

Teachers' Awareness and Understanding of The Psychological Impact of Unilateral Hearing Loss in Children

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Abstract—Unilateral Hearing Loss (UHL) is a condition in which a child has normal hearing in one ear and impaired hearing in the other. Because affected children often function adequately in quiet, one-to-one situations, UHL frequently goes unrecognised in mainstream classrooms, even though the noisy and acoustically complex nature of ordinary schooling can produce significant listening fatigue, frustration, anxiety, reduced self-confidence, and social withdrawal. This study examined mainstream school teachers' awareness and understanding of the psychological impact of UHL in children. A descriptive survey design was adopted, and a self-developed Teacher Awareness Questionnaire, structured on a five-point Likert scale, was administered through purposive sampling to 73 mainstream school teachers drawn from private and government schools across the CBSE, ICSE, State Board, and IGCSE/IB curricula in and around Bengaluru, India.

Data were analysed using percentage analysis, mean, and standard deviation, supplemented by a thematic reading of open-ended responses. Results indicated moderate-to-good awareness of the psychological consequences of UHL (mean = 3.73, SD = 0.61) but comparatively weaker foundational knowledge of the condition itself (mean = 3.55, SD = 0.83), particularly among teachers without in-service training in inclusive education and among teachers in government schools. Teachers reported low confidence in identifying hearing-related difficulties (mean = 3.61) despite already using compensatory strategies such as repeating instructions and modifying their teaching approach. A large majority endorsed the need for clearer institutional guidelines (80.3%) and UHL-specific teacher training (76.7%). The findings reveal a gap between teachers' general sympathy toward affected children and their concrete capacity to identify and support them, underscoring the need for structured, practice-oriented professional development.

Index Terms—Inclusive Education, Mainstream Schools, Psychological Impact, Teacher Awareness, Unilateral Hearing Loss.

I. INTRODUCTION

Unilateral Hearing Loss (UHL) is a condition in which an individual has normal hearing in one ear and impaired hearing in the other. Unlike bilateral hearing loss, UHL is often less visible in school settings because affected children typically function adequately in quiet, one-to-one situations, and as a result most children with UHL are enrolled in mainstream rather than specialised schools. The apparent normalcy such children display in calm settings, however, masks the substantial difficulty they experience in noisy, acoustically complex classrooms, where the loss of binaural hearing compromises sound localisation and speech-in-noise comprehension, giving rise over time to frustration, anxiety, reduced self-esteem, social withdrawal, and heightened listening fatigue.

Because children with UHL are not formally identified as having special educational needs in the way children with bilateral hearing loss often are, their psychological and academic difficulties are frequently misread by the adults around them. Teachers are uniquely positioned to notice early signs of listening difficulty and its emotional consequences, but only if they possess adequate awareness of the condition. Where such awareness is lacking, behaviours arising from UHL, such as frequent requests for repetition or apparent inattentiveness, risk being misattributed to poor motivation or behavioural non-compliance.

While the audiological and academic consequences of UHL have received increasing international research attention, the psychological dimension of the condition, and specifically teachers' capacity to recognise and respond to it, remains comparatively underexamined, particularly within the Indian mainstream schooling context. This study addresses that gap by directly surveying practising mainstream school teachers, with four objectives: (i) to explore teachers' awareness of the psychological impact of UHL, including anxiety, self-esteem, social withdrawal, and listening fatigue; (ii) to examine how teachers interpret the emotional and social behaviours of children with UHL; (iii) to investigate the relational and pedagogical responses teachers employ in supporting such children; and (iv) to identify the barriers, including training and institutional support gaps, that limit teachers' understanding of UHL's psychological impact.

II. REVIEW OF LITERATURE

A. Audiological and Educational Consequences

UHL has historically been underestimated in clinical and educational settings, yet a growing body of research demonstrates that children with UHL face substantial challenges in academic achievement and psychosocial development [1], [2]. Prevalence estimates converge on a figure of around 3% of school-age children [3], [4], making UHL one of the more common forms of childhood hearing impairment, despite which affected children are often overlooked in service provision because their apparent normalcy in quiet settings masks the listening effort they expend in everyday educational situations.

Children with UHL are deprived of binaural processing advantages needed for sound localisation and speech discrimination in noise [5], [6], and studies confirm significantly poorer sound-localisation accuracy among such children compared with normal-hearing peers [7]. The head-shadow effect further reduces the signal-to-noise ratio available to the impaired ear [8], meaning children with UHL require a more favourable signal-to-noise ratio than peers to achieve equivalent speech understanding [9]. These audiological difficulties translate into measurable academic consequences: Bess and Tharpe [2] found that children with UHL were significantly more likely to experience academic failure, and Lieu et al. [10] demonstrated, in a sibling-controlled study, that children with UHL performed worse than

siblings on standardised tests of language, reading, and auditory processing even after controlling for familial and socioeconomic variables [11].

B. Listening Fatigue and Psychological Outcomes

Listening fatigue refers to the mental exhaustion arising from sustained effortful listening in acoustically degraded environments [12]. Cognitive load theory [13] suggests that the continuous effort expended by children with UHL to decode speech depletes cognitive resources that would otherwise support learning and emotional regulation [14]. Extending earlier adult-focused work [15], subsequent research has found elevated end-of-day fatigue among children with hearing loss, positively associated with classroom listening difficulty [16], with cognitively depleted children less able to participate and monitor their own learning [17] and consequently at risk of being misread as inattentive or unmotivated [18].

The relationship between hearing loss and psychological well-being is well established more broadly, and children with UHL specifically show elevated rates of reduced self-esteem, anxiety, and vulnerability to frustration [4], [2]. Repeated experiences of missing or misunderstanding verbal communication can generate a pervasive sense of incompetence [19], while the unpredictability of communication creates ongoing vigilance that is cognitively and emotionally taxing [20], potentially manifesting as reluctance to participate or avoidance of demanding listening situations. Group conversations are particularly exclusionary for children with UHL [21], who report lower social confidence and peer acceptance than normal-hearing peers regardless of hearing-loss severity [22], with their difficulties often misread as rudeness or disinterest given the invisibility of the condition [11].

C. Inclusive Education and Teacher Awareness

International frameworks, including the UNESCO Salamanca Statement [23] and the UN Convention on the Rights of Persons with Disabilities [24], affirm that all children have the right to be educated in mainstream settings with appropriate support. For children with UHL this is particularly reliant on teacher awareness, since many such children remain formally unidentified, their difficulties attributed to behavioural rather than sensory factors [11], [25]. Despite this, research consistently indicates that classroom teachers have limited knowledge of UHL: Elfenbein et al. [26] found that teachers frequently underestimated the functional

consequences of hearing loss in children who communicate adequately in quiet settings, and more recent work confirms that this knowledge gap persists, with teachers reporting low confidence in identifying and supporting affected children [27]. Practical accommodations available to teachers include preferential seating, noise reduction, visual cues, and sound-field amplification [28], which can meaningfully improve the signal-to-noise ratio experienced by children with UHL [9]. Professional development, however, remains a systemic gap, with pre-service curricula devoting limited attention to sensory impairment and in-service training remaining inconsistent across jurisdictions [25].

D. Research Gap

Much of the existing evidence originates from audiology and special-education research conducted outside the Indian schooling context, and few studies have directly surveyed mainstream teachers' self-reported awareness of the psychological, as distinct from purely academic or audiological, impact of UHL. The present study addresses this gap through a descriptive survey of mainstream school teachers in and around Bengaluru.

III. METHODOLOGY

A. Research Design

A descriptive, cross-sectional survey design was adopted, supplemented by a qualitative reading of open-ended responses.

B. Sample

A purposive sample of 73 mainstream school teachers, teaching at the primary, middle, secondary, or higher-secondary level, completed the questionnaire. Respondents were drawn from private (78.1%) and government (21.9%) schools across the IGCSE/IB (37.0%), State Board (26.0%), ICSE (19.2%), and CBSE (17.8%) curricula. Teaching experience ranged from less than 5 years (31.5%) to above 20 years (12.3%), and just over half of respondents (52.1%) reported prior in-service training in inclusive education or special educational needs (SEN).

C. Instrument

Data were collected using a self-developed Teacher Awareness Questionnaire administered online. Section A collected demographic and professional background

information. Section B comprised 24 statements rated on a five-point Likert scale (Strongly Disagree to Strongly Agree), organised into five thematic clusters: foundational awareness and knowledge of UHL (4 items), awareness of its psychological impact (6 items), awareness of its social impact (5 items), teacher practice and self-efficacy (4 items), and perceived systemic and training needs (5 items). An open-ended item invited teachers to describe the support or training that would help them better assist children with UHL.

D. Procedure and Analysis

The questionnaire was distributed between June and July 2026; participation was voluntary, and 68 of 73 respondents (93%) additionally provided a free-text response. Likert responses were coded numerically (1-5) and analysed using percentage analysis and item-level and cluster-level means and standard deviations. Comparative analysis was conducted across in-service training status, school management type, and years of teaching experience. Open-ended responses were grouped into recurring themes using basic thematic content analysis. Participation was voluntary and anonymous, and no personally identifying information was collected.

IV. RESULTS

A. Sample Profile

The sample was drawn predominantly from private schools (78.1%) and was broadly balanced across teaching levels and years of experience, with just over half (52.1%) reporting prior in-service training related to inclusive education or SEN (Table I).

TABLE I. DEMOGRAPHIC PROFILE OF RESPONDENTS (N = 73)

Variable	Category	f	%
Mgmt.	Private	57	78.1
	Government	16	21.9
Level	Primary	21	28.8
	Secondary	21	28.8
	Higher-Sec.	15	20.5
	Middle	15	20.5
Experience	< 5 yrs	23	31.5
	5-10 yrs	26	35.6
	11-20 yrs	15	20.5
	> 20 yrs	9	12.3

Training	Yes	38	52.1
(Incl./SEN)	No	35	47.9
Curriculum	IGCSE/IB	27	37.0
	State Board	19	26.0
	ICSE	14	19.2
	CBSE	13	17.8

B. Awareness by Thematic Cluster

Foundational awareness of UHL was the weakest of the clusters examined ($M = 3.55$, $SD = 0.83$); only 57.6% of teachers agreed they were familiar with the term "Unilateral Hearing Loss" ($M = 3.42$, $SD = 1.24$), the single lowest-scoring item in the survey, though agreement rose to 69.5% once the definition was made explicit.

Awareness of the psychological impact of UHL was comparatively strong and internally consistent ($M = 3.73$, $SD = 0.61$): 75.0% of teachers agreed UHL can lead to anxiety, and 68.5% agreed that emotional difficulties related to UHL often remain unnoticed in mainstream schools.

Awareness of social impact was similarly strong ($M = 3.72$, $SD = 0.63$); the single highest-scoring statement in the survey was teachers' belief that seating arrangements play an important role for children with UHL ($M = 3.93$, $SD = 0.96$; 79.4% agreement), and 72.2% agreed that teachers may misinterpret UHL-related behaviour as inattentiveness.

On teacher practice and self-efficacy, respondents reported already using simple compensatory strategies at high rates, modifying their teaching approach ($M = 4.04$, $SD = 0.90$) and repeating or rephrasing instructions ($M = 3.82$, $SD = 1.00$), the two highest self-reported behaviours in the survey, yet reported markedly lower confidence in identifying hearing-related difficulties ($M = 3.61$, $SD = 1.06$) and in supporting affected children's emotional well-being specifically ($M = 3.71$, $SD = 1.03$).

The systemic/training-needs cluster returned the highest composite score of all domains ($M = 3.82$, $SD = 0.57$): 80.3% of teachers agreed mainstream schools should have guidelines to support children with UHL, and 76.7% agreed UHL training should be incorporated into teacher-training programmes, though personal willingness to attend such training was somewhat lower (61.6% agreement).

TABLE II. COMPOSITE MEAN AND SD BY THEMATIC CLUSTER

Thematic Cluster	Mean	SD
Foundational Awareness/Knowledge	3.55	0.83
Psychological Impact Awareness	3.73	0.61
Social Impact Awareness	3.72	0.63
Systemic/Training Needs	3.82	0.57

C. Comparative Analysis

Teachers with prior in-service training in inclusion/SEN reported consistently higher foundational awareness ($M = 3.67$ vs. 3.41) and higher confidence identifying hearing difficulties ($M = 3.76$ vs. 3.46) than untrained teachers. The largest single demographic difference was by school management type: government-school teachers scored notably lower on foundational awareness ($M = 3.19$) than private-school teachers ($M = 3.65$) and reported lower self-efficacy ($M = 3.55$ vs. 3.87), while expressing the strongest agreement of any subgroup on the need for systemic guidelines ($M = 4.01$). Foundational awareness also increased with years of teaching experience, from $M = 3.42$ among teachers with under 5 years of experience to $M = 3.81$ among those with over 20 years.

TABLE III. COMPARATIVE ANALYSIS BY TRAINING STATUS AND SCHOOL TYPE

Domain	No Trg.	Trained	Govt.	Private
Foundational Awareness	3.41	3.67	3.19	3.65
Psychological Impact	3.65	3.79	3.77	3.71
Social Impact	3.70	3.75	3.65	3.74
Practice/Self-Efficacy	3.73	3.86	3.55	3.87
Systemic/Training Needs	3.87	3.77	4.01	3.77

D. Qualitative Findings

Sixty-eight of 73 respondents (93%) described the support or training that would help them better assist children with UHL. Responses converged on six recurring themes (Table IV), most prominently a request for structured training or workshops (~25 responses) and

practical classroom accommodations such as seating and assistive listening devices (~12 responses). A small minority (2 of 68) expressed no interest in further training; most respondents favoured practical, low-effort formats such as checklists and short videos over lengthy theoretical training.

TABLE IV. THEMATIC ANALYSIS OF OPEN-ENDED RESPONSES

Theme	Approx. f
Training/workshops on UHL	25
Practical classroom accommodations	12
Reference material/checklists	10
Collaboration with parents/specialists	6
Emotional, not only academic, support	5
Short/practical formats; staff-wide reach	5

V. DISCUSSION

The clearest pattern in the data is a divergence between teachers' relatively strong intuitive grasp of the psychological and social consequences of UHL and their comparatively weaker foundational knowledge of the condition itself, consistent with the view that UHL's invisibility, rather than its psychological severity, is what makes it easy to overlook [11], [26]. Teachers appear to recognise, once prompted, that a child managing on one functioning ear could plausibly become anxious or socially withdrawn, but many have simply never encountered the specific label or its formal definition before, suggesting that awareness campaigns may achieve more by leading with recognisable behavioural descriptions than with technical terminology alone.

A confidence gap sits between sympathy and capability: teachers were already engaging in low-cost compensatory behaviours at high rates, yet reported markedly lower confidence in identifying hearing-related difficulty in the first place, and lower still in supporting its emotional dimension. This mirrors diagnostic-confusion concerns raised elsewhere [17], [14], and, alongside comparatively strong endorsement of seating arrangements, suggests teachers possess more environmental know-how than diagnostic know-how, an asymmetry that targeted, practical training could address.

The comparative analysis revealed structural inequality in access to awareness: trained teachers showed consistently higher awareness than untrained teachers, in line with the observation that in-service training in this area remains inconsistent [25], and government-school teachers reported markedly lower awareness and self-efficacy than private-school teachers despite expressing the strongest desire for institutional guidelines, indicating that any UHL initiative relying solely on private-school-led training risks widening the very gap it is meant to address. Finally, while the large majority of teachers agreed UHL training should exist, personal willingness to attend was lower and more variable, suggesting the gap is less about motivation than about the perceived cost and relevance of existing training formats; concise, classroom-applicable resources may achieve higher uptake than conventional full-day workshops.

VI. CONCLUSION AND RECOMMENDATIONS

This study set out to characterise mainstream school teachers' awareness and understanding of the psychological impact of UHL in children. The findings indicate that teachers already possess considerable intuitive sensitivity to the emotional and social difficulties UHL can cause, but this sensitivity is not yet matched by confident identification skills, structured institutional guidelines, or equitable access to relevant training, particularly for teachers in government schools and those without prior in-service training. Because UHL is not visibly disabling, the anxiety, reduced self-esteem, and social withdrawal it can give rise to risk being misread by teachers as motivational or behavioural rather than sensory in origin, delaying the referral and support that could prevent such difficulties from consolidating; strengthening teachers' capacity for early behavioural recognition of UHL therefore functions as a potential point of early psychological intervention, not merely an educational accommodation. Schools should introduce a short, practical orientation on UHL covering identification signs, seating and acoustic accommodations, and referral pathways for all mainstream teaching staff, and prioritise extending existing in-service training to government schools, where the awareness gap was widest. Teacher-training programmes should incorporate UHL into pre-service and in-service curricula in short, practical formats, with explicit content on supporting children's emotional well-

being. At the policy level, institutional guidelines for supporting children with UHL and structured channels for school-parent-audiologist collaboration are warranted, and future research should extend this descriptive survey with observational or child-reported data to examine whether teachers' self-reported awareness translates into observable classroom practice and measurable child outcomes.

The study is limited by its reliance on self-reported, purposively sampled data collected through an online questionnaire, its concentration in schools accessible to the researcher, and its use of a self-developed instrument that has not undergone formal psychometric validation; it examined teacher awareness and attitudes rather than directly assessing children's psychological or academic outcomes.

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