/2011-prov-results/paper2/data_files/india/</u>Rural_Urban_2011.pdf). There are many at district and taluk levels who are unaware of (a) availability of rehabilitation services to overcome the communication disorders and that, majority of the disorders can be

overcome if identified early and preventive measures undertaken, and (b) the centers and institutions across the country which are rendering rehabilitation services for persons with communication disorders. *The situation is even more depressing in rural areas.*

Rural Public In India, the rural public health care system in many States and regions Health Care is reported to be unsatisfactory leading to pauperization of poor households due to expensive private sector health care. India is in the **Missions in India** midst of an epidemiological and demographic transition - with the attendant problems of increased chronic disease burden and a decline in mortality and fertility rates leading to an ageing of the population (Government of India, NRHM-ASHA (2005) Module Guidelines, Ministry of Health and Family Welfare, New Delhi). It was recognized that the CHWs can make a valuable contribution to community development and, more specifically, can improve access to and coverage of communities with basic health services. Improvement in the health outcomes in the rural areas is directly related to the availability of the trained human resources there.

The National Rural Health Mission (NRHM) was launched in the year 2005 to enhance the effectiveness of public health care system especially in rural areas. The main aim of NRHM is to provide accessible, affordable, accountable, effective and reliable primary health care, and bridging the gap in rural health care through creation of a cadre of Accredited Social Health Activist (ASHA). The objective of the NRHM is to strengthen the healthcare delivery system with a focus on the needs of the poor and vulnerable sections among the rural population. The ASHA programme is considered as being vital to achieving the goal of increasing community participation with the health system, and is one of the key components of the NRHM, a flagship programme of the central government of India.

The general norm is 'One ASHA per 1000 population'. ASHA must be primarily a woman resident of the same village -'Married / Widow / Divorced' and preferably in the age group of 25 to 45 years having commitment for social work. ASHA should have effective communication skills, leadership qualities and be able to reach out to the community. She should be a literate woman with formal education up to Eighth Class. ASHA will undergo series of training to be completed in 23 days spread over a period of 12 months to acquire efficiency in counseling, identifying health related problems and necessary actions to tackle the situations. ASHA will take steps to create awareness and provide information to the community on determinants of health such as nutrition, basic sanitation & hygienic practices, healthy living and working conditions, information on existing health services and the need for timely utilization of health & family welfare services. The Mission also seeks to provide minimum two Auxiliary Nurse Mid-wives (ANMs) at each Sub Health Centre (SHC) and three Staff Nurses to ensure round the clock services in every PHC. The out-patient services are strengthened through posting/ appointment on contract of AYUSH doctors over and above the Medical Officers posted in PHCs (Shashank et.al, 2013).

On a smaller scale, Non-governmental Organizations (NGOs) in India, like so many other countries, has seen a number of successful projects. They have also played successful role in NRHM. The NRHM has established partnerships with NGOs for establishing the rights of households to health care. Besides advocacy, NGOs are involved in building capacity at all levels, monitoring and evaluation of the health

sector, delivery of health services, developing innovative approaches to health care delivery for marginalized sections or in underserved areas and aspects, working together with community organizations and Panchayat Raj institutions, and contributing to monitoring the right to health care and service guarantees from the public health institutions. A Mentoring group has been set up at the national level for ASHAs to facilitate the role of NGOs. Grants-in-aid systems for NGOs are established at the District, State and National levels to ensure their full participation in the Mission (Government of India, NRHM-ASHA (2005) Module Guidelines, Ministry of Health and Family Welfare, New Delhi).

Incidence and Prevalence of Communication disorders

'Incidence' is a measure of the probability of occurrence of a given medical condition/disorder in a population within a specified period of time.

'Prevalence' is the proportion of a population found to have a condition (typically a disease or a risk factor). It is arrived at by comparing the number of people found to have the condition with the total number of people studied, and is usually expressed as a fraction, as a percentage or as the number of cases per 10,000 or 100,000 people. 'Point prevalence' is the proportion of a population that has the condition at a specific point in time. 'Period prevalence' is the proportion of a population that has the condition at some time during a given period (e.g., 12 month prevalence), and includes people who already have the condition at the start of the study period as well as those who acquire it during that period. 'Lifetime prevalence (LTP)' is the proportion of a population that at some point in their life (up to the time of assessment) have experienced the condition.

According to the Census 2001, there are 2.19 thousand people (SIC) with disabilities in India who constitute 2.13 % of the total population (Census 2001). Out of the 21,906,769 people with disabilities, 12,605,635 are males and 9,301,134 females and this includes persons with visual, hearing, speech, locomotor and mental disabilities (Census 2001).

In comparison with 1981 sample survey, the NSSO 1991 survey which followed the same methodology reported that the prevalence has marginally increased. In 1991 survey the prevalence in rural areas was placed at 1.99% as against 1.84% in 1981. The prevalence in urban areas in 1991 was placed at 1.58% as against 1.42% in 1981 with the total figure reflected per 100,000 persons. Table 3 shows the reported findings of NSSO (1991) regarding the marginal to substantial decline in the prevalence and incidence of speech and hearing disabilities

Table 3

Marginal to substantial decline in the prevalence and incidence of speech and hearing disabilities by NSSO (1991)

| 1981 | | | | | 1991 | | |
|--------------------|------|--------------------|---------------------|------|--------|---------------------|--|
| Sector | Male | Female | Per lakh
Persons | Male | Female | Per lakh
Persons | |
| Prevalence
rate | | Hearing Disability | | | | | |
| Rural | 595 | 510 | 573 | 498 | 435 | 467 | |
| Urban | 386 | 395 | 390 | 325 | 355 | 339 | |
| Incidence
rate | | | | | | | |

| Rural | 20 | 18 | 19 | 16 | 14 | 15 |
|------------|-----|-----|----------|------------|-----|-----|
| Urban | 14 | 15 | 15 | 11 | 14 | 12 |
| Prevalence | | | Spooch I | Nicability | | |
| rate | | | speech | | у | |
| Rural | 379 | 228 | 304 | 333 | 208 | 273 |
| Urban | 342 | 207 | 279 | 285 | 182 | 237 |
| Incidence | | | | | | |
| rate | | | | | | |
| Rural | 6 | 2 | 4 | 6 | 4 | 5 |
| Urban | 7 | 3 | 5 | 5 | 4 | 5 |

The NSSO (1991) survey reported the distribution of persons (persons per 1000 distribution) with speech and hearing disability across ages in rural and urban regions as shown in table 4.

Table 4

| Survey | reports | of persons | with | speech | and | hearing | disability | across | ages |
|----------|---------|-------------|------|--------|-----|---------|------------|--------|------|
| in rural | and urb | oan regions | NSSC | (1991) | | | | | |

| | Age at onset (years) | | | | | | | | | | |
|-----------------------|----------------------|-----|-------|-------|-------|-------|-------|-------|-------|---------------|-------|
| Type of
disability | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-44 | 45-59 | 60 &
above | Total |
| | Rural | | | | | | | | | | |
| Hearing | 9 | 6 | 12 | 9 | 11 | 10 | 12 | 41 | 280 | 609 | 1000 |
| Speech | 42 | 23 | 24 | - | 10 | - | 12 | 25 | 262 | 594 | 1000 |
| | Urban | | | | | | | | | | |
| Hearing | 7 | 13 | 10 | 11 | 9 | 14 | 13 | 55 | 215 | 651 | 1000 |
| Speech | 35 | 39 | 9 | - | 23 | - | 7 | 27 | 287 | 572 | 1000 |

The National Sample Survey Organization (NSSO, 2002) estimated that the number of persons with disabilities in India is 1.8% (49-90 million) of the Indian population and 75% of persons with disabilities live in rural areas, 49% of the disabled population is literate and only 34% are employed. The NSSO (2002) survey includes persons with visual, hearing, speech, locomotor and mental disabilities. The prevalence of disability was marginally higher among males than females with a prevalence rate for males at 2% and for women 1.5% (Census 2001; NSSO 2002). According to NSSO (2002), about 8.4% and 6.1% of the total estimated households in rural and urban India, respectively, reported to have at least one disabled person. Among the rural residents, the prevalence of disability was 1.85% and that among the urban was 1.50%. NSSO (2002) also reports the incidence rates for males as 77 and 75 per 100,000 in rural and urban population respectively, as against 61 and 58 per 100.000 in rural and urban population respectively among females. Urban/rural differences varied, ranging from 2 to 117 per 100,000 persons in rural India and from 11 to 132 per 100,000 persons in urban India. The incidence rate was highest in Andhra Pradesh and lowest in Assam. The prevalence rates for disability varied in different states with a range of 0.67% to 2.71% in Delhi and 2.61% in Lakshadweep (excluding Arunachal Pradesh where the rate was only 27 per 81,000,000). The prevalence rates among males were higher than females in all the states.

Summarizing the NSSO estimates, Klasing (2007) suggested that there were 12 million disabled people in 1981, 16.15 million in 1991 and 18.49 million in 2002, which constitute 1.8, 1.9 and 1.9 percent of the total population respectively.

The Ministry of Welfare and Women development (1984) reports that the incidence per lakh population for speech is 304 in rural sector, and $279\ \text{in}\ \text{urban}\ \text{sector};$ and for hearing is 558 in rural sector and 390 in urban sector.

Pandey and Advani (1995) estimated the majority of disabled people in India live in rural areas. A rural-urban ratio of 80:20 was born out by both the (1981 and 1991, NSSO surveys), while the NSSO (2002) survey showed a rural-urban ratio of 76:24. The survey was conducted in two states of India; Andhra Pradesh and Rajasthan, with the classification of types of disability as locomotor disability, visual impairment, speech and hearing impairment, mental retardation, mental illness, leprosy and multiple disabilities. The Rajasthan survey reported 1,021 disabled individuals in 50 villages in 12 blocks from 6 districts and 37% females were disabled in rural area. The age wise distribution in the age range of 15 years was 23%, 42% with 15 to 35 years, 30% between 35-60 years and 5% with 60years and above. They also classified prevalence rate of speech and hearing impairment as 11% and mental retardation as 4%. In Andhra Pradesh survey 1,843 disabled people were identified in 41 villages in 24 mandals from 16 districts, with the gender division of 42% disabled persons from rural areas. Even here they followed the same classification, with the age distribution of 25% in 15 years, 41% in 15 to 35 years, 29% in 35 to 60 years and 4% in the age range of 60 years and above & the type of disability of speech and hearing disorders with 15% and mentally retarded 4%.

Ganesh, Das and Shashi (2008), reported that the overall prevalence of disability was 6.3%, of which 80% had multiple disabilities. Pati (2004), reported a prevalence of disability in Karnataka as 2.02%, with higher percentage in the age group of 45-59 years, and in females (2.14%) than males (1.89%). Singh (2008), reported the prevalence of disability as 4.8%, with higher percentage in the age of > 55 years (31%) compared to 25-54 years (5.4%) and <25 years (0.1%). Higher prevalence was reported in females compared to males.

Seema (1999) conducted a survey at All India Institute of Speech and Hearing (AIISH). The information about children who visited AIISH in the duration of 1997 to 1988 was collected from 5000 case files. A total of 3270 had speech and language disabilities and 1730 had ENT problems. The speech and language disabilities were categorised into eleven types such as Delayed speech and language with Hearing loss (1223-37.40%), Delayed speech and language with Mental retardation (460-14.06%), Delayed speech and language with cerebral palsy (50-1.53%), Delayed speech and language with Cleft lip/cleft palate (24-0.73%), Delayed speech and language with Autism (20-0.61%), Delayed speech and language (365-11.16%), Fluency disorders (225-6.88%),Voice disorders (64-1.95%), Dyslexia (30-0.92%), Articulation disorders (117-3.58%), and multiple disorders (457-13.97%).

In another survey by Sreeraj, Suma, Jayaram, Sandeep, Mahima and Shreyank (2013) done in the rural population (Keelara village of Mandya district in Karnataka), it was reported that the prevalence of individuals at risk for communication disorders was 6.07%. Among those at risk, the prevalence of audiological and or otological disorder was found to be 90.58% and that of speech and language disorder was 9.42%.

Overall, the prevalence rate according to Census (2001) for speech disorders is 7% and hearing disorders is 6% while NSSO (2002) cites the prevalence for speech disorders as 10% and hearing disorders as 15%. The differences in estimates of census, 2001 and NSSO, 2002 for different types of disabilities may be because of lack of universal definitions and criteria of disabilities used during surveys. The actual

number of speech, language and hearing disorders may be even more because NSSO survey excluded children from birth to 4 years.

Considering all these, the prevalence of speech, language and hearing disorders may be somewhere between 1.8% and 6.3%. As per the statistics, 6.3% of persons would have communication disorders.

THE PROJECT This project was proposed to initially strengthen the clinical activities of the three Outreach Service Centers (OSCs) of the Department of Prevention of Communication Disorders (POCD) of All India Institute of Speech and Hearing (AlISH) the details of which are as shown in Table 5.

Table 5

Details of the Outreach Service Centers (OSC's)

| SI.
No. | Location of the OSC's | Hobli | Taluk | District and State |
|------------|---|---------------|-----------|-------------------------------|
| 1 | Primary
Health
Center,
Hullahalli | Hullahalli | Nanjangud | Mysuru,
Karnataka |
| 2 | Primary
Health
Center,
Akkihebbalu | Akkihebbalu | K.R.Pete | Mandya,
Karnataka |
| 3 | Primary
Health
Center,
Gumballi | Santhemaralli | Yelandur | Chamarajanagara,
Karnataka |

The OSC's in Hullahalli and Akkihebbalu started functioning from November 2009 and the OSC in Gumballi started functioning from July 2010. The three OSC centers differed in terms of the infrastructure, manpower, number of villages included, population coverage and the number and type of health programs (both central and state schemes) that were initiated and implemented.

The three Primary Health Centers (PHC's) where the OSC's are housed, had intrinsic differences in terms of the grades offered for the PHC, administrative control (under the Ministry of Health and Family Welfare, Karnataka or NGO), the number of population catered to, number of villages attached to PHC, infrastructure at the PHC, general approach to health rehabilitation and other issues. The PHC at Akkihebbalu and Hullahalli were under the control of Ministry of Health and Family Welfare, Karnataka and the PHC at Gumballi on the other hand differed with reference to the administrative control (managed by Karuna Trust, an NGO in Mysuru), and the Accredited Social Health Activists (ASHA) workers were engaged in the implementation of health programs of the Karnataka State.

The Level 1 of the project was proposed to conduct house to house survey to identify persons with speech, language and hearing disorders (hereinafter referred to as communication disorders) in Mysore, Mandya and Chamarajanagara districts of Karnataka state. All the villages attached to the Hullahalli Hobli of Nanjangud Taluk in Mysore District, Akkihebbalu Hobli of K.R.Pete Taluk and Santhemaralli Hobli of Yelandur Taluk in Chamarajanagara district were included for the survey in Level I.

In Akkihabbalu and Hullahalli Hoblis, a *vertical model* of survey was conducted, wherein volunteers from homemakers and high school students were selected and trained by AlISH in a predetermined manner to facilitate house to house survey of persons with communication disorders. In the Santhemaralli Hobli attached to Gumballi OSC, an *integrated model* of survey was proposed with the intention of including ASHA workers (who are actively involved in health schemes for other conditions such as mental health, leprosy program, immunization, mother child care etc) and training them for identification of persons with communication disorders also during house to house survey in the villages.

The Objectives of the project were as follows:

- 1. Training ASHA workers in Gumballi Hobli and Volunteers (including home makers and high school students) for identification of various communication disorders in a total population of 2,11,466 persons by conducting house to house survey in:
 - 77 villages of Hullahalli hobli of Nanjangud taluk in Mysuru district, falling under 6 PHCs with 15,623 houses and 1,01,852 population.
 - 54 villages of Akkihebbalu hobli of K.R.Pete taluk in Mandya district, falling under 5 PHCs with 6,071 houses and 37,521 population.
 - 31 villages of Gumballi hobli of Yelandur taluk in Chamarajanagara district, falling under 4 PHCs with 11,018 houses and 72,093 population.
- 2. Preparing/field testing checklists, questionnaires and protocols as listed below for use in the survey:
 - Demographic sheets
 - Short checklist for screening persons with communication disorders.
 - Checklist to screen for developmental milestones in hearing, speech and language disabilities.
 - High Risk Register for screening persons with communication disorders.
 - Referral slips to be used by ASHA workers and the volunteers.
 - Survey booklet to enter the details after house to house survey by the ASHA workers and the volunteers.
 - Resource Manual for the ASHA workers and volunteers (in English and Kannada).

(Copies in Appendix 1.1 to 1.7).

- 3. Identifying prevalence of communication disorders for the population surveyed in the selected regions in this level of the project.
- 4. Facilitating evaluation and diagnoses for persons identified with various communication disorders through the survey and ensure that they seek professional services of Speech-Language Pathologists and Audiologists in the Outreach Rehabilitation Service Centers run by AIISH located at Gumballi, Akkihebbalu and Hullahalli PHC centers.

5. Providing guidance and counseling support for tertiary rehabilitation process for those with established diagnosis of communication disorders.

METHOD

Selection of ASHA Workers and Volunteers who were not employees of any other group of health workers) with a minimum education of Higher primary education and could speak read and write in Kannada were selected from respective villages or nearby villages where the survey was planned. They were screened and interviewed before involving them in the project for survey in Akkihebbalu and Hullahalli hoblis. There were 22 and 39 homemakers recruited as volunteers in the Akkihebbalu hobli and Hullahalli hobli of K.R.Pete Taluk and Nanjangud taluk respectively.

For the selection of volunteers from high schools (studying in 8th and 9th grade), a list of students willing to participate in the survey on weekends was first obtained from the headmasters/headmistresses of schools in various villages. They were interviewed before involving them in the project for survey in Akkihebbalu and Hullahalli hoblis. There were 10 and 19 student volunteers recruited in the Akkihebbalu hobli and Hullahalli hobli of K.R.Pete Taluk and Nanjangud taluk respectively.

51 ASHA workers, who were catering to other health related screening programs in Gumballi were recruited in the Gumballi hobli of Yelandur taluk.

Duration of the
Survey (in four
phases)The survey was conducted in *four phases* in Level 1. The overall
duration of survey was 18 months from 21/09/2010 to 20/03/2012 in
Level 1 and the details are shown in Table 6.

| Table 6 | | | |
|----------|------------------|------------------|-------|
| Duration | of the survey in | the three distri | icts |
| SI No. | District | Taluk | Hobli |

| 1 | Mandya | K.R. Pete | Akkihebbalu |
|---|-----------------|-----------|-------------|
| 2 | Mysore | Nanjangud | Hullahalli |
| 3 | Chamraja-nagara | Yelandur | Gumballi |

Summary Data of Volunteers and Survey (Four Phases) The details of Home maker Volunteers (in K.R.Pete & Nanjangud Taluk) are presented tables 7, 8, 12, 13, 15, 16, 18 and 19 and ASHA Workers (in Yelandur taluk) are given in table 9, 14, 17 and 20.

It may be noted that volunteers from high schools (recruited from 8th and 9th Std in Govt. High Schools) were recruited in Hullahalli and Akkihebbalu on a trial basis only in Phase 1. Due to non availability of their continuous services, they were not continued in Phase 2 of Level 1 survey. The details of high school volunteers in Phase 1 are given in Table 10 & 11.

Table 7

Details of the Volunteers (Homemakers) from Akkihebbalu in Phase 1

| SI.
No. | Name of
the
volunteer | Identification
No. | Villages Surveyed |
|------------|-----------------------------|-----------------------|---------------------------|
| 1. | Shobha | AH - 01 | Akkihebbal |
| 2. | Geetha J.N. | AH - 02 | Jainahalli, Mudlapura |
| 3. | Nageshwari | AH - 03 | Machaholalu, Singanahalli |

| 4. | Asha A.L. | AH - 04 | Vaddaragudi, Dadadahalli
Mookanakopplu |
|----|-----------|---------|---|
| 5. | Asha | AH - 05 | Alambadi, Hosa Mavinakere
Ippanahalli |



Table 8

Details of the Volunteers (Homemakers) from Hullahalli in Phase 1

| SI. | Name of the | Identification | Villages Surveyed |
|-----|----------------|----------------|-----------------------|
| No. | volunteer | No. | |
| 1. | Manjula | HU- 01 | Hullahalli |
| 2. | Lakshmamma | HU- 02 | Hullahalli |
| 3. | Jayalakshmamma | HU- 03 | Belele, Shiramalli |
| 4. | Jyothi | HU- 04 | Madapura, Karya |
| | | | Mainskaggaluru |
| 5. | Prema | HU- 05 | Kembal |
| 6. | Nirmala | HU- 06 | Ahalya, Rampura |
| 7. | Rajamma | HU- 07 | Kurihundi |
| 8. | Shaila | HU- 08 | Hegdahalli, Mobahalli |
| | | | Kongalli |



ಎಡದಿಂದ ಬಲಕ್ಕೆ: ರಾಜಮ್ಮ, ಮಂಜುಳ, ಲಕ್ಷ್ಮಮ್ಮ, ಶೈಲ, ಪ್ರೇಮ, ಜ್ಯೋತಿ, ಜಯಲಕ್ಷ್ಮಮ್ಮ

Note: Services of Mrs. Nirmala was discontinued due to irregularity in the work.

Table 9 Details of the ASHA workers from Gumballi in Phase 1

| SI.
No. | Name of the volunteer | Identification.
No. | Villages Surveyed |
|------------|-----------------------|------------------------|-------------------|
| 1. | Umamaheshwari | GU- 01 | Gumballi |
| 2. | Nagamani | GU- 02 | Gumballi |
| 3. | Lakshmi | GU- 03 | Uppinamole |
| 4. | Shivamma | GU- 04 | Yaragamballi |
| 5. | Sunitha S. | GU- 05 | Dasanahundi |
| 6. | Prema N. | GU- 06 | Y K mole |
| 7. | Savithramma | GU- 07 | Y K mole |
| 8. | Mahadevi | GU- 08 | Y K mole |
| 9. | Pushpalatha | GU- 09 | Changasahalli |
| 10. | Rajeshwari | GU- 10 | Changasahalli |
| 11. | Indrani | GU- 11 | Komanapura |
| 12. | Sannamma | GU- 12 | Yaragamballi |
| 13. | Vijaya | GU- 13 | Yaragamballi |
| 14. | Bhagyalakshmi | GU- 14 | Krishnapura |
| 15. | Pramiladevi | GU- 15 | Yaragamballi |
| 16. | Mangalamma | GU- 16 | Ganigannur |
| 17. | Sumalatha | GU- 17 | Komanapura |
| 18. | Sannamma | GU- 18 | B R Hills |
| 19. | Kamala | GU -19 | B R Hills |



ಎಡದಿಂದ ಬಲಕ್ಕೆ: ಮಹಾದೇವಿ, ಉಮಾ ಮಹೇಶ್ವರಿ, ನಾಗಮಣಿ, ಲಕ್ಷ್ಮಿ, ಶಿವಮ್ಮ, ಸುನಿತಾ, ಪ್ರೇಮ, ಸಾವಿತ್ರಮ್ಮ, ಪುಷ್ಪಲತ, ರಾಜೇಶ್ವರಿ, ಇಂದ್ರಾಣಿ, ಸಣ್ಣಮ್ಮ, ವಿಜಯ, ಭಾಗ್ಯಲಕ್ಷ್ಮೀ, ಮಂಗಳಮ್ಮ, ಪ್ರಮೀಳದೇವಿ, ಸುಮಲತ

Note: Services of Mrs. Sannamma and Mrs.Kamala were discontinued due to irregularity in the work

Table 10 Details of the High-School Student Volunteers from Akkihebbalu in Phase 1

| SI. | Name of the | Identification | Villages Surveyed |
|-----|-------------------|----------------|-------------------|
| No. | student volunteer | No. | |
| 1 | Sandyashree A.M. | HS - 1/C | Akkihebbalu |
| 2 | Vijaykumar N. | HS - 1/D | Akkihebbalu |
| 3 | Mahesh J.R. | HS - 2/C | Jainahalli |
| 4 | Ashwini M.B. | HS - 2/D | Mudlapura |
| 5 | Suprith M.D. | HS - 3/C | Machaholalu |
| 6 | Sumanth S.P. | HS - 3/D | Singanahalli |
| 7 | Dharmaraj | HS - 4/C | Vaddragudi |
| 8 | Chaithra M.S. | HS - 4/D | Dadadahalli |
| 9 | Biresh A.M. | HS - 5/C | Mookana koppalu |
| 10 | Manjunath N. | HS - 5/D | Alambaadi & |
| | - | | Hosa Mavinkere |

Note: Volunteers from high schools (8^{th} and 9^{th} std) were recruited in Hullahalli and Akkihebbalu on a trial basis only in Phase 1. Due to non availability of their continuous services, they were not continued in Phase 2 of Level 1 survey.

| SL Name of the Identification Villages Surveyed | |
|---|--|
| Si ivalle of the identification villages surveyed | |
| No. student No. | |
| volunteer | |
| 1 Thangaraj R. HS - 1/C Hullahalli A | |
| 2 Ramya R. HS - 2/C Hullahalli B | |
| 3 Girish M. HS - 3/C Shirmalli | |
| 4 Mahesh HS - 3/C Shirmalli | |
| 5 Krishna Nayak HS - 3/E Belale | |
| 6 Preethi B. HS - 4/C Maadaapura | |
| 7 Girish K.M. HS - 4/D Kaggaluru & | |
| Kaaryamains | |
| 8 Shivakumar B. HS5/C Bidaragudu | |
| 9 Mahesh M. HS - 5/D Hallikerehundi | |
| 10 Kumar M. HS5/E Kembale | |
| 11 Hemashree HS - 6/C Rampura | |
| 12 Prema HS - 6/D Rampura | |
| 13 Rangaswamy HS - 6/E Gowdru hundi | |
| 14 Nijaguna HS - 6/F Ahalya | |
| 15 Srinivasa K. HS - 7/C Kurihundi | |
| 16 Guruprasad HS - 8/C Kongalli | |
| 17 Yogesh H.J. HS - 8/D Heggadahalli | |
| 18 Manoj H. HS - 8/E Heggadahalli | |
| 19 Praveen M.N. HS - 8/F Moballi & Gandigrama | |

Table 12

Details of the Volunteers (Homemakers) from Akkihebbal in Phase 2

| SI.
No. | Name of the volunteer | ldentification.
No. | Villages Surveyed |
|------------|-----------------------|------------------------|--|
| 1. | Shoba | AH - 6 | Beeruvalli, Nandipura
Arenahalli Colony |
| 2. | Prabhavathi
S.R. | AH - 7 | Sakshibeedu |
| 3. | Deepika C.R. | AH - 8 | Hosa Dudukanahalli
Halle Dudukanahalli
Natanahalli |
| 4. | Pankaja | AH - 9 | Gubbahalli, Beekanahalli |
| 5. | Yashodamma | AH - 10 | Moodanahalli
Manchibeedu |
| 6. | Leelavathi | AH - 11 | Chowda Samudra
Hangaramudhanahalli. |



Note: The service of Mrs. Prabhavathi S.R. was discontinued due to irregularity in the work.

Table 13

Details of the Volunteers (Homemakers) from Hullahalli in Phase 2

| SI.
No. | Name of the volunteer | Identification.
No. | Villages Surveyed |
|------------|------------------------|------------------------|-------------------------------------|
| 1. | Manjula S. | HU-01 | Kappusoge |
| 2. | Lakshmamma | HU-02 | Madanahalli,Huchaganni
J P Hundi |
| 3. | Jayalakshmamma
J.V. | HU-03 | lbjala |
| 4. | Jyothi | HU-04 | Duggahalli, Yalehalli |
| 5. | Prema | HU-05 | Kannenuru,
Alayanapura |
| 6. | Nagarathna | HU-09 | Chandravadi, Motha |
| 7. | Puttamma P. | HU-10 | Haradanahalli |
| 8. | Sudha A.S. | HU-11 | Akala, Basapura |
| 9. | Savitha K. | HU-12 | Kattur |
| 10. | Gayathri | HU-13 | Kadaburu, Rajur |

| 11. | Shruthi M.S. | HU-14 | Nellithalapura |
|-----|--------------|-------|----------------|
| 12. | Sakamma | HU-15 | Taraganahalli |



Note: The services of Mrs Lakshmamma, Mrs. Prema, Mrs. Nagarathna and Mrs. Savitha K. were discontinued due to irregularity in the work.

| SI. | Name of the | Identification. | Villages Surveyed |
|-----|----------------|-----------------|-------------------|
| No. | volunteer | No. | |
| 1. | Mahadevamma P | GU - 20 | Gowdahalli |
| 2. | Mahadevamma, M | GU - 21 | Gowdahalli |
| 3. | Yashodha | GU - 22 | Alkere Agrahara |
| 4. | Sudhamani | GU - 23 | Mallarapalya |
| 5. | Ambika | GU - 24 | Boodhithittu |
| 6. | Bhagyamma | GU - 25 | Yeriyuru |
| 7. | Chikamma | GU - 26 | Yeriyuru |
| 8. | Nagamma | GU - 27 | Yeriyuru |
| 9. | Mahadevamma | GU - 28 | Yeriyuru |
| 10. | Leelavathi | GU - 29 | T. Hosur |
| 11. | Padma | GU - 30 | Bannisarige & |
| | | | Rampura |
| 12. | Manjula | GU - 31 | Bannisarige & |
| | | | A Devarahalli |
| 13. | Rajamma | GU - 32 | Chamalapura & |
| | | | Shivakalli |

Table 14

Details of the ASHA workers from Gumballi in Phase 2



Note: The service of Mrs Rajamma was discontinued due to irregularity in the work.

| Tabl | e 1 | 5 |
|------|-----|---|
|------|-----|---|

| Details of the Volunteers | (homemakers | from Akkihebbal | in Phase 3 |
|---------------------------|-------------|-----------------|------------|
|---------------------------|-------------|-----------------|------------|

| SI.
No. | Name of the volunteer | Identification.
No. | Villages Surveyed |
|------------|-----------------------|------------------------|-----------------------------------|
| 1. | Sheela H.P. | AH-12 | Belthuru & |
| 2. | Asha | AH-13 | Basavanahalli,
Somanathapura & |
| 3. | Pushpa | AH-15 | Ambigarahalli &
Sangapura |
| 4. | Bhavitha | AH-14 | Somanahalli |
| 5. | Suguna | AH-16 | Momballi |
| 6. | Deepa | AH-17 | Alambadi kavalu |
| 7. | Bhavya | AH-18 | Pura |



Note: The services of Mrs Sheela H.P. and Bhavya were discontinued due to irregularity in the work.

| Table 16 | Та | ble | e 1 | 6 |
|----------|----|-----|-----|---|
|----------|----|-----|-----|---|

Details of the Volunteers (Homemakers) from Hullahalli in Phase 3

| SI.
No. | Name of the volunteer | Identification.
No. | Villages Surveyed |
|------------|-----------------------|------------------------|--------------------------------------|
| 1. | Gowramma K.C. | HU-16 | Kellupura
Mellahalli |
| 2. | Manjula S | HU-17 | Kadajetti
Madakebundi |
| 3. | Nagalakshmi G. | HU-18 | Hariyuru
Jalahalli
Chennapatna |
| 4. | Manjula | HU-19 | Hura |
| 5. | Roopa C. | HU-20 | Siddegowdanahundi |
| 6. | Shruthi | HU-21 | Yadahalli |
| 7. | Kavitha | HU-22 | Malkundi |
| 8. | Jyothi | HU-22 (b) | M Kongalli |



| Та | ble | Э. | 17 | 7 |
|----|-----|----|----|---|
| | | | | |

Details of the ASHA workers from Gumballi in Phase 3

| SI. | Name of the | Identification. | Villages |
|-----|-------------|-----------------|-----------|
| No. | volunteer | No. | Surveyed |
| 1. | Gowramma | GU-33 | Yelanduru |
| 2. | Shivamma P. | GU-34 | Yelanduru |
| 3. | Mangalamma | GU-35 | Yelanduru |
| 4. | Lakshmi | GU-36 | Yelanduru |
| 5. | Mahadevi | GU-37 | Yelanduru |
| 6. | Prabhavathi | GU-38 | Ambele |
| 7. | Yashoda C. | GU-39 | Ambele |
| 8. | Sunanda | GU-40 | Ambele |



ಎಡದಿಂದ ಬಲಕ್ಕೆ: ಸುನಂದ, ಯಶೋಧ, ಮಂಗಳಮ್ಮ, ಮಹಾದೇವಿ, ಶಿವಮ್ಮ, ಪ್ರಭಾವತಿ, ಲಕ್ಷ್ಮಿ, ಗೌರಮ್ಮ.

Table 18:

| Details of the Volunteers | (Homemakers) from | Akkihebbalu in Phase 4 |
|---------------------------|-------------------|------------------------|
| | Mandagere PHC | |

| SI.
No. | Name of
the
volunteer | Identification.
No. | Villages Surveyed |
|------------|-----------------------------|------------------------|---------------------|
| 1. | Rathna | AH-19 | Bevinahalli, |
| | | | Bevinahalli koppalu |
| 2. | Mangala | AH-20 | Gadde hossuru |
| | - | | Chikamandagere |
| | | | koppalu |
| 3. | Sudha M.N. | AH-21 | Shravanahalli, |
| | | | Uddinabore |
| 4. | Premila | AH-22 | Mandagere |
| | M.N. | | - |

| Alenahalli PHC | | | | | |
|----------------|--------------------------|------------------------|---|--|--|
| SI.
No. | Name of the
volunteer | Identification.
No. | Villages Surveyed | | |
| 1. | Yashodamma | AH-23 | Honnenahalli Honnenahalli kodi Honnenahalli kodi Honnenahalli kere Honnenahalli koppalu | | |
| 2. | Shoba | AH-24 | 5) Alenahalli
6) Kythanahalli | | |



| Table 19 | | | | | |
|----------------|-------------------------|--------|------------|---------|-----|
| Details of the | Volunteers (Homemakers) |) from | Hullahalli | in Phas | e 4 |
| | Kasuvinahall | i PHC | | | |

| SI.
No. | Name of the volunteer | ldentification.
No. | Villages Surveyed |
|------------|-----------------------|------------------------|-------------------|
| 1. | Lakshmi | HU-23 | Haginavalu |
| 2. | Nanjamani | HU-24 | Aratale |
| 3. | Mahadevamma | HU-25 | Ambale |
| 4. | Manjula | HU-26 | Ambale |
| 5. | Kalpana | HU-27 | Haginavalu |
| | | | Siddaiahna hundi |
| 6. | Manjula | HU-28 | Valagere |
| 7. | Mahadevamma | HU-29 | Valagere |

| 8. | Manjula | HU-30 | Kasuvinahalli
Makanapura |
|-----|---------|-------|-------------------------------|
| 9. | Jyothi | HU-31 | Sooralli
Elachigere |
| 10. | Asha | HU-32 | Krishnapura
Lakshmana pura |

Maduvinahalli -PHC

| SI.
No. | Name of the
volunteer | ldentification.
No. | Villages Surveyed |
|------------|--------------------------|------------------------|------------------------------------|
| 1. | Roopa | HU-33 | Devarayashetti
pura(Hanchipura) |
| 2. | Manjula | HU-34 | Maduvinahalli
Hosbeedu |
| 3. | Nagalakshmi | HU-35 | Anjanapura
Kurubarahatti |

Yadiyala -PHC

| SI.
No. | Name of the volunteer | Identification.
No. | Villages Surveyed |
|------------|-----------------------|------------------------|-------------------|
| 1. | Indumathi | HU-36 | Kandegala |
| 2. | Kavitha | HU-37 | Hadya |
| 3. | Shruthi | HU-38 | Bunkalli & |
| | | | Hadyada hundi |
| 4. | Indramma | HU-39 | Yadiyala |
| 5. | Rekha | HU-40 | Yadiyala |



ಎಡದಿಂದ ಬಲಕೈ: ಇಂದ್ರಮ್ಮ, ನಂಜಮಣಿ, ಮಹದೇವಮ್ಮ, ಮಂಜುಳ, ಮಹದೇವಮ್ಮ, ಶ್ರುತಿ, ನಾಗಲಕ್ಷ್ಮಿ, ಜ್ಯೋತಿ, ಮಂಜುಳ.

| Tabl | e 20 |
|------|------|
|------|------|

Details of the ASHA workers from Gumballi in Phase 4

| SI. | Name of the | Identification. | Villages |
|-----|---------------|-----------------|--------------|
| NO. | volunteer | NO. | Surveyed |
| 1. | Savitha | GU-41 | Honnur |
| 2. | Yashoda | GU-42 | Kesthuru |
| 3. | Gowramma | GU-43 | Kandahalli |
| 4. | Jayamma | GU-44 | Kesthuru |
| 5. | Nagamani | GU-45 | Kesthuru |
| 6. | Rajamma | GU-46 | Kesthuru |
| 7. | Puttathayamma | GU-47 | Beekanahalli |

| 8. | Yashoda A | GU-48 | Honnuru |
|-----|---------------|-------|------------|
| 9. | Nagarathna K | GU-49 | Duggahatti |
| 10. | Sharadhamba | GU-50 | Honnuru |
| 11. | Puttalingamma | GU-51 | Mellahalli |
| 12. | Vimala | GU-52 | Honnuru |
| 13. | Siddanagamma | GU-53 | Kesthuru |
| 14. | Radha | GU-54 | Honnuru |



ಎಡದಿಂದ ಬಲಕ್ಕೆ: ಯಶೋಧ, ವಿಮಲ, ಪುಟ್ಟಲಿಂಗಮ್ಮ, ಸವಿತ, ಜಯಮ್ಮ, ನಾಗಮಣಿ, ಪುಟ್ಟತಾಯಮ್ಮ, ರಾಜಮ್ಮ, ಯಶೋಧ ಎ, ನಾಗರತ್ನ, ಸಿದ್ದನಾಗಮ್ಮ, ಗೌರಮ್ಮ.

Overview of ASHA workers and Volunteers across the 3 districts

An overview of the number of ASHA workers and volunteers recruited for the survey representing the number of villages and population surveyed by them in the three hoblis across the three districts is shown in Table 21.

Table 21

Overview of the survey carried out by the ASHA workers and Volunteers

| SI
No. | District &
Taluk | Hobli | No. of
ASHA
workers
(A)/
Volun-
teers (V) | Tot-al
No. of
PHCs | Total No.
of villa-
ges
survey-
ed | Total no.
of
houses
survey-
ed | Total
population
screened for
communication
disorders |
|-----------|---------------------------------|------------------|--|--------------------------|--|--|---|
| 1 | Mandya,
K.R.
Pete | Akki-
hebbalu | 22 - V | 5 | 54 | 6,071 | 37,521 |
| 2 | Mysore,
Nanjangud | Hulla-halli | 40 - V | 6 | 77 | 15,623 | 1,01,852 |
| 3 | Chamraja-
nagara
Yelandur | Gum-balli | 51 - A | 4 | 31 | 11,018 | 72,093 |
| | | | 113 | 15 | 162 | 32,712 | 2,11,466 |

Training of ASHA workers and Volunteers

ASHA workers from Gumballi PHC (catering to Santhemaralli hobli) and selected Homemaker volunteers and high school students as volunteers from Akkihebbal and Hullahalli hoblis were trained for one day at AlISH, Mysuru. They were oriented and trained to: (a) Identify the characteristics and high risk factors of various communication disorders seen in children and adults [facilitated through provision of a printed manual prepared in Bilingual text (English-Kannada) as given in *Appendix 1.7* and also though audio visual input by Speech-Language Pathologists and Audiologists] (b) Use the checklists and protocols provided to them to facilitate identification of persons at risk or with

communication disorders when they conduct house to house survey in villages and (c) Use the data entry sheets, referral slips and their identification codes appropriately while filling the details after the survey.

Supervision The ASHA workers were supervised and guided in the field by the Field Supervisor and Speech and Hearing Assistant under the supervision of the Research officer and investigators. They were supervised and guided to refer the persons identified as having communication disorders to the OSC located in Gumballi PHC. The Homemaker volunteers and high school student volunteers were supervised and guided to refer the persons identified as having communication disorders to the OSC located in the PHCs of Akkihebbalu and Hullahalli.

Phase wise Since the population to be screened for communication disorders was details of approximately 2,07,132, as per the PHC records, the survey was conducted in 4 phases: Phase 1 to 4. In Phase 1 of the survey, villages Geographical location, located at a perimeter of 5 kms from the OSC in the three hoblis were included. In Phase 2 of the survey, villages located at a perimeter of 10 Population, kms from the OSC in the three hoblis were included. In Phase 3 of the ASHA workers & Volunteers survey, villages located at a perimeter of 15 kms from the OSC in the three hoblis were included. In Phase 4 of the survey, villages located at a perimeter of >15 kms from the OSC in the three hoblis were included. (Appendix 2). Geographical Locations Covered in different taluks across the four phases are given in table 22, 23, 24, 25 & summary for the same is given in table 26.

Table 22

Details of Phase I of the Survey

| MANDYA DISTRICT | | MYSURU DISTRICT | CHAMARAJANAGARA
DISTRICT | Total |
|------------------------------------|----|--------------------------------|------------------------------------|-------|
| K.R.Pete Taluk | | Nanjangud Taluk | Yelandur Taluk | |
| Akkihebbalu Hobli | | Hullahalli Hobli | Gumballi Hobli | |
| List of Villages in Akkihabbalu PH | 2 | List of Villages in | List of Villages in | |
| & Jainahalli Sub PHC | | Hullahalli PHC | Gumballi PHC | |
| Α | | | | |
| 1. Akkihebbalu | | 1. Hullahalli | 1. Gumballi | |
| 2. Hosa Daddadahalli | | 2. Ram pura | 2. Gangawadi | |
| 3. Hale Daddadahalli | | 3. Gowdru Hundi | 3. Dasanahundi | |
| 4. Machaholalu | | 4. Ahalya | 4. Yaragamballi | |
| 5. Mookanakoppalu | | 5. Bidara Gudu | 5. B.R.Hills | |
| 6. Railway Station | | 6. Hallikere | 6. Komaranapura | |
| | | Hundi | | |
| 7. Vaddaragudi | | 7. Kembal | 7. Vaddagere | |
| В | | 8. Kuri Hundi | 8. Y.K.Mole | |
| Jainahalli - Sub PHC | | 9. Mada Pura | 9. Ganiganur | |
| 1. Jainahalli | | 10 . Karya | 10. Krishnapura | |
| 2. Alambaadi | | Kaggal Uru | Uppinamole | |
| Hosa Mudlapura | | 12. Shirmali | Changachahalli | |
| 4. Hale Mudlapura | | 13. Belele | Hegdehundi | |
| 5. Ippanahalli | | 14. Kongalli | | |
| 6. Hosamavinakere | | 15. Hegdalli | | |
| 7. Singanahalli | | 16. Moballi | | |
| Total | 14 | 16 | 13 | 43 |
| Total- No. of Home maker (|)5 | 08 | 17 | 30 |
| Volunteers (in | | | | |
|---------------------------|--------|--------|--------|--------|
| Akkihebbalu and | | | | |
| Hullahalli) and ASHA | | | | |
| workers (in Gumbahalli) | | | | |
| included in the survey | | | | |
| Total No. Houses surveyed | 2,044 | 4,272 | 3,529 | 9,845 |
| Total Population surveyed | 10,256 | 29,827 | 19,920 | 60,003 |

Details of Phase 2 of the Survey

| MANDYA DISTRICT M | | MYSURU DISTRICT | | AMARAJANAGARA | Total |
|--------------------------------|---------|-----------------|--------|------------------|--------|
| | | DIS | STRICT | | |
| K.R.Pete Taluk Nanjangud | | gud Taluk | Ye | landur Taluk | |
| Akkihebbalu Hobli | Hullaha | alli Hobli | Gu | mballi Hobli | |
| List of Villages in Berruvalli | List of | Villages in | Lis | t of Villages in | |
| PHC & Mudnahalli Sub PHC | Chandr | avadi PHC | Go | wdahalli PHC | |
| А | | | | | |
| Beeruvalli PHC | | | | | |
| 1. Beeruvalli | 1. | Chandravadi | 1. | Gowdahalli | |
| 2. Gubballi | 2. | Motha | 2. | Malarapalya | |
| 3. Nandipura | 3. | Kappusoge | 3. | T.Hossuru | |
| 4. Arenahalli | 4. | Alayan Pura | 4. | Boodhitittu | |
| 5. Beekanahalli | 5. | Kannenuru | 5. | Shivakalli | |
| 6. Colony | 6. | Katturu | 6. | Alakere Agrahara | |
| 7. Handhi Beekanahalli | 7. | Akala | 7. | A.Devarahalli | |
| 8. Sakshibeedu | 8. | Nelitala Pura | 8. | Chamalapura | |
| 9. Hale Dudukanahalli | 9. | Kadaburu | 9. | Bannisarige | |
| 10 Hosa Dudukanahalli | 10. | Bassapura | 10 | Rampura | |
| В | 11. | Rajuru | 11 | Yeriyuru | |
| MudnahaIIi - Sub PHC | 12. | Aragana Halli | | 5 | |
| 1. Mudnahalli | 13. | Hullhagani | | | |
| 2. Natanahalli | 14. | Ibsala | | | |
| 3. Chowdasamudra | 15. | Madana Halli | | | |
| 4. Angara Mudnahalli | 16. | J. P. Hundi | | | |
| 5. Manchibeedu | 17. | Yalehalli | | | |
| | 18. | Shettalli | | | |
| | 19. | Taragana | | | |
| | | Halli | | | |
| | 20. | Duggahalli | | | |
| Total | 15 | 20 | | 11 | 46 |
| Total- No. of Home maker | 05 | 08 | | 12 | 25 |
| Volunteers (in Akkihebbalu | | | | | |
| and Hullahalli) and ASHA | | | | | |
| workers (in Gumbahalli) | | | | | |
| included in the survey | | | | | |
| Total No. Houses surveyed | 1,287 | 4,174 | | 2,679 | 8,140 |
| Total Population surveyed | 9,630 | 21,554 | | 12,243 | 43,427 |

| | ey | | | | | |
|------------------------------|-----------------|------------------|-----|------------------------|----|--------|
| MANDYA DISTRICT | MYSURU DISTRICT | | | AMARAJANAGAR
STRICT | A | Total |
| K.R.Pete Taluk | Nanjang | jud Taluk | Ye | andur Taluk | | |
| Akkihebbalu Hobli | Hullaha | IIi Hobli | Gu | mballi Hobli | | |
| List of Villages in | List of \ | /illages in Hura | Lis | t of Villages in | | |
| Somanahalli PHC & Alambadi | PHC | C C | Yel | andur PHC | | |
| Kavalu Sub PHC | | | | | | |
| A | | | | | | |
| Somanahalli PHC | | | | | | |
| 1. Somanahalli | 1. | Hura | 1. | Yelandur | | |
| 2. Katte Kyathanahalli | 2. | Mellahalli | 2. | Ambele | | |
| 3. Pura | 3. | Kellupura | | | | |
| 4. Sangapura | 4. | Siddegowdana | | | | |
| C . | | Hundi | | | | |
| 5. Ambigarahalli | 5. | Chanpatna | | | | |
| 6. Hosa Belthuru | 6. | Malkund | | | | |
| 7. Hale Belthuru | 7. | M Kongalli | | | | |
| В | 8. | Kadajetti | | | | |
| Alambadi Kavalu - Sub
PHC | 9. | Madike Hundi | | | | |
| 1. Alambadi Kavalu | 10. | Shantayan | | | | |
| | | Hundi | | | | |
| 2. Basavanahalli | 11. | Kaggalli Hundi | | | | |
| 3. Somanathapura | 12. | Madalli | | | | |
| 4. Guduganahalli | 13. | Hariyuru | | | | |
| 5. Momballi | 14. | Jalahalli | | | | |
| Total | 12 | 14 | | | 02 | 28 |
| Total- No. of Home maker | 06 | 08 | | | 80 | 22 |
| Volunteers (in Akkihebbalu | | | | | | |
| and Hullahalli) and ASHA | | | | | | |
| workers (in Gumbahalli) | | | | | | |
| included in the survey | | | | | | |
| Iotal No. Houses surveyed | 1,673 | 2,263 | | 2,2 | 40 | 6,176 |
| Total Population surveyed | 10.987 | 13,916 | | 11,2 | 49 | 36,152 |

Table 24 Details of Phase 3 of the Survey

Table 25 Details of Phase 4 of the Survey

| MA | NDYA DISTRICT | MYSURU DISTRICT | | CH | IAMARAJANAGARA | Total |
|-----|-------------------------|-----------------|----------------------|-----|-------------------|--------|
| | | | | DI | STRICT | |
| K.F | R.Pete Taluk | Nanjang | ud Taluk | Ye | landur Taluk | |
| Ak | kihebbalu Hobli | Hullahal | li Hobli | Gu | imballi Hobli | |
| Lis | t of Villages in | List of V | illages in | Lis | st of Villages in | |
| Ma | ndagere PHC & | Kasuvina | a Halli PHC & | Ho | onnur PHC | |
| Ale | enahalli sub PHC | Maduvin | ahalli PHC | | | |
| | A | | A | | | |
| | Mandagere PHC | | Kasuvinahalli
PHC | | Honnur PHC | |
| 1. | Mandagere | 1. | Kasuvina Halli | 1. | Kandahalli | |
| 2. | Shravanahalli | 2. | Makana Pura | 2. | Mellahalli | |
| 3. | Uddina Bore | 3. | Byalaru Hundi | 3. | Duggahalli | |
| 4. | Chikka Mandagere | 4. | Sooralli | 4. | Honnur | |
| | Koppalu | | | | | |
| 5. | Gadde Hosuru | 5. | Elachigere | 5. | Kesturu | |
| 6. | Bevinahalli Koppalu | 6. | Siddayana | | | |
| | | | Hundi | | | |
| 7. | Bevinahalli | 7. | Kuguluru | | | |
| | В | 8. | Lakshmanapura | | | |
| | Alenahalli PHC | 9. | 9. Krishna Pura | | | |
| 1. | Alenahalli | 10. | 10. Holagere | | | |
| 2. | Honnenahalli | 11. | Aratale | | | |
| 3. | Honnenahalli Kodi | 12. | Haginavalu | | | |
| 4. | Honnenahalli Kere | 13. | Huskuru | | | |
| 5. | Honnenahalli Koppalu | 14. | Ambale | | | |
| 6. | Kyathanahalli | | В | | | |
| | | | Maduvinahalli | | | |
| | | | РНС | | | |
| | | 1. | Maduvina Halli | | | |
| | | 2. | Hosa Beedu | | | |
| | | 3. | Anjana Pura | | | |
| | | 4. | Kurubara Hatti | | | |
| | | 5. | Hanchi Beedu | | | |
| | | 6. | Naganna Pura | | | |
| | | 7. | Ballur Hundi | | | |
| | | 8. | Indira Nagara | | | |
| | | | С | | | |
| | | | Yadiyala PHC | | | |
| | | 1. | Yadiyala | | | |
| | | 2. | Bankalli | | | |
| | | 3. | Kandegala | | | |
| | | 4. | Hadya | | | |
| | | 5. | Hadyad Hundi | | | |
| Tot | tal | 13 | 27 | | 05 | 45 |
| Tot | tal- No. of Home maker | 06 | 16 | | 14 | 36 |
| Vol | unteers (in Akkihebbalu | | | | | |
| and | Hullahalli) and ASHA | | | | | |
| wo | rkers (in Gumbahalli) | | | | | |
| Inc | luded in the survey | 1.0// | 1011 | | 0.530 | 0 550 |
| 101 | al No. Houses surveyed | 1,066 | 4914 | | 2,570 | 8,550 |
| 101 | ai Population surveyed | 11,926 | 38,681 | | 16,943 | 67,550 |

| SI.
No | Phases | Total
No. of | Total
No. | Total
No. of | Total | No. of Home
maker | Total population |
|-----------|---------|-----------------|--------------|-----------------|---------|----------------------|------------------|
| | | Hoblis | of | villages | houses | volunteers and | screened for |
| | | | PHC | covered | covered | included | disorders |
| 1 | Phase 1 | 03 | 04 | 43 | 9,845 | 30 | 60,003 |
| 2 | Phase 2 | 03 | 04 | 46 | 8,140 | 25 | 43,427 |
| 3 | Phase 3 | 03 | 04 | 28 | 6,176 | 22 | 36,152 |
| 4 | Phase 4 | 03 | 06 | 45 | 8,551 | 36 | 67,550 |
| | Total | 12 | 18 | 162 | 32,712 | 113 | 2,07,132 |

Overview of all four Phases of the Survey

Time line

The time line for level 1 of the survey, including follow up evaluation and guidance offered to persons identified with communication disorders was as shown in Figure 1 (Overall 21 months from 20.9.2010 to 5.6.2012).

Figure 1: Timeline of the project

| Activity | Period in Months | | |
|--|------------------|------|---------|
| | 0-1 | 2-19 | 20 - 21 |
| Recruitment of personnel of the Project | | | |
| Selection and training of ASHA workers, Homemakers | | | |
| Volunteers and High school students | | | |
| Survey Program | | | |
| Evaluations of persons with communication | | | |
| disorders at OSC's | | | |
| Evaluations of persons with communication | | | |
| disorders at Camps | | | |
| Report writing | | | |

Follow up procedures for evaluation of persons identified with communication disorders through the survey

100 % follow up of all the identified persons was carried out. The persons identified with communication disorders from various villages in the hoblis of Hullahalli, Akkihebbalu and Gumballi were referred to the Outreach Service Centers (OSCs) of the All India Institute of Speech & Hearing, Mysuru at the PHCs of Hullahalli, Akkihebbalu and Gumballi respectively. At the OSCs, detailed evaluation, diagnosis and further rehabilitation process was undertaken by Speech-Language Pathologists and Audiologists. For those persons who could not attend the OSCs, they were referred to series camps arranged through the project by the institute at various PHCs in order to carry out the activities of evaluation, diagnosis and referral for further rehabilitation needs. Despite this attempt few could not attend the camps. The purpose was to ensure evaluation of 100 % of the persons identified with various communication disorders and recommend further rehabilitation process.

Checking awareness for communication disorders in

A questionnaire was prepared to test for awareness of communication disorders and facilities available for the rehabilitation of such individuals among the ASHA workers/volunteers recruited for the survey (Appendix 3 A). Another questionnaire was prepared to test the ASHA workers, Volunteers & General Public awareness of general public (representing various strata of the society in the villages where survey was conducted) with regard to the types of communication disorders (*Appendix 3 B*). These were administered to the target groups before the termination of this leg of survey (post hoc -06.08.2012 to 30.08.2012). The responses are analyzed and reported under results section.

RESULTS

The number and gender distribution of persons with communication disorders as identified by ASHA workers and Volunteers through survey

The total number and gender distribution of persons with communication disorders identified through survey by the ASHA workers and Volunteers across 4 phases in the three hoblis of the three districts is shown in Table 27

Table 27

Total number and gender distribution of persons with communication disorders identified by ASHA workers and Volunteers

| Phases
(1 to 4) | Hobli & PHCs | Total
Population | Persons with communication
disorders identified by ASHA
workers and Volunteers | | |
|--------------------|-----------------|---------------------|--|--------|-------|
| | | - | Male | Female | Total |
| | AKKIHEBBALU | | | | |
| Phase 1 | Akkihebbalu | 10,256 | 238 | 196 | 434 |
| Phase 2 | Beeruvalli | 9,630 | 150 | 118 | 268 |
| Phase 3 | Somanahalli | 10,987 | 149 | 145 | 294 |
| Phase 4 | Mandagere | 7,198 | 86 | 60 | 146 |
| | Alenahalli | 4,728 | | | |
| Sub Total | | 42,799 | 623 | 519 | 1142 |
| | HULLAHALLI | | | | |
| Phase 1 | Hullahalli | 29,827 | 385 | 312 | 697 |
| Phase 2 | Chandravadi | 21,554 | 308 | 264 | 572 |
| Phase 3 | Hura | 13,916 | 141 | 147 | 288 |
| Phase 4 | Kasuvinahalli | 19,381 | 344 | 368 | 712 |
| | Maduvinahalli | 8,146 | | | |
| | Yadiyala | 11,154 | | | |
| Sub Total | | 1,03,978 | 1178 | 1091 | 2269 |
| | CHAMARAJANAGARA | | | | |
| Phase 1 | Gumballi | 19,920 | 377 | 313 | 690 |
| Phase 2 | Gowdahalli | 12,243 | 163 | 175 | 338 |
| Phase 3 | Yelandur | 11,249 | 121 | 152 | 273 |
| Phase 4 | Honnur | 16,943 | 216 | 190 | 406 |
| Sub Total | | 60,355 | 877 | 830 | 1707 |
| Total | | 2,07,132 | 2678 | 2440 | 5118 |

False positive identifications by the ASHA workers and Volunteers and number evaluated at OSCs and camps for diagnosis The persons identified by the ASHA works and Volunteers were referred to the Outreach Service centers (OSCs) of the Institute located at the PHCs of Akkihabbalu (K.R.Pete Taluk, Mandya district), Hullahalli (Nanjangud Taluk, Mysuru District), and Gumballi (Yelandur Taluk, Chamarajanagara District) respectively for evaluation and diagnosis of the disorders. Comparisons were made to check for false positives and correct identifications by the ASHA workers and Volunteers against the diagnosis made after evaluation at the OSCs by the professionals. Table 28 provides the details of false positive referrals across the 3 districts (inclusive of 4 phases). The false positives across the 4 phases of the survey by the ASHA workers and Home maker volunteers was limited to 4.8 % and correct identifications (as confirmed through detailed evaluation at the OSCs) was 95.23%. Series camps were held as shown in the table 29 to

evaluate those persons who could not visit the Outreach Service Centers due to various reasons.

Table 28

False positive identifications by ASHA workers and Home maker volunteers and total number evaluated at OSCs and Camps

| | | Hoblis | | |
|--|-------------|------------|------------|----------|
| | Akkihebbalu | Hullahalli | Gumballi | Total |
| Number of persons identified by | | | | |
| ASHA workers & volunteers | | | | |
| through survey | 1,142 | 2,269 | 1,707 | 5,118 |
| False Positive identifications by | 68 | 95 | 81 | 244 |
| the ASHA workers and Volunteers | | | | |
| Number of persons evaluated at | 665 | 877 | 711 | 2,253 |
| the outreach service centers | | | | |
| (OSCs) | | | | |
| Number of persons evaluated in | 403 | 1,292 | 915 | 2610 |
| series camps | | | | |
| Number of persons who did not | 06 | 05 | No balance | 11 |
| attend series camps (All Phases | | | cases | |
| inclusive) | | | | |
| Number and % evaluated (at OSCs | 1,068 | 2,169 | 1,626 | 4,863 |
| + series camps (from identified) | (99.44%) | (99.77%) | (100%) | (99.77%) |
| Number and % not evaluated | 06 | 05 | - | 11 |
| | (0.66%) | (0.22%) | | (0.22%) |

Reasons for not meeting 100% follow up criteria Attempts were made to contact the persons who did not report to the outreach service centers and series camps for evaluation. Table 29 provides an overview (in percentage) of the reasons cited by the persons with communication disorders.

| Reasons c | ited by the persons who did not report to OSCs a | nd camps for evaluation |
|----------------|--|------------------------------|
| Reasons | as provided by the Persons with | Percentage |
| commun | nication disorders/caregivers | of Persons with |
| | | communication disorders who |
| | | did not attend evaluation at |
| | | OSCs or camps |
| No guard | dian/caregiver to accompany elderly patients to | 12% |
| the evaluation | uation sites. | |
| Person/s | s not interested to undergo evaluation despite | 20% |
| repeated | d counseling. | |
| Person/s | s busy with their work. For example, busy in | 20% |
| the agric | cultural fields during prime seasons in | |
| cultivati | on. | |
| Person/s | s out of place/not available on the days fixed | 11% |
| for evalu | uation at OSC/series camps. | |
| Problem | reduced or not present on the days fixed for | 27% |
| evaluatio | on at OSC/ series camps, especially persons | |
| with C/c | ear pain, ear discharge, throat pain etc,. | |
| Person/s | s consulted nearby health centers for treatment | 03% |
| Other re | asons: | 07% |
| • | Poor public transport facilities | |
| • | High fares in public transport which they could | |
| 1 | not afford | |
| • | Fear of losing daily wages if they have to | |
| ä | attend the OSC/camps | |
| • | Refuse to acknowledge that they have | |
| (| communication disorders | |

PREVALENCE OF COMMUNICATION DISORDERS IN THE 3 HOBLIS SURVEYED

The prevalence of persons with communication disorders established after evaluation at OSCs and camps in the three hoblis of the three districts surveyed is shown in Table 30.

Table 30

Prevalence of communication disorders in the population surveyed at 3 hoblis in 3 districts

| Phases
(1 to 4) | PHCs | Total
vill-
ages | Total
Houses | Total
Population | Prevalence | e and Percer | ntage |
|--------------------|-------------|------------------------|-----------------|---------------------|-------------|--------------|---------|
| | | | | | Male | Female | Total |
| | MANI | dya distr | ICT (K.R.Pe | te Taluk; Akkil | nebbalu Hob | li) | |
| Phase 1 | Akkihebbalu | 14 | 2,044 | 10,256 | 216 | 169 | 385 |
| | | | | | (2.10%) | (1.64%) | (3.75%) |
| Phase 2 | Beeruvalli | 15 | 1,287 | 9,630 | 143 | 112 | 255 |
| | | | | | (1.48%) | (1.16%) | (2.64%) |
| Phase 3 | Somanahalli | 12 | 1,673 | 10,987 | 145 | 137 | 282 |
| | | | | | (1.31%) | (1.24%) | (2.56%) |
| Phase 4 | Mandagere | 07 | 628 | 7,198 | 79 | 54 | 133 |
| | Alenahalli | 06 | 439 | 4,728 | (0.66%) | (0.45%) | (1.11%) |
| Sub | | 54 | 6,071 | 42,799 | 583 | 472 | 1055 |
| Total | | | • | - | (1.36%) | (1.10%) | (2.46%) |

MYSORE DISTRICT (Nanjangud Taluk; Hullahalli Hobli)

| Phase 1 | Hullahalli | 16 | 4,272 | 29,827 | 339 | 271 | 610 |
|---------|-------------|----|-------|--------|---------|---------|---------|
| | | | | | (1.13%) | (0.98%) | (2.04%) |
| Phase 2 | Chandravadi | 20 | 4,174 | 21,554 | 296 | 254 | 550 |
| | | | | | (1.37%) | (1.17%) | (2.55%) |

| (U.98%) (U.9/%) (T.
Phase 4 Kasuvinahalli 14 2.714 19.381 336 362 | .95%)
698 |
|--|--------------|
| 111130 + 1030 + 10101 + 17 + 2,714 + 17,301 + 330 + 302 | 000/1 |
| Maduvinahalli 08 919 8,146 (0.86%) (0.93) (1. | .80%) |
| Yadiyala 05 1,281 11,154 | |
| Sub 77 15,623 1,03,978 1108 1022 2 | 2130 |
| Total (1.06%) (0.98%) (2.0 | 04%) |
| | |
| CHAMARAJANAGARA DISTRICT (Yelandur Taluk; Kasaba Hobli) | |
| Phase 1 Gumballi 13 3,529 19,920 334 273 | 607 |
| (1.67%) (1.37%) (3. | .04%) |
| Phase 2 Gowdahalli 11 2,679 12,243 155 163 | 318 |
| (1.26%) (1.33%) (2. | . 59%) |
| Phase 3 Yelandur 02 2,240 11,249 114 147 | 261 |
| (1.01%) (1.30%) (2. | . 32%) |
| Phase 4 Honnur 05 2,570 16,943 214 187 | 401 |
| (1.26%) (1.10%) (2. | . 36%) |
| Sub 31 11,018 60,355 817 770 1 | 1587 |
| Total (1.35%) (1.27%) (2.0 | 62%) |
| 2,508 2264 4 | 4772 |
| Total 162 32,712 2,07,132 (1.21%) (1.09%) (2.3 | 30%) |

OVERALL PREVALENCE OF TYPES OF COMMUNICATION DISORDERS Data was analyzed to study the prevalence of four groups of communication disorders, viz., Speech and Language disorders, Dual/Multiple disorders, Hearing Impairment & ENT diseases and this is reported in Table 31.

Table 31

PREVALENCE OF TYPES OF COMMUNICATION DISORDERS ACROSS THE 3 HOBLIS OF 3 DISTRICTS

| SI. | Disorders/ | Hoblis | | | Total |
|-----|---------------------|-------------|------------|----------|------------|
| No | Diseases | Akkihebbalu | Hullahalli | Gumballi | Prevalence |
| | | | | | & % |
| | | | | | (N= |
| | | | | | population |
| | | | | | count) |
| 1. | Speech and Language | 98 | 268 | 149 | 515 |
| | Disorders | (0.22%) | (0.25%) | (0.24%) | (0.24%) |
| 2. | Hearing Impairment | 396 | 670 | 489 | 1,555 |
| | | (0.92%) | (0.64%) | (0.81%) | (0.75%) |
| 3. | ENT Diseases | 557 | 1,179 | 946 | 2,682 |
| | | (1.30%) | (1.13%) | (1.56%) | (1.29%) |
| 4. | Dual & Multiple | 04 | 13 | 03 | 20 |
| | Disorders | (0.009%) | (0.012%) | (0.004%) | (0.009%) |
| | Total | 1,055 | 2,130 | 1,587 | 4,772 |
| | | (2.46%) | (2.04%) | (2.62%) | (2.30%) |

AGE AND GENDER DISTRIBUTION OF PERSONS WITH DIFFERENT TYPES OF COMMUNICATION DISORDERS

Data was analyzed to study the age and gender distribution of the four groups of communication disorders, viz., Speech and Language disorders, Dual/Multiple disorders, Hearing Impairment & ENT diseases across the three hoblis in three districts. The same is presented in Table 32 (a), (b) and (c) for Akkihebbalu, Hullahalli and Gumballi hoblis respectively.

Note: In this report, the classification of age was carried out as follows: Children = < 12 years; Adult = \ge 12 to < 50 years; Geriatric = \ge 50 years

Table 32 a

Age and Gender distribution of types of communication disorders in Akkihebbalu Hobli (Phase 1 to 4)_____

| DISORDERS / DISEASES | | | GRC | DUPS | | |
|-----------------------------|--------|-------|-------|------|------|-------|
| | Chil | dren | Adu | ults | Geri | atric |
| | М | F | М | F | М | F |
| Speech & Language disorders | 29 | 19 | 25 | 19 | 3 | 3 |
| | 4 | 8 | 4 | 4 | | 6 |
| | | | 9 | 8 | | |
| Hearing Impairment | 14 | 4 | 124 | 96 | 91 | 67 |
| | 18 | | 220 | | 1 | 58 |
| | | | 3 | 96 | | |
| ENT Diseases | 80 | 53 | 180 | 173 | 34 | 37 |
| | 1 | 33 | 3! | 53 | 7 | '1 |
| | | | 5 | 57 | | |
| Dual / Multiple disorders | 2 | 1 | 1 | - | - | - |
| | | 3 | | 1 | | - |
| | | | | 4 | | |
| Total | | | 1,0 |)55 | | |
| [Note M = Mal | es F = | = Fem | ales] | | | |

Table 32 b

(Phase 1

Age and Gender distribution of types of communication disorders in Hullahalli Hobli

| DISORDERS / DISEASES | | | GRC | UPS | | |
|-----------------------------|---------|--------|-------|------|-------|-------|
| | Chil | dren | Ad | ults | Geria | atric |
| | М | F | М | F | М | F |
| Speech & Language disorders | 29 | 19 | 25 | 19 | 3 | 3 |
| | 4 | .8 | 4 | 4 | 6 |) |
| | | | 9 | 8 | | |
| Hearing Impairment | 90 | 46 | 85 | 44 | 3 | - |
| | | 136 | | 129 | | 3 |
| | | | 26 | 68 | | |
| NT Diseases | 137 | 141 | 398 | 411 | 45 | 47 |
| | | 278 | | 809 | | 92 |
| | | | 1,1 | 79 | | |
| ual / Multiple disorders | 2 | 5 | 3 | 3 | - | - |
| | | 7 | | 6 | | - |
| | | | 1 | 3 | | |
| Total | 2,130 | | | | | |
| [Note M = Ma | les F = | = Fema | ales] | | | |

Table 32 c

Age and Gender distribution of types of communication disorders in Chamarajanagar Hobli (Phase 1 to 4)

| DISORDERS / DISEASES | | | GRC | OUPS | | |
|-----------------------------|-------|-------|-------|------|-------|------|
| | Chi | ldren | Adu | ults | Geria | tric |
| | Μ | F | М | F | Μ | F |
| Speech & Language disorders | 40 | 39 | 33 | 33 | 3 | 1 |
| | 79 | | 66 | | 4 | |
| | | | 1 | 49 | | |
| Hearing Impairment | 11 | 14 | 124 | 124 | 131 | 85 |
| | 25 | | 248 | | 216 | |
| | | | 4 | 89 | | |
| ENT Diseases | 92 | 104 | 316 | 341 | 64 | 29 |
| | 1 | 96 | 6 | 57 | 93 | |
| | | | 9 | 46 | | |
| Dual / Multiple disorders | 3 | - | - | - | - | - |
| | | 3 | | - | - | |
| | | | | 3 | | |
| Total | 1,587 | | | | | |
| [Note M = Mal | es F | = Fem | ales] | | | |

SPEECH -
LANGUAGE
DISORDERSThe distribution of various types of speech-language disorders in the
population across 3 hoblis (Akkihebbalu, Hullahalli and Gumballi
respectively) of the three districts is shown in Tables 33 a, b, c and
Figures 2 a, b &,c. Summary of all three hoblis is presented in Table
34 and Figure 3.

Table 33 a

Types and Gender distribution of Speech and Language disorders in the population of Akkihebbalu Hobli

| Speech and Language disorders | Male | Female | Total | Percent |
|-------------------------------------|------|--------|-------|---------|
| Articulation/Phonological disorders | 04 | 03 | 07 | 7.14 |
| Fluency Disorders | 11 | 6 | 17 | 17.34 |
| Voice Disorders | 04 | 04 | 08 | 8.16 |
| Specific Language Impairment | 12 | 4 | 16 | 16.32 |
| Aphasia | 03 | 01 | 04 | 4.08 |
| Learning Disability | 01 | - | 01 | 1.02 |
| Cerebral Palsy | 04 | 02 | 06 | 6.12 |
| Cleft Lip and palate | 02 | 01 | 03 | 3.06 |
| Dysarthria / Apraxia | 02 | - | 02 | 2.04 |
| Mental Retardation | 14 | 20 | 34 | 34.69 |
| Total | | | 98 | |



Speech and Language disorders - Akkihebbalu Hobli

[Arti/Phono-Articulation & Phonological Dis, Flu-Fluency disorders, Voi-Voice disorders, SLI-Specific Language Impairment, Aph-Aphasia, LD-Learning disability, CP-Cerebral Palsy, CLP-Cleft lip & palate, Dys/Apr-Dysarthria & Apraxia, MR-Mental Retardation]

Figure 2 a. Total Number of persons with different Speech and language disorders in the Akkihebbalu Hobli.

Table 33 b

| Speech and Language disorders | Male | Female | Total | Percent |
|-------------------------------------|------|--------|-------|---------|
| Articulation/Phonological disorders | 9 | 4 | 13 | 4.85 |
| Fluency Disorders | 51 | 14 | 65 | 24.25 |
| Voice Disorders | 5 | 2 | 07 | 2.61 |
| Specific Language Impairment | 29 | 17 | 46 | 17.16 |
| Aphasia | 6 | 4 | 10 | 3.73 |
| Learning Disability | 3 | 1 | 04 | 1.49 |
| Cerebral Palsy | 16 | 5 | 21 | 7.84 |
| Cleft Lip and palate | 10 | 6 | 16 | 5.97 |
| Dysarthria / Apraxia | 3 | 1 | 04 | 1.49 |
| Mental Retardation | 43 | 35 | 78 | 29/10 |
| Pervasive Developmental Disorder | - | 1 | 01 | 0.37 |
| Traumatic Brain İnjury | 1 | - | 01 | 0.37 |
| Attention Deficit Hyperactive | 2 | - | 02 | 0.75 |
| Disorder | | | | |
| Total | | | 268 | |

Types and Gender distribution of Speech and Language disorders in the population of Hullahalli Hobli



Speeh and Language Disorder -Hullahalli Hobli

[Arti/Phono-Articulation & Phonological Dis, Flu-Fluency disorders, Voi-Voice disorders, SLI-Specific Language Impairment, Aph-Aphasia, LD-Learning disability, CP-Cerebral Palsy, CLP-Cleft lip & palate, Dys/Apr-Dysarthria & Apraxia, MR-Mental Retardation, PDD-, Pervasive Developmental Disorder, TBI-Traumatic Brain Injury, ADHD-Attention Deficit Hyperactive Dis]

Figure 2 b. Speech and language disorders in Hullahalli Hobli.

Table 33 c

| Speech and Language disorders | Male | Female | Total | Percent |
|-------------------------------------|------|--------|-------|---------|
| Articulation/Phonological disorders | 7 | 7 | 14 | 9.40 |
| Fluency Disorders | 12 | 10 | 22 | 14.76 |
| Voice Disorders | 1 | 3 | 4 | 2.68 |
| Specific Language Impairment | 17 | 8 | 25 | 16.78 |
| Aphasia | 1 | 0 | 1 | 0.67 |
| Learning Disability | 0 | 3 | 3 | 2.00 |
| Cerebral Palsy | 6 | 5 | 11 | 7.38 |
| Cleft Lip and palate | 2 | 7 | 9 | 6.04 |
| Dysarthria / Apraxia | 1 | 1 | 2 | 1.34 |
| Mental Retardation | 29 | 29 | 58 | 38.93 |
| Traumatic Brain Injury | 1 | 0 | 1 | 0.67 |
| Total | 77 | 73 | 150 | |

Types and Gender distribution of Speech and Language disorders in the population of Gumballi Hobli



[Arti/Phono-Articulation & Phonological Dis, Flu-Fluency disorders, Voi-Voice disorders, SLI-Specific Language Impairment, Aph-Aphasia, LD-Learning disability, CP-Cerebral Palsy, CLP-Cleft lip & palate, Dys/Apr-Dysarthria & Apraxia, MR-Mental Retardation, TBI-Traumatic Brain Injury]

Figure 2 c. Speech and language disorders in Gumballi Hobli

Table 34

| Speech and Language | Total | % Prevalence | Total | % Prevalence | Total | Total |
|----------------------------|-------|--------------|--------|--------------|-------|------------|
| disorders | Male | in Males | Female | in Females | | Prevalence |
| | | | | | | in % |
| Articulation/Phonologi-cal | 20 | 0.0096% | 14 | 0.0067% | 34 | 0.0164% |
| disorders | | | | | | |
| Fluency Disorders | 74 | 0.0357% | 30 | 0.0144% | 104 | 0.0502% |
| Voice Disorders | 10 | 0.0048% | 9 | 0.0043% | 19 | 0.0091% |
| Specific Language | 58 | 0.0280% | 29 | 0.0140% | 87 | 0.0420% |
| Impairment | | | | | | |
| Aphasia | 10 | 0.0048% | 5 | 0.0024% | 15 | 0.0072% |
| Learning Disability | 4 | 0.0019% | 4 | 0.0019% | 8 | 0.0038% |
| Cerebral Palsy | 26 | 0.0125% | 12 | 0.0125% | 38 | 0.0183% |
| Cleft Lip and palate | 14 | 0.0067% | 14 | 0.0067% | 28 | 0.0135% |
| Dysarthria / Apraxia | 6 | 0.0028% | 2 | 0.0009% | 8 | 0.0038% |
| Mental Retardation | 86 | 0.0415% | 84 | 0.0405% | 170 | 0.0820% |
| Pervasive Developmental | - | - | 1 | 0.0004% | 1 | 0.0004% |
| Disorder | | | | | | |
| Traumatic Brain Injury | 1 | 0.0004% | - | - | 1 | 0.0004% |
| Attention Deficit | 2 | 0.0009% | - | - | 2 | 0.0009% |
| Hyperactive Disorder | | | | | | |
| Total | 311 | 0.1501% | 204 | 0.0984% | 515 | 0.2486% |

Types and Gender distribution along with prevalence percentage (N = 2,07,132) of Speech and Language disorders in all the 3 Hoblis (Akkihebbalu, Hullahalli & Gumballi)



Speech and Language Disorders In Akkihebalu, Hullahalli and Gumballi

[Arti/Phono-Articulation & Phonological Dis, Flu-Fluency disorders, Voi-Voice disorders, SLI-Specific Language Impairment, Aph-Aphasia, LD-Learning disability, CP-Cerebral Palsy, CLP-Cleft lip & palate, Dys/Apr-Dysarthria & Apraxia, MR-Mental Retardation, PDD-, Pervasive Developmental Disorder, TBI-Traumatic Brain Injury, ADHD-Attention Deficit Hyperactive Dis]

Figure 3. Speech and language disorders in Akkihebbalu, Hullahalli & Gumballi Hoblis

Prevalence of Speech-Language disorders was 0.25%. Overall, the prevalence of articulation/phonological disorders was 0.0164%, fluency disorders was 0.0502%, voice disorders was 0.0091%, specific language impairment was 0.0420%, aphasia was 0.0072%, learning disability was 0.0038%, cerebral palsy was 0.0183%, cleft lip and palate was 0.0135%, dysarthria & apraxia was 0.0038%, language delay with mental retardation was 0.0820%, pervasive developmental disorders was 0.0004%, traumatic brain injury was 0.0004%, and attention deficit hyperactive disorder was 0.0009%.

The speech and language disorders associated with mental retardation showed the highest prevalence (0.0820%), followed by fluency disorders (0.0502%) and specific language impairment (0.0420%). The prevalence of speech language disorders associated with pervasive developmental disorders, traumatic brain injury and attention deficit hyperactive disorders was the least (less than 0.0009%). Also, males had higher prevalence rate compared to females.

HEARING Irrespective of the type and degree of hearing loss, the percentage of DISORDERS prevalence of hearing loss was 0.750%. Amongst the types of hearing loss, the percentage of prevalence of sensorineural hearing loss was the highest (0.475%), followed by the conductive (0.140%) and mixed type of hearing loss (0.134%). With respect to degree of hearing loss, the percentage of prevalence of moderate degree of heraing loss was the highest (0.276%) followed by severe degree ((0.210%), mild (0.202%) and profound (0.061%) degrees of hearing loss. The percentage prevalence of hearing loss in males, irrespective of the type and degree of loss was higher compared to females. The distribution of types of hearing disorders in the population across 3 hoblis (Akkihebbalu, Hullahalli and Gumballi, respectively) of the three districts is shown in Tables 35 a, b, c and Figures 4 a, b &, c. Summary of all three hoblis is presented in Table 36 and Figure 5.

Table 35 a

| | Degree of Hearing Loss | | | | | | | | | |
|-----------------|------------------------|------|----|------|------|--------|----|----------|----|-----|
| Type of Hearing | | Mild | | Mode | rate | Severe | | Profound | | - |
| Loss | | М | F | М | F | М | F | М | F | - |
| Conductive* | | 32 | 13 | 24 | 12 | 2 | 5 | - | - | |
| | | 4 | 5 | 3 | 6 | 7 | 7 | - | - | 88 |
| Mixed | | 13 | 6 | 26 | 11 | 14 | 19 | 2 | 0 | |
| | | 1 | 9 | 3 | 7 | 3 | 3 | | 2 | 91 |
| Sensorineural | | 11 | 24 | 53 | 35 | 43 | 29 | 9 | 13 | |
| | | 35 | | 8 | 8 | 7 | 2 | 2 | 22 | 217 |
| Т | otal | 9 | 9 | 16 | 51 | 11 | 12 | 2 | 24 | 396 |

Type and Gender distribution of Hearing Disorders in the population of Akkihebbalu Hobli

[Note: M= Male, F= Female; * 'Moderately severe' category in conductive loss is grouped under 'severe']



Type and Degree of Hearing loss - Akkihebbalu Hobli

Figure 4 a. Types of Hearing disorders in the Akkihebbalu Hobli

Table 35 b

Type and Gender distribution of Hearing Disorders in the population of Hullahalli Hobli

| N A | | | rotar | | | | | |
|-----|--|--|---|-----|-----|-------|--|---|
| IVI | ild | Mode | erate | Sev | ere | Profe | ound | |
| М | F | М | F | М | F | М | F | |
| 30 | 25 | 32 | 14 | 3 | 1 | - | - | |
| 5 | 5 | 4 | 6 | 4 | | - | - | 105 |
| 11 | 15 | 17 | 28 | 18 | 14 | 4 | 8 | |
| 2 | 6 | 4 | 5 | 3 | 2 | 1 | 2 | 115 |
| 44 | 46 | 78 | 74 | 88 | 76 | 20 | 24 | |
| 9 | 0 | 15 | 52 | 16 | 64 | 4 | 4 | 450 |
| 1 | 71 | 24 | 3 | 20 | 0 | 5 | 6 | 670 |
| | $ \begin{array}{r} M \\ 30 \\ 5 \\ 11 \\ $ | M F 30 25 55 11 15 26 44 46 90 171 | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | | | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ |

[Note: M= Male, F= Female; * 'Moderately severe' category in conductive loss is grouped under 'severe']



Type and Degree of Hearing loss - Hullahalli Hobli



Table 35 c

Type and Gender distribution of Hearing Disorders in the population of Gumballi Hobli

| | | | Degre | e of H | learii | ng Lo | SS | | Total |
|-----------------|------|----|-------|--------|---------|-------|----------|----|-------|
| Type of Hearing | Mild | | Mode | erate | ate Sev | | Profound | | |
| Loss | М | F | М | F | М | F | М | F | |
| Conductive* | 17 | 30 | 25 | 24 | - | 2 | - | - | |
| | 47 | | 4 | 9 | 2 | | - | | 98 |
| Mixed | 7 | 10 | 19 | 13 | 12 | 9 | 2 | 1 | |
| | 1 | 7 | 3 | 2 | 21 | | 3 | | 73 |
| Sensorineural | 55 | 30 | 53 | 35 | 54 | 47 | 22 | 22 | |
| | 85 | | 8 | 8 | 1(|)1 | 4 | 4 | 318 |
| Total | 14 | 49 | 16 | 59 | 12 | 24 | 4 | 7 | 489 |

[Note: M= Male, F= Female; * 'Moderately severe' category in conductive loss is grouped under 'severe']



Type and Degree of Hearing loss - Gumballi Hobli

Figure 4 c. Types of Hearing disorders in the Gumballi Hobli

| Type of
Hearing | Gender | Degree of
(N = 2,07, | Degree of Hearing loss and % Prevalence
(N = 2,07,132) | | | | | | | | | |
|--------------------|--------|-------------------------|---|----------|----------|--------------------------|--|--|--|--|--|--|
| Loss | | Mild | Moderate | Severe | Profound | | | | | | | |
| Conductive | М | 79 | 81 | 05 | - | 291 | | | | | | |
| * | | 0.038% | 0.039% | 0.002% | | (0.140%) | | | | | | |
| | F | 68 | 50 | 08 | - | | | | | | | |
| | | 0.032% | 0.024% | 0.003% | | | | | | | | |
| | Sub | 147 | 131 | 13 | - | | | | | | | |
| | Total | 0.070% | 0.063% | 0.006% | | | | | | | | |
| Mixed | М | 31 | 62 | 44 | 08 | 279 | | | | | | |
| | | 0.014% | 0.029% | 0.021% | 0.003% | (0.134%) | | | | | | |
| | F | 31 | 52 | 42 | 09 | | | | | | | |
| | | 0.014% | 0.025% | 0.020% | 0.004% | | | | | | | |
| | Sub | 62 | 114 | 86 | 17 | | | | | | | |
| | Total | 0.029% | 0.055% | 0.041% | 0.008% | | | | | | | |
| Sensori- | М | 110 | 184 | 185 | 51 | 985 | | | | | | |
| neural | | 0.053% | 0.088% | 0.089% | 0.024% | (0.475%) | | | | | | |
| | F | 100 | 144 | 152 | 59 | | | | | | | |
| | | 0.048% | 0.069% | 0.073% | 0.028% | | | | | | | |
| | Sub | 210 | 328 | 337 | 110 | | | | | | | |
| | Total | 0.101% | 0.158% | 0.162% | 0.053% | | | | | | | |
| | Total | 419 | 573 | 436 | 127 | 1,555 | | | | | | |
| | | (0.202%) | (0.276%) | (0.210%) | (0.061%) | (0.750%) | | | | | | |

Type and Gender distribution of Hearing Disorders in Akkihebbalu, Hullahalli and Gumballi Hoblis

[Note: M= Male, F= Female; * 'Moderately severe' category in conductive loss is grouped under 'severe']



Figure 5. Types of Hearing disorders in the three hoblis (Akkihebbalu, Hullahalli & Gumballi)

ENT CONDITIONS & DISEASES

The prevalence percentage of ENT conditions and diseases was 1.294% in the population surveyed. Amongst the conditions and diseases, the prevalence % of ASOM/CSOM was the highest (0.459%), followed by an equal record of wax in the ear and rhinitis (0.191%). The next in the order was pharyngitis (0.155%). The prevalence % of other conditions and diseases were more or less similar, except of the groups of

miscellaneous conditions shown under the head of 'others' (which included complaints such as ear pain, tinnitus, vertigo etc) which were higher in terms of % prevalence as is seen in Table 38. No much differences between males and females in the prevalence % of ENT conditions and diseases were noticed. The distribution of ENT conditions and diseases in the population across 3 hoblis (Akkihebbalu, Hullahalli and Gumballi respectively) of the three districts is shown in Tables 37 a, b, c and Figures 6 a, b &, c. Summary of all three hoblis is presented in Table 38 and Figure 7.

Table 37 a

Type and Gender distribution of ENT conditions and diseases in Akkihebbalu Hobli

| ENT Conditions & | Gender | | Total | Percent |
|--------------------|--------------|--------|-------|---------|
| Diseases | Distribution | | | |
| | Male | Female | | |
| Wax | 55 | 24 | 79 | 14.18 |
| ASOM/CSOM | 124 | 101 | 225 | 40.39 |
| Foreign bodies | 7 | 15 | 22 | 3.95 |
| ET Malfunction | 8 | 9 | 17 | 3.05 |
| TM Abnormalities | 8 | 13 | 21 | 3.77 |
| Structural anomaly | 2 | 2 | 4 | 0.72 |
| of the ear | | | | |
| Rhinitis | 35 | 42 | 77 | 13.82 |
| Laryngitis | 5 | 13 | 18 | 3.23 |
| Pharyngitis | 26 | 25 | 51 | 9.16 |
| Others | 24 | 19 | 43 | 7.72 |
| Total | 294 | 263 | 557 | |

[Note: ET= Eustachean Tube; TM = Tympanic Membrane]



[Wax, ASOM/CSOM-Acute Suppurative Otitis Media/Chronic Suppurative Otitis Media, FB-Foreign bodies, ETM-Eustachian Tube Malfunction, TMA-Tympanic membrane abnormality, St An-Structural anomaly of the ear, Rh-Rhinitis, Lar-Laryngitis, Pha-Pharyngitis, Oth-Others]

Figure 6 a. Persons with ENT conditions and Diseases in Akkihebbalu Hobli

Table 37 b

| ENT Conditions & | Ge | nder | Total | Percent |
|--------------------|--------------|--------|-------|---------|
| Diseases | Distribution | | | |
| - | Male | Female | | |
| Wax | 86 | 74 | 160 | 1.36 |
| ASOM/CSOM | 223 | 192 | 415 | 35.81 |
| Foreign bodies | 12 | 24 | 36 | 3.05 |
| ET Malfunction | 08 | 20 | 28 | 2.37 |
| TM Abnormalities | 17 | 35 | 52 | 4.41 |
| Structural anomaly | 02 | 04 | 06 | 0.51 |
| of the ear | | | | |
| Rhinitis | 100 | 85 | 185 | 15.69 |
| Laryngitis | 15 | 21 | 36 | 3.05 |
| Pharyngitis | 59 | 56 | 115 | 9.75 |
| Others | 58 | 78 | 146 | 12.38 |
| Total | 580 | 589 | 1179 | |

Type and Gender distribution of ENT conditions and diseases in Hullahalli Hobli

ENT Conditions & Diseases- Hullahalli Hobli



[Wax, ASOM/CSOM-Acute Suppurative Otitis Media/Chronic Suppurative Otitis Media, FB-Foreign bodies, ETM-Eustachian Tube Malfunction, TMA-Tympanic membrane abnormality, St An-Structural anomaly of the ear, Rh-Rhinitis, Lar-Laryngitis, Pha-Pharyngitis, Oth-Others]

Figure 6 b. Persons with ENT conditions and Diseases in Hullahalli Hobli

Table 37 c

| ENT Conditions & | Ge | nder | Total | Percent |
|--------------------|--------------|--------|-------|---------|
| Diseases | Distribution | | | |
| - | Male | Female | | |
| Wax | 84 | 74 | 158 | 16.70 |
| ASOM/CSOM | 158 | 153 | 311 | 32.88 |
| Foreign bodies | 13 | 13 | 26 | 2.75 |
| ET Malfunction | 13 | 26 | 39 | 4.12 |
| TM Abnormalities | 8 | 13 | 21 | 2.22 |
| Structural anomaly | 3 | 11 | 14 | 1.48 |
| of the ear | | | | |
| Rhinitis | 78 | 57 | 135 | 14.27 |
| Laryngitis | 13 | 7 | 20 | 2.11 |
| Pharyngitis | 36 | 52 | 88 | 9.30 |
| Others | 66 | 68 | 134 | 14.16 |
| Total | 472 | 474 | 946 | |

Type and Gender distribution of ENT conditions and diseases in Gumballi Hobli

[Note: ET= Eustachean Tube; TM = Tympanic Membrane]

ENT conditions & Diseases- Gumballi Hobli No. of Individuals with ENT Diseases Mat

[Wax, ASOM/CSOM-Acute Suppurative Otitis Media/Chronic Suppurative Otitis Media, FB-Foreign bodies, ETM-Eustachian Tube Malfunction, TMA-Tympanic membrane abnormality, St An-Structural anomaly of the ear, Rh-Rhinitis, Lar-Laryngitis, Pha-Pharyngitis, Oth-Others]

Figure 6 c. Persons with ENT conditions and Diseases in Gumballi Hobli

| ENT Conditions & | Gender Distribution | and % prevalence | Total |
|--------------------|---------------------|------------------|----------------|
| Diseases | (N = 2,0 | 7,132) | & % prevalence |
| | Male | Female | |
| Wax | 225 (0.108%) | 172 (0.083%) | 397 (0.191%) |
| ASOM/CSOM | 505 (0.243%) | 446 (0.215%) | 951 (0.459%) |
| Foreign bodies | 32 (0.015%) | 52 (0.025%) | 84 (0.040%) |
| ET Malfunction | 29 (0.014%) | 55 (0.026%) | 84 (0.040%) |
| TM Abnormalities | 33 (0.015%) | 61 (0.029%) | 94 (0.045%) |
| Structural anomaly | | | 24 (0.011%) |
| of the ear | 7 (0.003%) | 17 (0.008%) | |
| Rhinitis | 213 (0.102%) | 184 (0.088%) | 397 (0.191%) |
| Laryngitis | 33 (0.015%) | 41 (0.019%) | 74 (0.035%) |
| Pharyngitis | 121 (0.058%) | 133 (0.064%) | 254 (0.122%) |
| Others | 148 (0.071%) | 175 (0.084%) | 323 (0.155%) |
| Total | 1,346 (0.649%) | 1,336 (0.644%) | 2,682 |
| | | | (1.294%) |

Type and Gender distribution of ENT conditions and diseases including prevalence percentage in the 3 hoblis of Akkihebbalu, Hullahalli and Gumballi.

[Note: ET= Eustachean Tube; TM = Tympanic Membrane]



ENT conditions & Diseases - Akkihebbalu, Hullahalli & Gumballi hoblis

[Wax, ASOM/CSOM-Acute Suppurative Otitis Media/Chronic Suppurative Otitis Media, FB-Foreign bodies, ETM-Eustachian Tube Malfunction, TMA-Tympanic membrane abnormality, St An-Structural anomaly of the ear, Rh-Rhinitis, Lar-Laryngitis, Pha-Pharyngitis, Oth-Others]

Figure 7. Persons with ENT conditions and Diseases in 3 hoblis (Akkihebbalu, Hullahalli & Gumballi)

MULTIPLE DISORDERS OF COMMUNICATION Not many multiple disorders was observed. Multiple disorders were highest in hullahalli among the 3 hoblis. Multiple disorders in the population across 3 hoblis (Akkihebbalu, Hullahalli and Gumballi respectively) of the three districts is shown in Table 39.

Total and Gender distribution of Dual and Multiple disorders in the 3 hoblis of Akkihebbalu, Hullahalli and Gumballi.

| Multiple Disorders | Gender D | istribution | Total |
|--------------------|----------|-------------|-------|
| In the 3 hoblis | Male | Female | |
| Akkihebbalu | 3 | 1 | 4 |
| Hullahalli | 5 | 8 | 13 |
| Gumballi | 3 | - | 3 |
| Total | 11 | 9 | 20 |

REPEAT SURVEY IN THE VILLAGES OF GUMBALLI HOBLI, COVERED UNDER PHASE 1

Survey in the villages included under Phase 1 in Gumballi was repeated after a period of 3 years in order to check for reliability of prevalence of communication disorders in this population by the ASHA workers. The ASHA workers who carried out the survey in the Phase 1 in Gumballi PHC (Kasaba hobli) participated in the repeat survey of the same region. In the repeat survey, they were trained to report the list of persons with communication disorders who were earlier identified (in previous survey) separately and prepare a new list of persons newly identified in the repeat survey. The first survey in Gumballi PHC (Kasaba hobli) was conducted between 21/10/2010 to 20/01/2011 (3 Months duration) by 17 ASHA Workers, covering 13 villages, 3,529 houses with a population of 19,920. The total number of persons with communication disorders identified in the initial survey was 607. The repeat survey was conducted in the year 2014 between 16/05/2014 to 06/06/2014 (3 weeks duration) with 15 ASHA Workers (who were the same as in initial survey with exception of 2 who were not available for repeat survey) in the same 13 villages, 3,948 houses (the number of houses had increased) with a population of 20,771 (there was an increase in population count as per the PHC records). The number of persons with communication disorders identified in the repeat survey was 523 (newly identified persons were 98). While the prevalence percentage was seen to be 3.04% in the first survey, the prevalence percentage in the repeat survey conducted on the same population was 2.51% (this included new identification of 98 persons with communication disorders). From Table 41, It was observed that the percentage of prevalence of was more or less constant for speech - language disorders, and multiple disorders. But prevalence of hearing impairment and ENT conditions and diseases was lesser in the repeat survey compared to the initial survey. It is possible that the rehabilitation measures for overcoming the hearing impairment and ENT conditions and diseases that were undertaken as a part of this survey programme or the initiatives taken by the patients/families themselves owing to the sensitization and awareness created about the conditions and the rehabilitation resources available had an influence. Since most of the disorders of speech-language, and multiple disorders require tertiary rehabilitation in terms of therapy by professionals such as speechlanguage pathologists and other team members, which however were not carried out, it can be reasoned that the percentage of prevalence even after a period of three years and 4 months has remained the same. The details are presented in tables 40 and 41.

| | Survey details of Phase 1 | Details of repeat survey |
|-------------------------------|---------------------------|--------------------------|
| | in Gumballi | in Gumballi |
| | (21/10/2010 to | (16/05/2014 to |
| | 20/01/2011) | 06/06/2014) |
| District | Chamarajanagara | Chamarajanagara |
| Taluk | Yelandur | Yelandur |
| Hobli | Kasaba | Kasaba |
| PHC | Gumballi | Gumballi |
| Total villages | 13 | 13 |
| Total No. of ASHA workers | 17 | 15 |
| Duration | 21/10/2010 to 20/01/2011 | 16/05/2014 to |
| | (3 Months) | 06/06/2014 (3 weeks) |
| Total population covered | 19,920 | 20,771 |
| Total No. of houses surveyed | 3,529 | 3,948 |
| Total Persons identified with | 607 (3.04%) | Old identification = 425 |
| Communication Disorders/ | | (2.04%) |
| Prevalence percentage | | New identification = 98 |
| | | (0.47%) |
| | | Total identification = |
| | | 523 (2.51%) |
| Problem still persisting | - | 425 |
| Wrong referrals by the ASHA | 59 | 3 |
| workers | | |
| Persons with communication | 13 | - |
| disorders who had Migrated / | | |
| Expired before evaluation | | |
| Newly identified patients | - | 98 |
| with Communication | | |
| Disorders | | |

Details and Comparison of survey in Phase 1 of Gumballi (Kasaba Hobli) with repeat survey in the same region

Table 41

Breakup details of types of communication disorders: Comparison of Phase 1 in Gumballi and Repeat survey in Gumballi

| Disorders/Diseases | Gumballi (Kasaba)
1 st Survey (21/10/2010 to
20/01/2011) | | | Repe | Gumb
at Surv
06 | alli (Ka
/ey (16
/06/20 | asaba)
v/05/2014 to
14) | |
|--------------------|---|-----|-----|------------|-----------------------|-------------------------------|-------------------------------|------------|
| | М | F | Т | Prevalence | М | F | Т | Prevalence |
| | | | | % | | | | % |
| Speech and | 32 | 28 | 60 | 0.30% | 37 | 29 | 66 | 0.31% |
| Language Disorders | | | | | | | | |
| Hearing | 127 | 102 | 229 | 1.14% | 106 | 109 | 215 | 1.03% |
| Impairment | | | | | | | | |
| ENT Conditions & | 174 | 143 | 317 | 1.59% | 127 | 113 | 240 | 1.15% |
| Diseases | | | | | | | | |
| Dual & Multiple | 1 | - | 1 | 0.005% | 1 | 1 | 2 | 0.009% |
| Disorders | | | | | | | | |
| | 334 | 273 | 607 | 3.04% | 271 | 252 | 523 | 2.51% |
| | | | | | | | | |

Note: M- Males; F - Females; T- Total

DETAILS REGARDING PERSONS RECOMMENDED FOR SPEECH- Details of Persons with Speech-Language Disorders who were recommended Speech-Language Therapy in the three hoblis (across the 4 phases of the survey) are given in tables 42 a, b, c for Akkihebbalu, Hullahalli and Gumballi respectively.

LANGUAGE THERAPY AS TERTIARY REHABILITATION MEASURE

Table 42 a

Details of persons recommended for Speech-Language Therapy-Akkihebbalu Hobli

| РНС | Phase | Total
Popula-
tion
screened | Persons
identified
with Speech
& Language
Disorders | Speech-language therapy | | гару |
|-------------|-------|--------------------------------------|---|-------------------------|------------|--------------|
| | | | | Recommended | Attended | Not attended |
| Akkihebbalu | 1 | 10,256 | 27 (0.26%) | 22 (0.21%) | 4 (0.039%) | 18 (0.17%) |
| Beeruvalli | 2 | 9,630 | 29 (0.30%) | 19 (0.19%) | 0 | 19 (0.19%) |
| Somanahalli | 3 | 10,987 | 35 (0.31%) | 14 (0.12%) | 1 (0.009%) | 13 (0.11%) |
| Mandagere | 4 | 11,926 | 11 (0.09%) | 4 (0.03%) | 0 | 4 (0.03%) |
| Alenahalli | | | | | | |
| Total | | 42,799 | 102 (0.23%) | 59 (0.13%) | 5 (0.011%) | 54 (0.12%) |

Table 42 b

Details of persons recommended for Speech-Language Therapy- Hullahalli Hobli

| PHC | Phase | Total Popula-
tion screened | Persons
identified wit
Speech &
Language
Disorders | Speech-I.
h ther | anguage
apy | РНС |
|--|-------|--------------------------------|--|---------------------|----------------|--------------|
| | | | | Recommended | Attended | Not attended |
| Hullahalli | 1 | 29,827 | 65 (0.21%) | 4 (0.013%) | | 61 (0.20%) |
| Chandravadi | 2 | 21,554 | 65 (0.30%) | 1 (0.004%) | | 64 (0.29%) |
| Hura | 3 | 13,916 | 33 (0.23%) | 1 (0.007%) | | 32 (0.22%) |
| Kasuvinahalli
Maduvinahalli
Yadiyala | 4 | 38,681 | 43 (0.11%) | 0 | | 43 (0.11%) |
| _ | Total | 1,03,978 | 206 (0.19%) | 6 (0.005%) | | 200 (0.19%) |

Table 42 c

Details of persons recommended for Speech-Language Therapy- Gumballi Hobli

| РНС | Phase | Total Popula-
tion screened | Persons ident
Language Dis | Persons identified with Speech & Language Disorders | | РНС |
|------------|--------|--------------------------------|-------------------------------|---|------------|-----------------|
| | | | | Recommended | Attended | Not
attended |
| Gumballi | 1 | 19,920 | 47 (0.23%) | 0 | 47 (0.23%) | |
| Gowdahalli | 2 | 12,243 | 17 (0.13%) | 2 (0.016%) | 15 (0.12%) | |
| Yelandur | 3 | 11,249 | 15 (0.13%) | 1 (0.008%) | 14 (0.12%) | |
| Honnur | 4 | 16,943 | 28 (0.16%) | 0 | 28 (0.16%) | |
| Total | 60,355 | 107 (0.17%) | 3 (0.004%) | 104 (0.17%) | | |

Overall, out of 107 persons evaluated and diagnosed with various speech, language disorders and recommended for speech-language therapy at the outreach service centers at Akkihebbalu, Hullahalli and Gumballi run by AlISH, only 3 attended therapy and the rest (104) did not attend the therapy services.

DETAILS OF FREE HEARING AIDS DISTRIBUTED BY THE INSTITUTE A total of 151 free body level hearing aids were distributed to persons the Scheme for Assistance to Disabled Persons for Purchase/Fitting of Aids and Appliances (ADIP) through the Outreach Service Centres at Akkihebbal, Hullahalli and Gumballi. However, 223 persons with hearing impairment could not get hearing aids due to non-availability of funds under the ADIP Scheme. The details of hearing aids issues and the number of persons whoc could not get hearing aids are depicted in tables 43 a and table 43 b.

| Table 43 a | | | | |
|------------------------------|----------------|--------------|------------|--------|
| Total number of hearing aids | distributed in | three hoblis | under ADIP | scheme |

| Category of | | | Akkihebbalu | | | | Hullahalli | | | | Gumballi | | | | | | | | |
|--------------|---|-----|-------------|---|---|----|------------|---|---|----|----------|----|----|---|---|----|---|----|----|
| Body Level | | (| С | | A | (| G | (| С | 1 | 4 | (| 3 | (| С | P | ١ | (| 3 |
| Hearing Aids | | S | V | S | V | S | V | S | V | S | V | S | V | S | V | S | V | S | V |
| Mild | М | - | - | - | - | 2 | 1 | - | - | - | - | 1 | - | - | - | - | - | 5 | 4 |
| | F | - | - | - | - | 1 | 1 | - | - | 1 | 2 | 1 | - | - | - | 2 | - | 2 | 4 |
| Moderate | М | - | - | - | - | 4 | 2 | - | - | 1 | 2 | 5 | 5 | - | - | 3 | - | 10 | 5 |
| | F | - | - | 4 | 1 | 7 | 3 | - | - | - | 1 | 6 | - | - | - | 4 | 4 | 2 | 3 |
| Strong | Μ | - | 1 | 1 | 2 | 3 | 1 | - | - | 1 | 2 | 9 | 3 | - | - | - | - | 8 | 9 |
| - | F | - | - | 2 | 2 | 4 | 2 | - | - | - | 2 | 3 | 5 | - | - | 3 | 1 | - | 4 |
| Extra Strong | М | - | 1 | - | - | 1 | 1 | - | - | 1 | - | - | - | - | - | - | 1 | 1 | - |
| | F | - | - | - | 1 | 2 | 2 | - | 1 | 1 | - | 1 | - | - | - | - | - | - | - |
| Sub-total | | | 2 | 7 | 6 | 24 | 13 | 0 | 1 | 5 | 9 | 26 | 13 | 0 | 0 | 12 | 6 | 27 | 29 |
| | | | 52 | | | | 54 | | | 75 | | | | | | | | | |
| Total | | 181 | | | | | | | | | | | | | | | | | |

Note: C = Children (0 < 12 years), A = Adults (->12 < 50 years) and G = Geriatric (>50 years); $S=Single \ cord \ \& V-V \ cord$; $M = Males \ \& F = Females$

Table 43 b

Number of persons who could not get hearing aids due to non availability of stock under ADIP scheme

| Group | | Akkihebbalu | | | Hullahalli | | | Gumballi | | |
|--------|---|-------------|---|----|------------|----|----|----------|----|----|
| | | С | Α | G | С | Α | G | С | А | G |
| Gender | Μ | - | 6 | 28 | 1 | 11 | 35 | - | 8 | 27 |
| | F | 1 | 9 | 18 | - | 18 | 30 | 1 | 11 | 19 |
| | | 62 | | | 95 | | | 66 | | |
| Total | | | | | 223 | | | | | |

Note: C = Children (0-<12years), A = Adults (- \geq 12-<50years) and G = Geriatric (\geq 50years); M = Males & F = Females

FEEDBACK ABOUTA dFACILITIES IN THE(4)OUTREACHexSERVICE CENTERSHo(OSCS) ANDconSUPERVISORYcaFACILITIES FORavaHOME MAKER(AIVOLUNTEERS ANDHe(AKKIHEBBALU &disHULLAHALLI) ANDneASHA WORKERSad(GUMBALLI)Ap

A questionnaire (see *Appendix 3 A*) in Kannada language with multiple (4) choice option was administered to obtain a feedback about the experience of survey and to find out the satisfaction level in Homemaker Volunteers and ASHA workers. The questionnaire consisted of 14 questions belonging to two categories. The first category (Question 1 to 9) included questions on various facilities available at the Outreach Service Centres [located at the PHC centers (Akkihebbalu, Hullahalli & Gumballi) of All India Institute of Speech & Hearing, Mysore] where the patients identified with communication disorders were referred for evaluation and intervention wherever necessary. The second domain included questions (Question 10 to 14) addressing issues related to the Field Supervisors (One Social Worker appointed by M/s Karuna Trust, with whom MOU was signed by AlISH, Mysore). As per the assigned schedule of work, the supervisors monitored the work of the Home maker volunteers (at Akkihebbalu in

K.R.Pete Taluk of Mandya District and Hullahalli in Nanjangud Taluk of Mysore district) and ASHA workers (at Gumballi of Yelandur Taluk in Chmarajanagara district) when they carried out house to house survey in the villages and during the follow up of persons identified with communication disorders to the Outreach Service Centers. The home maker volunteers and ASHA workers surveyed every house of the village that was assigned to them. Four in the choices in the questionnaire indicated Highly Satisfactory, 3 Satisfactory, 2 Needs Improvement and 1 indicated Not Satisfactory. The questionnaire was administered after the completion of the survey by these personnel. Since all the personnel could read and write they were informed to go through the instructions carefully and seek clarifications in case of doubts and then proceed to answer the questions.

The sum of raw scores per column (with 4 point rating scale) per person was computed. Group mean and median scores along with SD was calculated for each question and compared across the type of personnel recruited for the survey (Home maker volunteers and ASHA workers) and three hoblis in the survey programme. A commercially available SPSS 21.0 software was used to analyze the data. Since the data sample size was small and was derived on nominal scale, non parametric tests - Mann-Whitney U test for significant difference between the two personnel and Kruskal-Wallis test for significant difference between groups - were used for the analyses. The responses of ASHA workers and the volunteers across three hoblis (Akkihebbal, Hullahalli and Gumballi) were compared to check for the differences. The raw scores obtained by each volunteer were cumulated to obtain the total scores of each hobli. Tables 44 a and b show the mean, median and standard deviation.

Results revealed that the mean and SD for factors related to the Outreach Service Centre (OSC), as tapped from the Questions 1 to 9 were 32.85 and 3.59, respectively; and those for factors related to the Field supervisors, as tapped from the Questions 10 to 14 was 19.09 and 1.540, respectively. The results showed that the rating was higher for the questions related to OSCs compared to those related to the Supervisor indicating indicates that the volunteers and ASHA workers were satisfied with the facilities and activities related to evaluation of persons with communication disorders at the OSCs more so when compared to the activities of the respective field supervisors when they were involved in the house to house survey. The probable reason could be that there were only two supervisors and their itinerary visit in the surveyed villages to supervise the volunteers and ASHA workers was distributed in such a way that they could not supervise more than one time per ASHA worker/volunteer in a village. It is also possible that despite intensive training in a day's orientation activity conducted at the Institute (AIISH) for the volunteers/ASHA workers and a one-on-one training provided to them in the field for house to house survey for a week's period, the volunteers/ASHA workers showed relatively poor satisfaction. Since there were no descriptive responses collected from them in the questionnaire the exact reasons could not be extracted. However, this point was kept in mind to incorporate improvisations in the supervisory mechanism in the next level of the survey activity.

The results also revealed that the overall mean and SD for all questions in the 3 hoblis was 51.94 and 4.92, respectively. Further, the mean for ASHA Workers of Gumballi Hobli (54.73) was higher than Home Maker volunteers of Akkihebbal (48.27) and Hullahalli hobli (50.36) suggesting that the training background in health related

issues for ASHA workers at Gumballi hobli had a superior effect compared to the home maker volunteers (Akkihebbalu and Hullahalli Hobli) who were naive to the concept of health issues in general and communication disorders, in specific. Despite the differences, the results point to the fact that general public such as home maker women volunteers showed satisfaction in carrying out the survey as required and this group could be viewed as a source of viable human resource available in the villages which could be utilized for such programs.

Table 44 a

Mean, Median and SD for types of questions in the questionnaire across three hoblis

| Question No. | Hobli | Mean | SD | Median |
|--------------|-------|-------|------|--------|
| OSC | | | | |
| 1 | 1 | 3.68 | 0.47 | 4.00 |
| | 2 | 3.67 | 0.47 | 4.00 |
| | 3 | 3.92 | 0.27 | 4.00 |
| | Total | 3.79 | 0.41 | 4.00 |
| 2 | 1 | 3.41 | 0.73 | 4.00 |
| | 2 | 3.56 | 0.64 | 4.00 |
| | 3 | 3.86 | 0.40 | 4.00 |
| | Total | 3.67 | 0.59 | 4.00 |
| 3 | 1 | 3.00 | 0.92 | 3.00 |
| | 2 | 3.33 | 0.80 | 4.00 |
| | 3 | 3.76 | 0.47 | 4.00 |
| | Total | 3.46 | 0.75 | 4.00 |
| 4 | 1 | 3.09 | 0.81 | 3.00 |
| | 2 | 3.38 | 0.71 | 4.00 |
| | 3 | 3.94 | 0.23 | 4.00 |
| | Total | 3.58 | 0.66 | 4.00 |
| 5 | 1 | 3.55 | 0.67 | 4.00 |
| | 2 | 3.74 | 0.44 | 4.00 |
| | 3 | 3.94 | 0.23 | 4.00 |
| | Total | 3.79 | 0.44 | 4.00 |
| 6 | 1 | 3.55 | 0.51 | 4.00 |
| - | 2 | 3.51 | 0.50 | 4.00 |
| | 3 | 3.88 | 0.32 | 4.00 |
| | Total | 3.69 | 0.46 | 4.00 |
| 7 | 1 | 3.18 | 0.85 | 3.00 |
| | 2 | 3 36 | 0.77 | 4 00 |
| | 3 | 3.82 | 0.43 | 4.00 |
| | Total | 3 54 | 0.70 | 4 00 |
| 8 | 1 | 3 45 | 0.73 | 4 00 |
| 0 | 2 | 3.59 | 0.49 | 4.00 |
| | 3 | 3.96 | 0.19 | 4.00 |
| | Total | 3.73 | 0.50 | 4.00 |
| 9 | 1 | 3.45 | 0.59 | 3.50 |
| , | 2 | 3 36 | 0.53 | 3.00 |
| | 3 | 3.82 | 0.33 | 4 00 |
| | Total | 3 59 | 0.54 | 4 00 |
| Total | 1 | 30.36 | 3,81 | 31.00 |
| | 2 | 31 51 | 3.66 | 32.00 |
| | 3 | 34.94 | 1.93 | 36.00 |
| | Total | 32.85 | 3.59 | 34.00 |
| Supervisor | | 02.00 | 0.07 | 00 |
| 10 | 1 | 3,95 | 0.21 | 4.00 |
| | 2 | 4.00 | 0.00 | 4.00 |
| | 3 | 4.00 | 0.00 | 4.00 |
| | Total | 3 99 | 0.09 | 4.00 |
| 11 | 1 | 3.50 | 0.67 | 4.00 |
| | 2 | 3 74 | 0.44 | 4.00 |
| | 3 | 3.96 | 0.19 | 4.00 |
| | Total | 3.79 | 0.44 | 4.00 |
| 12 | 1 | 3.14 | 0.99 | 3.00 |
| | 2 | 3 51 | 0.50 | 4 00 |
| | 3 | 3.88 | 0.38 | 4 00 |
| | Total | 3.61 | 0.64 | 4.00 |
| 13 | 1 | 3 32 | 1.04 | 4 00 |
| 15 | 2 | 3.32 | 0.51 | 4 00 |
| | 2 | 3.72 | 0.01 | 4.00 |

| | Total | 3.75 | 0.60 | 4.00 |
|-------|-------|-------|------|-------|
| 14 | 1 | 4.00 | 0.00 | 4.00 |
| | 2 | 3.87 | 0.33 | 4.00 |
| | 3 | 3.98 | 0.14 | 4.00 |
| | Total | 3.95 | 0.22 | 4.00 |
| Total | 1 | 17.91 | 2.54 | 19.00 |
| | 2 | 18.85 | 1.13 | 19.00 |
| | 3 | 19.78 | 0.64 | 20.00 |
| | Total | 19.09 | 1.54 | 20.00 |

Note: 1=Akkihebbal, 2=Hullahalli and 3=Gumballi; OSC= questions related to factors in Outreach Service Centre; Supervisor = questions related to Supervisor related factors.

Table 44 b

Mean, Median, and SD for all questions and percentage scores for the questions

| | Hobli | Mean | SD | Median |
|-----------------------|-------|-------|-------|--------|
| Mean (all questions) | 1 | 48.27 | 6.10 | 50.00 |
| | 2 | 50.36 | 4.59 | 51.00 |
| | 3 | 54.73 | 2.50 | 56.00 |
| | Total | 51.94 | 4.92 | 54.00 |
| Percentage OSC | 1 | 84.33 | 10.58 | 86.11 |
| | 2 | 88.03 | 10.29 | 88.88 |
| | 3 | 97.05 | 5.37 | 100.00 |
| | Total | 91.41 | 9.95 | 95.83 |
| Percentage Supervisor | 1 | 89.54 | 12.71 | 95.00 |
| | 2 | 94.23 | 5.68 | 95.00 |
| | 3 | 98.92 | 3.21 | 100.00 |
| | Total | 95.44 | 7.69 | 100.00 |
| Overall Percentage | 1 | 86.19 | 10.90 | 89.28 |
| | 2 | 89.92 | 8.20 | 91.07 |
| | 3 | 97.72 | 4.47 | 100.00 |
| | Total | 92.74 | 8.78 | 96.42 |

Note: 1-Akkihebbal, 2-Hullahalli and 3-Gumballi; OSC= questions related to factors in Outreach Service Centre; Supervisor = questions related to Supervisor related factors

As the median values reached the peak for majority of the questions, further testing was not carried out. Results of Kruskal-Wallis test indicated significant difference for question no. 10 only under the factors related to the field supervisor [x^2 (Z) =4.091 (0.12), (p > 0.05)]. This question related to how the field supervisors introduced and familiarized them to the house to house survey in their respective villages. Majority of them responded negatively to this question indicating that measures were required to improve this factor in the next level of survey program. Table 45 shows the Chi-Square values for 3 hoblis and all questions.

| Question No | Chi-Square |
|-------------|------------|
| OSC 1 | 10.192 |
| 2 | 11.567 |
| 3 | 17.319 |
| 4 | 31.716 |
| 5 | 11.579 |
| 6 | 16.470 |
| 7 | 15.847 |
| 8 | 20.803 |
| 9 | 19.977 |
| Total OSC | 32.846 |
| SUP 10 | *4.091 |
| 11 | 16.014 |
| 12 | 23.150 |
| 13 | 16.181 |
| 14 | 6.630 |
| Total SUP | 30.883 |

| Table 45 | | |
|------------|------------|----------------|
| The Chi-So | uare value | s for 3 hoblis |

| Overall | 32.510 |
|--------------------|--------|
| Percentage OSC | 31.339 |
| Percentage SUP | 30.883 |
| Overall Percentage | 32.598 |

Note: Outreach service centre=OSC and Supervisor=SUP

A total of 61 Homemaker volunteers in Akkihebbalu and Hullahalli hoblis and 51 ASHA Workers in Gumballi hobli worked in the survey. Results of Mann-Whitney U test revealed no significant difference between home maker volunteers across Akkihebbaluu and Hullahalli hobli on any of the factor as addressed through the questions, indicating that the responses with respect to satisfaction index by the volunteers of these two hoblis were similar. However, results of Mann-Whitney U test showed a significant difference in all the questions except for question 10 and 14 related to SUP across Akkihebbalu and Gumballi hobli [|Z| 1.52=0.12 and |Z| 0.65=0.51, (p < 0.05)]. This indicated that ASHA Workers of Gumballi hobli had better satisfaction compared to the home maker volunteers in Akkihebbalu. Siginificant difference was also observed for all the questions except for question 10 under SUP across Hullahalli (Home Maker volunteers) and Gumballi (ASHA workers) [|Z| 0.00=1.00, (p < 0.05)], indicating better satisfaction among the ASHA workers in Gumballi compared to homemaker volunteers in Hullahalli. Overall, the ASHA Workers showed better satisfaction scores compared to the home maker volunteers. |Z| scores are shown in table 46.

Table 46

Comparison between the three hoblis (Akkihebbal, Hullahalli and Gumballi) -/z/ scores

| Question No. | Akkihebbal | Akkihebbal | ullahalli | |
|--------------------|------------|------------|-----------|--|
| | VS | VS | VS | |
| | Hullahalli | Gumballi | umballi | |
| | Z | Z | Z | |
| OSC | • | | | |
| 1 | 0.12 | 2.60 | 3.04 | |
| 2 | 0.81 | 3.21 | 2.72 | |
| 3 | 1.45 | 4.02 | 2.88 | |
| 4 | 1.40 | 5.42 | 4.70 | |
| 5 | 1.05 | 3.36 | 2.62 | |
| 6 | 0.24 | 3.17 | 3.85 | |
| 7 | 0.78 | 3.63 | 3.29 | |
| 8 | 0.40 | 4.07 | 4.33 | |
| 9 | 0.73 | 3.00 | 4.37 | |
| Total | 1.17 | 5.06 | 4.54 | |
| Supervisor | | | | |
| 10 | 1.33 | 1.52 | 0.00 | |
| 11 | 1.40 | 4.05 | 2.98 | |
| 12 | 1.23 | 4.46 | 4.00 | |
| 13 | 1.43 | 4.07 | 2.99 | |
| 14 | 1.73 | 0.65 | 2.03 | |
| Total | 1.00 | 4.81 | 4.92 | |
| Overall | 1.19 | 5.02 | 4.54 | |
| Percentage OSC | 1.36 | 5.06 | 4.28 | |
| Percentage SUP | 1.00 | 4.81 | 4.92 | |
| Overall Percentage | 1.19 | 5.02 | 4.55 | |

Note: OSC =Outreach service centre and SUP= Supervisor

FEEDBACK ABOUT

ABOUT Awareness in the public regarding communication disorders on

AWARENESS OF COMMUNICATION DISORDERS AND RELATED ISSUES IN THE PUBLIC completion of the survey in the selected area was investigated by administering a questionnaire (*Appendix 3 B*) with binary forced choice options as 'yes' / 'no' on 7 target groups in the public - (a) Agriculturist/Manual Labourer (b) Business, (c) Grampanchayat member (d) Students (e) Professional (f) Government Employee (g) Homemaker. There were 3 parts (domains) in the questionnaire to find out the awareness on the effects of the following: *Domain 1*: Hearing Impairment and ear diseases, *Domain 2*: Speech & Language Disorders and *Domain 3*: Lifestyle & related.

Domain 1 included a total of 18 questions on Hearing Impairment (HI) and ear diseases. For the sake of analyses, these were divided into 3 sub domains - HI 1 (Risk factors leading to hearing impairment), HI 2 (Hearing impairment), HI 3 (General awareness of hearing impairment). **Domain 2** included 55 questions on various Speech and language disorders (SLD). For the sake of analyses, these were divided into 10 sub domains - SLD 1 (Speech and language disorders), SLD 2 (Mental retardation), SLD 3 (Learning disability), SLD 4 (Cerebral Palsy), SLD 5 (Autism), SLD 6 (Aphasia), SLD 7 (Cleft lip and palate), SLD 8 (Articulation/Phonological disorders), SLD 9 (Fluency disorders), SLD 10 (Voice disorders). **Domain 3** included 29 questions on Lifestyle related to Communication disorders. For the sake of analyses, these were divided into 4 sub domains - LS 1 (Social aspects), LS 2 (Literacy aspects), LS 3 (Personality aspects), LS 4 (Vocational, Entertainment, Physical & Economical aspects).

The respondents were instructed to read each question (if they were literate) or listen to the field supervisor who read out the questions one by one to them and indicate/respond as 'yes' or 'no'. Each question was so framed that a 'yes' indicated positive awareness and 'no' indicated no awareness. The questionnaires were distributed among 150 general public in the villages of Akkihebbal hobli of K.R.Pete Taluk of Mandya district, Hullahalli hobli of Nanjangud Taluk of Mysore district and Gumballi hobli of Yelandur Taluk of Chamarajanagar district, belonging to the 7 target groups. The duration between administering the questionnaire to the respondent (if literate) and collecting the filled questionnaire from them varied from 1 to 3 weeks. For those who were not literate, the questions were read out by the field supervisors or the volunteers or ASHA workers and responses obtained on the same day or spread over two days.

Of the 150 questionnaires that were distributed, 14 questionnaires were not returned and hence the filled questionnaires included 136. Table 47 shows the number and percentage of persons from the 7 target groups who filled the questionnaire.

Table 47

Response percentage of various target groups who responded to the questionnaire

| Target Groups | Number (percentage) |
|---------------------------------|---------------------|
| Agriculturists/Manual Labourers | 29 (21.3%) |
| Businessmen | 20 (14.7%) |
| Grampanchayat member | 16 (11.8%) |
| Students | 23 (16.9%) |
| Professionals | 16 (11.8%) |
| Government Employees | 14 (10.3%) |
| Home Makers | 18 (13.2%) |
| Total | 136 (100%) |

'Yes; was scored '1', and 'No' was scored '0'. The total score for domains and sub domains were computed. The data was analyzed using SPSS 21.0 software. Since the data sample size was small and was derived on nominal scale, non parametric tests were used for the analysis.

The mean scores revealed that the awareness for factors related to speechlanguage disorders was higher among the 7 target groups. This was followed by factors related to lifestyle and hearing impairment. The higher awareness level for speech-language disorders could probably be reasoned as due to the overt signs and symptoms that are evident in most of the disorders when compared to hearing impairment. Similarly the target groups seemed to be more aware of the effects of disorders on lifestyle of the person affected. Table 48 shows the mean and SD of the seven target groups and the mean and SD of three domains across the target groups. Results of Kruskal-Wallis test showed no significant difference between groups within each domain i.e., Hearing Impairment, Speech and language disorders, and Lifestyle, and between the domains at 0.05 level of significance (Table 49).

Table 48

Mean and SD of the responses in seven target groups for the three domains.

| Target Group | Domains | | | | | | Ove | rall |
|-----------------|----------------|--------------|------------------|-------------------|-------|------|-------|-------|
| | Hear
Impair | ring
ment | Speech-
disor | language
rders | Lifes | tyle | | |
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Agriculture/ | 11.97 | 3.05 | 41.83 | 6.97 | 14.93 | 3.77 | 68.72 | 8.25 |
| Manual Labourer | | | | | | | | |
| Business | 11.40 | 3.35 | 39.15 | 6.74 | 15.95 | 4.12 | 66.50 | 8.87 |
| Grampanchayat | 11.00 | 3.65 | 38.44 | 7.27 | 14.44 | 7.29 | 63.88 | 11.16 |
| member | | | | | | | | |
| Students | 11.74 | 2.26 | 40.04 | 6.84 | 16.04 | 3.90 | 67.83 | 7.66 |
| Professional | 10.56 | 3.18 | 36.88 | 9.65 | 14.94 | 3.53 | 62.38 | 10.92 |
| Government | 12.00 | 2.51 | 37.43 | 10.90 | 17.43 | 2.98 | 66.86 | 12.32 |
| Employee | | | | | | | | |
| Home Maker | 10.44 | 2.97 | 39.50 | 7.15 | 16.33 | 3.01 | 66.28 | 8.28 |
| Total | 11.37 | 3.00 | 39.39 | 7.80 | 15.65 | 4.23 | 66.41 | 9.45 |

Table 49 Chi-Square (x^2) values for 3 domains.

| Domains | Chi-Square value |
|---------------------------|------------------|
| Hearing Impairment | 4.967 |
| Speech-language disorders | 5.551 |
| Lifestyle | 5.667 |
| Overall | 5.485 |

The data was analyzed further to compare the awareness level across the three hoblis of Akkihebbalu, Hullahalli and Gumballi. It was observed that the awareness level amongst the target groups was similar in all the three hoblis. Table 50 depicts the mean and SD of awareness levels across 3 hoblis. Further, results of Kruskal-Wallis test showed no significant difference across the 3 hoblis at 0.05 level of significance (Table 51).

| Domains | Akkihebbal | | Hullahalli | | Gumballi | | Overall | |
|---------------------------|------------|-------|------------|------|----------|------|---------|------|
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Hearing Impairment | 11.81 | 2.94 | 11.33 | 2.66 | 11.17 | 3.49 | 11.37 | 3.00 |
| Speech-language disorders | 37.58 | 9.63 | 39.61 | 7.47 | 40.11 | 7.08 | 39.39 | 7.79 |
| Lifestyle | 15.88 | 4.47 | 15.56 | 4.37 | 15.65 | 3.99 | 15.65 | 4.23 |
| Overall | 65.27 | 11.28 | 66.50 | 9.47 | 66.93 | 8.41 | 66.41 | 9.45 |

Mean and SD of awareness level for the domains across Akkihebbalu, Hullahalli and Gumballi hoblis.

Table 51

Chi-Square (x^2) values for 3 domains across 3 hoblis.

| Domains | Chi-Square value |
|---------------------------|------------------|
| Hearing Impairment | 1.084 |
| Speech-language disorders | 1.115 |
| Lifestyle | 0.066 |
| Overall | 0.182 |

The data was further analyzed to compare the subdomains of questions under the categories of Hearing Impairment, Speech-Language disorders and Lifestyle. The mean and SD for sub domains are shown in table 52.

Table 52

Means and SDs for sub domains of Hearing Impairment, Speech-Language Disorders and Lifestyle (3 hoblis together)

| Domains | Sub | questions related to | | SD |
|--------------------|---|--|-------|-------|
| | Domain | - | | |
| Hearing Impairment | HI 1 | Risk factors leading to hearing impairment | 63.05 | 20.06 |
| | HI 2 | Hearing impairment | 59.71 | 21.63 |
| | HI 3 | General awareness of hearing impairment | 66.76 | 22.07 |
| Speech-Language | SLD 1 | General awareness of Speech and language disorders | 85.50 | 18.80 |
| Disorders | General awareness of Mental retardation | 77.66 | 20.43 | |
| | SLD 3 | General awareness of Learning disability | 71.02 | 22.81 |
| | SLD 4 | General awareness of Cerebral Palsy | 68.13 | 27.17 |
| | SLD 5 | General awareness of Autism | 53.38 | 28.29 |
| | SLD 6 | General awareness of Aphasia | 72.05 | 34.70 |
| | SLD 7 General awareness of Cleft lip and palate | | | 19.77 |
| | SLD 8 General awareness of Articulation disorders | | | |
| | SLD 9 | General awareness of Fluency disorders | 66.72 | 24.16 |
| | SLD 10 | General awareness of Voice disorders | 67.50 | 20.46 |
| Life style | LS 1 | Social aspects | 56.91 | 20.53 |
| | LS 2 | Literacy aspects | 56.61 | 21.02 |
| | LS 3 | Personality aspects | 40.07 | 25.77 |
| | LS 4 | Vocational, Entertainment, Physical & Economical | 50.10 | 20.90 |
| | | aspects | | |

The results of the Friedman's test revealed significant difference between the sub domains of Speech-language disorders (x^2 (9) =150.919, p < 0.001). Further, results of Wilcoxon's Signed Rank test showed no significant difference between the different disorders of speech and language, indicating that the target groups did not show specific trend with respect to awareness of individual disorders, although there was a good awareness for the speech-language disorders as a whole. Results of Friedman test showed significant difference between sub domains (x^2 (3) =52.938, p < 0.001), suggesting that the target groups were aware of the factors which affected lifestyle in persons with communication

disorders. also, results of Wilcoxon Signed Rank test revealed significant difference between LS1 (social aspects), LS2 (literacy aspects) and LS3 (personality aspects)/ LS 4 (vocational, entertainment, physical and economy aspects), indicating that the target groups were more aware of the effect of various communication disorders on the social and personality aspects compared to the implications of communication disorders on literacy, vocational, entertainment and physical and economy related issues.

Conclusions

The volunteers and ASHA workers were satisfied with the facilities and activities related to evaluation of persons with communication disorders at the OSCs more so when compared to the activities of the respective field supervisors when they were involved in the house to house survey. Overall, the ASHA Workers (Gumballi) showed better satisfaction scores compared to the home maker volunteers (Hullahalli and Akkihebbalu). The awareness for factors related to speech-language disorders was higher among the 7 target groups included, followed by factors related to lifestyle and hearing impairment. The target groups were better aware of the effect of various communication disorders on the social and personality aspects compared to the implications of communication disorders on literacy, vocational, entertainment and physical and economy related issues.

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