International Journal of Community Medicine and Public Health
Bhargav V et al. Int J Community Med Public Health. 2024 Oct;11(10):3854-3858
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20242864

Original Research Article

Nutritional status and morbidity among deaf-mute children attending special school in Nandyal, Andhra Pradesh: a cross sectional study

Bhargav V.*, M. A. Mushtaq Pasha, Afsar Fatima

Department of Community Medicine, Santhiram Medical College, Nandyal, Andhra Pradesh, India

Received: 15 April 2024
Accepted: 20 September 2024

***Correspondence:**
Dr. Bhargav V.,
E-mail: bhargavvuchuru@gmail.com

ABSTRACT

Background: Deaf-mute children are those who have a hearing loss that prevents them from acquiring or using spoken language. They may use sign language, gestures, lip-reading, writing or other forms of communication. Hearing loss affects the quality of life and well-being of individuals, families and communities. According to WHO 63 million population in India with hearing loss, in that 4.5 million people are children under 15 years of age.
Methods: A school based, cross-sectional study, done in Special school for deaf-mute, Nandyal over a period of June-July 2023 (2months) by using pre-designed, pre-tested, semi-structured questionnaire by interview method, with help of Convenience sampling technique for sample size of 100. A pre-designed semi-structured questionnaire was used to interview subjects after taking permission from the principal and confidentiality was ensured. The collected data were analysed using MS Excel and SPSS 2027 version.
Results: Among 100 deaf-mute children, 57 were boys and 43 were girls, prevalence of undernutrition out of 57 boys were 49(85%) and among 43 girls were 27 (62%), overall prevalence of undernutrition were 76%, morbidity pattern showed that dental carries were second most common morbidity which were around 47%, followed by refractory error 12%.
Conclusions: Understanding the interplay between deafness, muteness, and nutritional health is crucial for developing comprehensive care strategies. It is essential to address these challenges holistically, considering the socio-economic factors that influence access to nutritious food and healthcare services.

Keywords: Children, Deaf-mute, Morbidity, Nutritional status, Special schools

INTRODUCTION

World Health Organisation (WHO) estimates in India, there are approximately 63 million people, who are suffering from significant auditory impairment; this places the estimated prevalence at 6.3% in the Indian population. The disabled form a substantial part of the community.[1] All over the world, there are an estimated 500 million people with disabilities.

WHO definition of 'deafness' refers to the complete loss of hearing ability in one or two ears. The cases included in this category will be those having hearing loss of more than 90 dB in the better ear or total loss of hearing in both ears.[2]

In 19th-century British English, "mute" and "dumb" simply meant "non-speaking" and were not pejorative terms. For instance, Queen Victoria initiated the Royal Commission on The Blind, the Deaf and Dumb in the United Kingdom in 1889 to improve conditions for blind and deaf individuals.

The term "deaf-mute" was coined in the early 19th century as a medical term for an inability to speak due to deafness.[3]

Deaf-mute children, those who experience significant challenges in hearing and speech, represent a unique and often underserved population. Their condition not only affects communication but can also have profound implications on their overall health and development. Among the most pressing concerns is the nutritional status of these children, which is pivotal for their growth, cognitive development, and well-being.

There is an overall 4.5 million Deaf and mute population in India, which holds the world's 20% of the deaf and dumb population. Hearing loss is the most common sensory deficit in humans today.[4]

Nutritional deficiencies can exacerbate existing health issues and may lead to additional morbidities. Research indicates that deaf-mute children may face higher risks of certain health problems, including dental caries and periodontal disease, which can affect their quality of life and long-term health outcomes. Moreover, the prevalence of stunting and underweight conditions among under-five children in some regions suggests that malnutrition remains a significant barrier to the health of deaf-mute children.[5]

The greatest challege is that these children have to face societal misconceptions they have been pitied, ignored or even hidden.[6] Discrimination is still exist but in recent decades government took initiatives like inclusion of deaf-mute kids along with others in schools, it helps in building confidence, and they will get more exposure to society thus decreases misconceptions. Other initiatives like scholarships and pension schemes help them economically.

WHO developed a framework for measuring health and disability at both individual and population levels called the International Classification of Functioning, Disability, and Health (ICF).[7]

Many factors cause deafness in the neonatal period and early childhood. These comprise various antenatal, perinatal, and postnatal factors which are more common in a developing country like India. Mutism occurs secondary to the non-rehabilitation of deafness. This could be due to insufficient medical services in rural areas, illiteracy, poverty, old customs and beliefs, inadequate knowledge regarding hearing milestones, and low finances among many others. A little increase in the fund spent on the prevention of deafness and its rehabilitation can prevent this major burden of deaf mutism in our society.[7,8] Deaf-mute children are also prone to many diseases due to micronutrient deficiencies, vitamin A deficiency, etc which indirectly effects their nutrition and end up being malnourished.

Deaf-mute children are neglected in these aspects hence present study aimed to assess the nutritional and morbidity status among them.

METHODS

Study design

The study design was school based cross-sectional study.

Study duration

The study duration was 2 months (July to August 2023).

Inclusion criteria

All deaf and dumb children attending a special school in Nandyal, Andhra Pradesh, who are willing to give written and informed assent and deaf-mute children aged between 10-18 years of age were included.

Exclusion criteria

The children who were not available at special schools during the scheduled day of the present study were excluded. Who are not willing to give written and informed assent were excluded.

Study tools

Pre-designed and semi-structured questionnaire, which was standardized by conducting the pilot study, weighing machine, measuring tape, Stadiometer, torch.

Sample size

Total 100 deaf-mute children were selected using a convenience sampling technique.

Ethical considerations

Ethical clearance was taken from the institutional ethics committee before the start of the study. Permission from the Head of the special school was taken and informed consent from the parents of the children was also taken.

Data collection

Data collection was started from July & August 2023 after getting Institutional Ethical Clearance. The data was collected by using a standardized questionnaire in the local language after taking informed consent from parents. The data tool consisted of demographic details, a Morbidity profile, Anthropometric measurements, a head-to-toe physical examination, and their nutritional Status which was assessed by measuring height, weight, and WHO Anthropometric indicators such as height/age, and weight/age, BMI (Asian pacific).

Data analysis

Data entry, processing, and analysis were done by using the Micro-soft excel software to explore the distribution

of several categorical and quantitative variables. Categorical Variables were summarized with percentages or numbers. Appropriate statistical applications were done by using SPSS 2027 version software. The Chi square test was used to assess the significance with p value less than 0.05 considered to be statistically significant.

RESULTS

Among the total study population which is 100,57 were boys and 43 were girls (Figure 1).

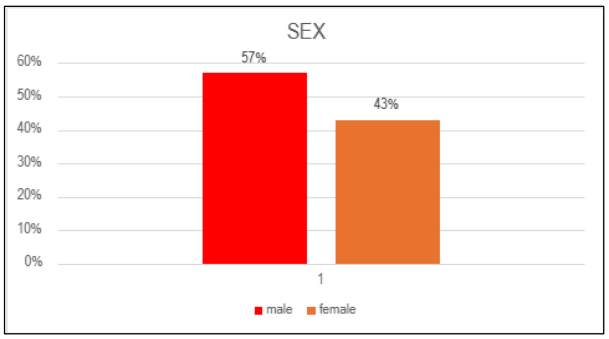

Figure 1: Sex distribution.

The mean age of the study population was 14±2 years. About 67% belonged to Hindus, followed by Muslims 22% and Christians 11% respectively. The overall mean height of the study population was 142±20 cm, weight was 34±14 and BMI was 16.94±6.9 kg/m^2 (Table 1).

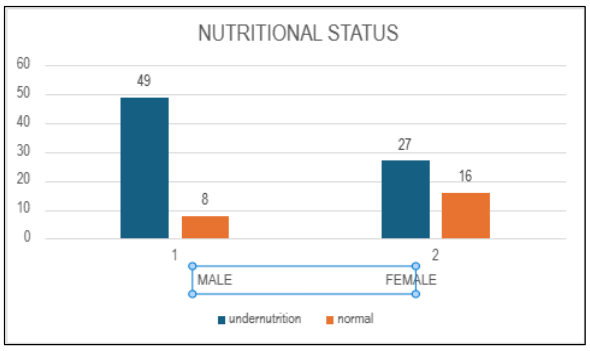

Figure 2: Nutritional status among boys and girls.

Most common morbidity that deaf mute children facing was undernutrition 74% followed by dental problems 47% including dental caries and yellowing of teeth followed by refractory error of 12%, diseases of respiratory infections both upper and lower respiratory illness and skin diseases accounts for 8%, pallor was found among 7% of children, ear discharge was found among 3%, no cardiovascular diseases and thyroid. The morbidity pattern showed that 25 % suffered from any disease during the past 3 months and 2 % of them were hospitalized in the past 3months. The prevalence of undernutrition among the study population was 74% the prevalence of overnutrition (overweight and obese) was 2%. The prevalence of undernutrition and overnutrition among girls was 62% and 4% respectively whereas in boys undernutrition was 85.9% and the prevalence of undernutrition was more among boys. The prevalence of stunting overall was 60% among which 30% of them were severely stunted. The prevalence of underweight overall was 66%. 21% of children have similar family history (Figure 2, Table 2).

Table 1: Association between BMI and gender.

	<18.5 kg/m^2	18.5 - 22.9 kg/m^2	>23 kg/m^2	P value
Male	49	08	0	
Female	27	16	0	0.007
Total	76	24	0	

p value <0.05 considered as significant

Table 2: Distribution of study population according to morbidity status.

Morbidities	N	Percentage
Dental carries	47	47
Refractive error	12	12
Respiratory illness	8	8
Pallor	7	7
Skin diseases	7	7
Ear discharge	3	3
Gastrointestinal	1	1

DISCUSSION

According to NFHS-5 data showed that undernutrition is major public health issue especially nutrition indicators including stunting, wasting, and being underweight still pose a major public health issue though the burden of malnourished children coming down due to government initiatives like mid-day meal.[9] Malnutrition and infections are a vicious cycle thereby affecting the health status and leading to increased morbidity. And the issue of morbidity and malnutrition will be an extremely worrisome situation, especially in deaf-mute children.

Henceforth, the present study was taken up among 100 deaf-mute children from one special school where the mean age was 14 years with male:female ratio of 1.3:1, 21% have history of deaf-mutism compared to the study by Singh et al from rural central India done on 50 subjects with male to female ratio of 1:1.08, 6% of them have sibling history of deaf-mutism.[10]

In present study morbidities like malnutrition (76%), dental carries (49%), refractive error (12%) were predominant compared with study done by Pawde et al where morbidities like pneumonia (10%) jaundice (10%), tonsillitis, exanthematous fever, and refractive errors were seen.[11]

Almost similar results regarding dental carries (47%) were found in a study done by Goud et al where prevalence of dental carries were 49.13% compared to the study by Goud et al where the prevalence of dental caries was 49.3%.[5] But in contrast, a study done in Ethiopia by Tefera et al found the prevalence of dental caries at 38.6%. This difference might be due to different demographic factors, cultural factors and habits pertaining there into.[12]

In a study done in eastern region of Ghana by Kwotua et al showed that stunting, thinning and obesity were noticed among 10-19-year-old deaf-mute children which accounts for 16.9%, 7.3% and 6.4% respectively whereas in present study stunting and underweight are around 60% and 66% respectively. This difference might be due to cultural and demographic backgrounds.[13]

The study conducted by Rawlani et al, in 2010 aimed to assess the oral health status of deaf and mute children attending a special school in Anand Wan, Warora, India were surprisingly found that children with deaf-mutism have good oral hygiene, only 3-4% found to have dental carries. Whereas in our study dental carries were second common morbidity which is around 49%.[6]

A study conducted in a special school among 50 deaf-mute children Hyderabad by Snehika et al got dental carries as most common morbidity around 76%, severe thinning 2%, thinning 14%, overweight 16% and obesity 5%. But in current study we found undernutrition as most common morbidity 76% followed by dental carries 49% and refractory error 12%. This difference might be due to lack regular check-ups by physician and nutrition might be neglected.[14]

This study has few limitations. Since study was done in single school, we can't generalise it to whole population. Causal relationship can't be established since it is cross-sectional study.

CONCLUSION

Understanding the interplay between deafness, muteness, and nutritional health is crucial for developing comprehensive care strategies. It is essential to address these challenges holistically, considering the socio-economic factors that influence access to nutritious food and healthcare services. Studies have shown that deaf-mute children are undernourished and lack of oral hygiene, they must have Health education about proper diet and personal hygiene. Government initiatives and pension schemes like state disability pension should reach deaf-mute children. Effective utilization of ICDS and Anganwadi centres can help reduction undernutrition. Collaboration with private partners to increase infrastructure to diagnose and treat deaf-mute children and early intervention can help limit disability.

ACKNOWLEDGEMENTS

We would like to thank principal, faculty and students who supported and participated in this research.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee (Rc. No: SRMC/RESEARCH/2023/006)

REFERENCES

1. GOI. Rights of Persons with Disabilities Act, 2016. Available at: https://legislative.gov.in/sites/default/f. Accessed on 02 August 2023.
2. Tin W, Lin Z, Swe M, Nang. Deaf mute or deaf. Asian J Med Biolog Res. 2017;3(1):10-9.
3. Deaf-mute-Wikipedia. 2024.available at https://en.wikipedia.org/wiki/deaf-mute. Accessed 11 April 2024.
4. Martínez-Pérez B, Torre-Díez I, López-Coronado M. Mobile health applications for the most prevalent conditions by the World Health Organization: review and analysis. J Med Internet Res. 2013;15(6):e120.
5. Goud V, Gupta R, Babu AS, Das D, Kulkarni G, Swathi K. Oral health status and treatment needs among deaf, mute and visually impaired children of Gulbarga district–A population based cross sectional study. J Fam Medi Prim Care. 2021;10(10):3664-9.
6. Rawlani S, Motwani M, Bhowte R, Baheti R, Shivkuma S. Oral health status of deaf and mute children attending special school in AnandWan, Warora, India. J Korean Dent Sci. 2010;3(2):20-5.
7. Ramadass S, Rai SK, Gupta SK, Kant S, Wadhwa S, Sood M, et al. Prevalence of disability and its association with sociodemographic factors and quality of life in India: A systematic review. J Family Med Prim Care. 2018;7(6):1177-84.
8. Jallu AS, Hussain T, Hamid WU, Pampori RA. Prelingual deafness: an overview of treatment outcome. Indian J Otolaryngol Head Neck Surg. 2019;71(2):1078-89.
9. Government of India: Ministry of Health and Family Welfare, 2020. Available at: https://main.mohfw.gov.in/. Accessed on 02 April 2024.
10. Singh S, Jain S. Factors associated with deaf-mutism in children attending special schools of rural central India: A survey. J Family Med Prim Care. 2020;9(7):3256-63.
11. Pawde A, Chaurpagar R, Aggarwal S, Agarwal A, Dabhekar S. A cross sectional study of clinical profile of deaf mute children at tertiary care center. Int J Otorhinolaryngol Head Neck Surg. 2017;3:826-32.
12. Tefera AT, Girma B, Adane A, Muche A, Awoke Ayele T, Getahun KA, et al. Oral health status of hearing-impaired students attending special need Schools in Amhara Region, Ethiopia: a cross-

sectional study. Clin Cosmet Investig Dent. 2022;14:19-35.
13. Kwotua A. Assessment of nutritional status of blind and deaf school children and adolescents in the Eastern Region of Ghana Afribary, 2021. Available at: https://afribary.com/works/assessment-of-nutritional-status-of-blind-andschoadolescents-in-the-eastern-region-of-ghana. Accessed on 02 April 2024.
14. Snehika A, Koteswaramma CH, Kumar MV, Madhuri V. A study on morbidity and nutritional status of deaf-mute children attending a special school of Hyderabad, Telangana. Int J Community Med Public Health. 2023;10(7):2561-5.

Cite this article as: Bhargav V, Mushtaq Pasha MA, Fatima A. Nutritional status and morbidity among deaf-mute children attending special school in Nandyal, Andhra Pradesh: a cross sectional study. Int J Community Med Public Health 2024;11:3854-8.