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Determinants of Hearing Aid Procurement Among Adults with Hearing Loss in India: A Cross-Sectional Study

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ABSTARCT

Purpose: The current study examined the multifaceted determinants influencing the procurement of hearing aids among adults with hearing loss in India. The research aimed to systematically evaluate demographic, audiological, health-related, psychosocial, and social support factors affecting hearing aid adoption in the Indian context.

Method: A cross-sectional study was conducted with 495 adults with clinically documented hearing loss at a specialized audiology center in Mysuru, India. A comprehensive checklist was developed through literature review, expert consultation, and pilot testing, covering six domains: demographics, self-reported hearing difficulties, audiological parameters, psychosocial factors, motivational factors, and beliefs about hearing aids. Binary logistic regression analyses examined predictors of hearing aid procurement across these domains.

Results: Thirteen variables significantly predicted the procurement of hearing aids. Family motivation (OR = 3.734) and family support (OR = 3.501) emerged as the strongest predictors. Self-reported hearing difficulties (OR = 2.212), difficulty hearing whispers (OR = 2.045), and better understanding in group settings (OR = 1.996) also significantly increased the likelihood of procurement. Lower socioeconomic status (OR = 0.689) was associated with a reduced adoption probability. The perceived benefits model demonstrated highest explanatory power (R^2 = .186), while the family support model achieved best classification accuracy (72.3%).

Conclusion: Hearing aid procurement in India is influenced by a complex interplay of factors, with family involvement emerging as the most potent predictor. Findings emphasize the need for family-centered, culturally appropriate interventions that address socioeconomic barriers and realistic expectations to improve hearing aid adoption rates.

Keywords: Hearing aid adoption; Hearing Loss; Family support; Socioeconomic factors; Self-reported hearing difficulty

INTRODUCTION

Hearing impairment represents a significant yet often under recognized public health challenge, particularly in developing nations such as India (1). The World Health Organization estimates that over 466 million people worldwide experience disabling hearing loss, with projections indicating this figure will exceed 900 million by 2050. In India alone, approximately 63 million individuals, representing 6.3% of the population, live with significant auditory impairment, underscoring the magnitude of this health concern [1].

Hearing aids have demonstrated substantial efficacy in ameliorating the consequences of hearing loss. They enhance communication abilities, facilitate social interactions, and improve overall quality of life [2]. Research evidence consistently shows that hearing aids can mitigate the psychological sequelae of hearing loss, including depression [3], anxiety [4], and social isolation [5]. Despite these well-documented benefits and advances in hearing aid technology, adoption rates remain paradoxically low. In developed countries, only 20-30% of individuals who could benefit from hearing aids actually use them, with even lower rates observed in developing countries, such as India [6].

The barriers to hearing aid adoption are multifaceted, encompassing socioeconomic, cultural, and healthcare-related dimensions. Western studies have identified economic constraints, perceived benefits, and support from healthcare providers as critical determinants of adoption [7]. Research from various settings has shown that sociocultural beliefs and financial barriers significantly influence the acceptance of hearing aids [7]. In the Indian context, there is limited research on this topic. Available studies from urban and rural settings have identified awareness deficits, misconceptions, stigma, socioeconomic factors, and accessibility issues as significant impediments, highlighting the need for comprehensive investigation across diverse Indian populations.

Systematic reviews examining factors affecting help-seeking, hearing aid adoption, usage, and satisfaction have found that self-reported activity limitations consistently correlate with treatment outcomes [8]. Recent research assessing both audiological and non-audiological factors has identified numerous variables influencing help-seeking behavior and hearing aid uptake, highlighting the complexity of the decision-making process among adults with hearing loss [8].

Given the pervasive nature of hearing loss across various age groups in India and the marked discrepancy between the effectiveness of hearing aids and actual adoption rates, there is an imperative need to investigate the specific barriers and enabling factors within the Indian sociocultural and economic context. Understanding these variables is essential for developing targeted interventions that address the distinct needs and challenges of the Indian population. Such evidence can inform policymakers and healthcare professionals in refining hearing health services, dismantling access barriers, and ultimately improving the quality of life for individuals with hearing impairments. Thus, the current study aims to assess the factors affecting hearing aid uptake in India through two primary objectives: first, to develop a comprehensive checklist based on existing literature and expert consultations; and second, to systematically evaluate the factors influencing hearing aid adoption in the Indian population.

METHOD

Study Design and Setting

This cross-sectional study was conducted at the Department of Audiology, JSS Institute of Speech and Hearing, Mysuru, following ethical approval from the Institutional Ethics Committee of JSS Academy of Higher Education and Research (Approval No. JSSMC/IEC/07112024/32 NCT/PY/2024-25). The study aimed to identify and assess determinants influencing hearing aid adoption among individuals with hearing loss in the Indian context.

Development of the Assessment Tool

A comprehensive checklist was developed through a systematic process to evaluate multiple determinants of hearing aid adoption. The instrument development was grounded in an extensive literature review encompassing Indian and international research, clinical guidelines, and established behavioral models, including the Health Belief Model and the Theory of Planned Behavior. Key domains identified included cost, accessibility, stigma perceptions, awareness, health beliefs, and support for the healthcare system.

The preliminary checklist was refined through expert consultations with audiologists, public health specialists, and otolaryngologists from diverse urban and rural healthcare settings to ensure cultural relevance and applicability to India's heterogeneous population. Following expert input, a pilot study was conducted with 10 individuals who have hearing impairments and 5 hearing healthcare professionals. Cognitive interviewing techniques were employed to assess item clarity, comprehensibility, and cultural appropriateness. Based on pilot feedback, the checklist was revised to enhance face validity and usability across varied demographic groups.

The final checklist comprised six sections: (A) demographic and background information including age, gender, socioeconomic status, and reason for seeking audiological services; (B) self-reported hearing difficulties, their impact on daily activities, speech comprehension in noise, general health status, chronic conditions, stroke history, and cognitive concerns; (C) audiological parameters including pure tone average (PTA), speech recognition threshold (SRT), speech identification scores (SIS), and hearing loss characteristics, with hearing loss defined as PTA >15 dB HL; (D) psychosocial factors such as perceived stigma, social pressure, concealment behaviors, and social withdrawal patterns; (E) motivational factors including hearing loss duration, onset characteristics, and family support in device usage and maintenance; and (F) beliefs and expectations regarding hearing aids, assessed using a 5-point Likert scale measuring confidence in benefits, expectations of improvement in speech clarity and comfort in social situations, and beliefs about complete hearing restoration.

Participants

Approximately 500 adults aged 18 years and above with clinically documented hearing loss were recruited using convenience sampling with efforts to ensure demographic and socioeconomic diversity for enhanced generalizability. Participants were included regardless of their hearing aid usage status (current users, non-users, or former users). Exclusion criteria included cognitive impairment, severe mental illness, or inability to provide informed consent.

Data Collection Procedures

Data collection was conducted by trained audiologists and research assistants who received comprehensive training in ethical research practices, standardized checklist administration, qualitative interviewing techniques, bias minimization strategies, and accurate data recording procedures.

A multimodal data collection approach was employed to maximize accessibility and participant convenience. This included face-to-face interviews at clinics, hospitals, and community outreach camps; telephone interviews for participants in remote rural areas; and online surveys through secure platforms for digitally literate volunteers. All participants provided informed consent prior to participation, which was obtained through written consent for in-person interactions and documented verbal consent for telephone interviews, in accordance with institutional ethical guidelines. Participants were informed of their rights to confidentiality, anonymity, voluntary participation, and withdrawal without impact on their clinical care.

All data were securely stored in password-protected electronic databases with access restricted to principal investigators and designated data analysts.

Statistical Analysis

Statistical analyses were performed using IBM SPSS Statistics Version 26.0 (IBM Corp., Armonk, NY). Data were screened for completeness, missing values, and outliers, with only complete and valid responses included in the final analysis. The Shapiro-Wilk test was used to assess the normality of continuous variables, informing the appropriate interpretation.

The primary outcome variable was hearing aid procurement, coded dichotomously (0 = not acquired, 1 = procured). Binary logistic regression analyses were conducted to examine associations between hearing aid adoption and independent variables across six domains: (I) demographic factors (age, gender, socioeconomic status); (II) audiological and self-reported hearing measures; (III) health status and comorbidities; (IV) psychosocial and attitudinal factors; (V) perceived benefits and expectations; and (VI) family motivation and support. Each domain was analyzed in separate regression models to determine its unique contribution to the likelihood of hearing aid adoption. Associations were quantified using odds ratios (OR) with 95% confidence intervals (CI). Model fit was evaluated using the Hosmer-Lemeshow test, while Nagelkerke's R^2 was used to assess explanatory power. Multicollinearity was examined using variance inflation factors (VIFs), with VIFs greater than 5 indicating potential concerns. Statistical significance was set at $p < .05$ for all analyses.

RESULTS

Of the 500 participants enrolled, 495 (99.0%) provided complete data and were included in the final analysis, with 5 cases (1.0%) excluded due to missing data. Binary logistic regression analyses were conducted to examine predictors of hearing aid procurement across six domains: demographic characteristics, audiological and self-reported hearing measures, self-reported challenges and health conditions, psychosocial and attitudinal factors, perceived benefits and comfort, and family support and motivation.

Demographic Predictors

The demographic model was statistically significant, $\chi^2(7) = 39.075$, $p < .001$, although it demonstrated limited explanatory power (Nagelkerke $R^2 = .105$) and correctly classified 69.1% of cases. Among demographic variables, only socioeconomic status (SES) ($\beta = -0.372$, $p = .028$, OR = 0.689) and income ($\beta = 0.000$, $p = .029$, OR = 1.000) emerged as significant predictors of hearing aid procurement. Age, gender, years of education, occupation, and marital status did not significantly contribute to the model.

Audiological and Self-Reported Hearing Measures

The audiological model was statistically significant, $\chi^2(9) = 20.449$, $p = .015$, with modest explanatory power (Nagelkerke $R^2 = .056$) and 67.8% classification accuracy. Self-reported hearing difficulties strongly predicted hearing aid procurement ($\beta = 0.794$, $p = .005$, OR = 2.212), indicating that individuals reporting greater hearing difficulties were more than twice as likely to procure hearing aids. Conversely, speech recognition threshold in the right ear (SRT_R) showed a negative association with procurement ($\beta = -0.028$, $p = .010$, OR = 0.973), suggesting that poorer speech recognition ability was associated with reduced likelihood of hearing aid uptake. Other audiological measures, including pure tone average (PTA), speech identification scores (SIS), and provisional diagnosis, were not significant predictors.

Self-Reported Challenges and Health Conditions

The health conditions model demonstrated statistical significance, $\chi^2(9) = 61.888$, $p < .001$, with Nagelkerke $R^2 = .162$ and 67.7% classification accuracy. Three variables emerged as significant predictors: difficulty hearing when someone whispers ($\beta = 0.715$, $p = .024$, OR = 2.045), general health status ($\beta = 0.631$, $p = .003$, OR = 1.880), and presence of other illnesses ($\beta = 0.220$, $p < .001$, OR = 1.246). Individuals reporting difficulty with whispered speech were twice as likely to procure hearing aids, while better general health status and presence of comorbid conditions both increased the likelihood of procurement. Chronic health conditions, stroke history, and cognitive deficits did not significantly predict hearing aid uptake.

Psychosocial and Attitudinal Factors

The psychosocial model was statistically significant, $\chi^2(7) = 32.620$, $p < .001$, with Nagelkerke $R^2 = .088$ and 65.9% classification accuracy. Two factors significantly predicted hearing aid procurement: reliance on social coping strategies, such as lip-reading ($\beta = 0.484$, $p = .032$, OR = 1.622), and a lack of societal awareness or pressure regarding hearing loss ($\beta = 0.519$, $p = .024$, OR = 1.680). Both factors were associated with an increased likelihood of hearing aid adoption. Behaviors related to hiding hearing loss, pretending to hear, social discomfort, societal communication expectations, and social withdrawal did not significantly predict procurement.

Perceived Benefits and Comfort

The perceived benefits model was statistically significant, $\chi^2(5) = 70.107$, $p < .001$, demonstrating the highest explanatory power among all models (Nagelkerke $R^2 = .186$) with 67.5% classification accuracy. Three perceptions significantly predicted hearing aid procurement: confidence in hearing aid communication benefits ($\beta = -0.544$, $p < .001$, OR = 0.580), better understanding of conversation in group settings ($\beta = 0.691$, $p = .009$, OR = 1.996), and increased comfort in social situations ($\beta = -1.274$, $p < .001$, OR = 0.280). Individuals who anticipated better understanding in group conversations were twice as likely to procure hearing aids. The negative associations with confidence and comfort variables suggest complex relationships that may reflect realistic expectations or prior experience. Expectations regarding clearer speech in noise and improved ability to hear soft sounds were not significant predictors.

Family Support and Motivation

The family support model was statistically significant, $\chi^2(2) = 61.047$, $p < .001$, with Nagelkerke $R^2 = 0.160$ and the highest classification accuracy of all models (72.3%). Both family motivation ($\beta = 1.318$, $p = .018$, OR = 3.734) and

family support (β = 1.253, p = .007, OR = 3.501) were strong positive predictors of hearing aid procurement. Individuals with family motivation were nearly four times more likely to procure hearing aids, while those with family support were three-and-a-half times more likely to do so.

Summary of Predictive Models

Table 1 summarizes the overall performance of all six logistic regression models. The perceived benefits model demonstrated the highest explanatory power (R^2 = .186), while the family support model achieved the best classification accuracy (72.3%). Across all models, 13 variables significantly predicted hearing aid procurement: socioeconomic status, income, self-reported hearing difficulties, speech recognition threshold (right ear), difficulty hearing whispers, general health status, presence of other illnesses, use of lip-reading strategies, lack of societal awareness, better understanding in group settings, increased social comfort, family motivation, and family support.

Table 1: Summary of Logistic Regression Model Performance

Model	Domain	Nagelkerke R^2	Classification Accuracy (%)
1	Demographic predictors	0.105	69.1
2	Audiological and self-reported measures	0.056	67.8
3	Self-reported challenges and health	0.162	67.7
4	Psychosocial and attitudinal factors	0.088	65.9
5	Perceived benefits and comfort	0.186	67.5
6	Family support and motivation	0.16	72.3

DISCUSSION

The current study examined multiple determinants of hearing aid procurement among adults with hearing loss in India, revealing a complex interplay of demographic, audiological, health-related, psychosocial, and social support factors. The findings contribute to understanding hearing aid adoption in the Indian context and provide important insights for improving intervention strategies.

Demographic and Socioeconomic Predictors

The current study found that socioeconomic status and income significantly predicted hearing aid procurement, with lower SES associated with reduced likelihood of adoption (OR = 0.689, p = .028). This aligns with extensive evidence demonstrating that individuals from lower socioeconomic backgrounds face substantial barriers to accessing and using hearing aids [9,10]. Research has consistently shown that higher socioeconomic status or household income significantly predicts hearing aid adoption [8], with studies from the United States finding associations between higher socioeconomic status and increased hearing aid adoption or use [11-13]. Recent analysis using the National Health and Aging Trends Study revealed that racial gaps in hearing aid use persist even after controlling for income and other socioeconomic factors [14], suggesting that traditional SES indicators may not fully capture the relationship between economic factors and hearing aid access.

The relationship between socioeconomic factors and hearing aid adoption is multifaceted. Low socioeconomic position creates barriers through multiple pathways, including unemployment, lower educational attainment, lower income, and a reduced likelihood of using hearing aids and accessing hearing care [15]. In India, where hearing aids are predominantly paid out-of-pocket with limited insurance coverage, cost represents a particularly substantial

barrier. Low-income participants report high out-of-pocket expenses as a major obstacle to obtaining hearing aids [16], a barrier compounded by the fact that standard hearing aids typically cost between $1,500 and $3,000.

Interestingly, other demographic variables including age, gender, education, occupation, and marital status did not significantly predict hearing aid procurement in our study. This contrasts with some longitudinal research, which has shown mixed findings regarding these variables [17]. The non-significant effect of age in our study may reflect the specific characteristics of our clinic-based sample, where individuals seeking audiological services may already possess heightened awareness regardless of age. Previous research has yielded mixed results, with some studies finding age associations while others did not [8]. Although males were sometimes more likely to adopt hearing aids, the majority of studies did not report different associations across sex [8].

Audiological and Self-Reported Hearing Measures

Self-reported hearing difficulties emerged as a strong predictor of hearing aid procurement (OR = 2.212, p = .005), with individuals reporting greater subjective hearing problems being more than twice as likely to procure hearing aids. This finding powerfully supports extensive literature demonstrating that self-perceived hearing difficulty is often a superior predictor of hearing aid adoption compared to objective audiometric measures. Self-reported hearing disability was found to be a strong predictor of hearing aid uptake, with six studies reporting positive associations (8). Research indicates that self-perceived hearing difficulty is a better predictor of hearing aid adoption than audiometrically measured hearing loss (Abrams & Kihm, 2015).

The significance of self-reported difficulty over objective measures reflects the importance of functional impact. Poor correlations have been repeatedly reported between hearing threshold data and self-perceived hearing handicap [19], making it valuable for audiologists to predict which patients are ready for amplification. As recommended by Humes and Dubno (2017), measuring self-reported hearing disability in addition to pure-tone audiometry during the initial assessment can provide valuable information regarding hearing aid candidacy [20].

The negative association between speech recognition threshold in the right ear and hearing aid procurement (OR = 0.973, p = 0.010) presents an intriguing finding that requires careful interpretation. While counterintuitive, this pattern may reflect complex audiological realities. Better speech recognition scores despite hearing loss may indicate that individuals have developed effective compensatory strategies, potentially reducing their perceived need for amplification. Alternatively, this finding could reflect the paradox in which individuals with poorer speech recognition may experience reduced confidence in the potential benefit of a hearing aid. The laterality effect (significance only for the right ear) may relate to brain processing asymmetries or dominance patterns in speech perception.

The absence of significant predictive value for pure tone averages, speech identification scores, and provisional diagnoses contrasts with some research. However, it aligns with the growing recognition that functional impact matters more than audiometric thresholds alone. Twenty studies found positive associations between greater hearing loss, as measured by pure tone audiometry, and the uptake of hearing aids. At the same time, four showed no association (8), suggesting variability across populations and contexts.

Health Status and Comorbidities

The finding that better general health status predicted higher hearing aid procurement (OR = 1.880, p = .003) presents an essential paradox in hearing healthcare. Our finding that better general health increases the likelihood of

procurement may reflect several mechanisms. Individuals with better overall health may have greater capacity and resources to address hearing loss as a health priority. Although multimorbidity is generally associated with increased healthcare use, functional impairments often create access barriers [15]. Those in better health may have more cognitive and physical resources to navigate the hearing healthcare system, attend multiple appointments, and adapt to new technology.

The significant positive association between the presence of other illnesses and hearing aid procurement (OR = 1.246, $p < .001$) initially appears contradictory but likely reflects increased healthcare engagement. Individuals with multiple health conditions typically have more frequent contact with healthcare providers, which may increase opportunities for identifying and referring cases of hearing loss. However, people were less likely to adopt hearing aids if they had diabetes, hypertension, or a history of stroke [21,22], potentially due to limited capacity to manage hearing loss given competing demands on time, finances, and other resources.

The non-significant findings for chronic health conditions, stroke history, and cognitive deficits deserve attention. Known hearing loss comorbidities include cardiovascular disease, stroke, diabetes, and cognitive impairment [9], yet these did not predict procurement in our study. This may reflect the complexity of healthcare decision-making in populations with multiple competing health priorities or limited understanding of relationships between hearing loss and other conditions.

Difficulty hearing whispers emerged as a significant predictor (OR = 2.045, $p = 0.024$), doubling the likelihood of procuring a hearing aid. This specific functional difficulty represents a salient, relatable communication challenge that individuals can easily recognize and articulate. Unlike abstract audiometric thresholds, difficulty with whispered speech directly impacts daily interpersonal interactions, making the hearing deficit more tangible and motivating action.

Psychosocial and Attitudinal Factors

The positive association between reliance on lip-reading and hearing aid procurement (OR = 1.622, $p = .032$) suggests that individuals actively employing coping strategies demonstrate awareness of their hearing difficulties and readiness to seek solutions. Research on psychosocial experiences reveals that coping strategies are central to how individuals and their partners adapt to hearing loss [23]. Rather than indicating avoidance, the use of compensatory strategies, such as lip-reading, may reflect problem-focused coping and an acceptance of the hearing deficit.

The finding that lack of societal awareness or pressure regarding hearing loss predicted higher procurement (OR = 1.680, $p = .024$) appears paradoxical but may reflect important cultural and psychological dynamics. This variable may capture individuals who have internally processed their hearing loss and made independent decisions about intervention, rather than those who are still in denial or heavily influenced by external stigma. It may also reflect a subset of individuals with less severe social consequences, allowing for more autonomous decision-making.

Notably, variables related to hiding hearing loss, pretending to hear, social discomfort, societal expectations, and social withdrawal did not significantly predict procurement. This contrasts with established literature on stigma as a barrier. Recent reviews identify stigma as a complex, multifaceted issue driven primarily by ageism, disability perception, and the association of hearing aids with aging and incapability [6], with surveys indicating that persons with hearing loss and hearing aid wearers are often considered old, less sociable, and more disabled (Palmer &

Mormer, 2024). Studies support the pervasiveness of perceived stigma associated with hearing loss and hearing aids and their close association with ageism and perceptions of disability [25].

The non-significant stigma findings in our study may reflect several possibilities. First, individuals presenting to audiology clinics may have already overcome initial stigma-related barriers simply by seeking care. Second, recent advances in hearing aid technology have improved cosmesis and functionality, potentially reducing the stigma associated with wearing hearing aids. Hearing loss is often perceived as a sign of aging or vulnerability, and the use of hearing aids is frequently seen as an admission of weakness [7]. However, only 16% to 30% of individuals who could benefit from hearing aids actually use them [7]. Third, cultural attitudes toward hearing aids may differ in India compared to Western contexts. Finally, clinic-based sampling may have selected for individuals with lower stigma concerns.

Perceived Benefits and Expectations

The perceived benefits model demonstrated the highest explanatory power among all domains (Nagelkerke $R^2 = .186$), highlighting the critical role of expectations in hearing aid adoption decisions. The finding that expectations of better understanding in group conversations doubled the likelihood of procurement (OR = 1.996, p = .009) aligns with real-world communication challenges. Group conversations pose particularly challenging listening situations for individuals with hearing loss, and improvements in this domain offer substantial quality-of-life benefits.

The negative associations with confidence in hearing aid communication benefits (OR = 0.580, $p < .001$) and increased social comfort (OR = 0.280, $p < .001$) require careful interpretation. These relationships may reflect realistic expectations based on prior knowledge or experience. New users with higher prefitting expectations reported greater psychological and psychoacoustic benefit, while experienced users are often more realistic about hearing aid performance and more satisfied [19,26]. Positive expectations predicted perceived benefits and satisfaction from hearing aids, as well as reduced residual disability, while readiness to improve hearing predicted both satisfaction and benefit [27].

Alternatively, these findings may reflect the complexity of measurement related to response interpretation. The expected benefit is typically found to be greater than the actual benefit, even in challenging listening environments. Yet, the majority of patients who fit hearing aids rate themselves as satisfied (Kochkin, 2005.; Schum, 1999), suggesting that satisfaction depends on more than whether initial expectations were met. Individuals who understand that hearing aids will not restore perfect hearing may score differently on confidence items, yet still be motivated to procure devices for specific benefit scenarios.

The non-significant findings for expectations regarding clearer speech in noise and improved soft sound audibility suggest that generic benefit claims may be less influential than specific, relatable functional improvements in decision-making.

Family Support and Motivation

Family support and motivation emerged as the strongest predictors in the study (ORs of 3.501 and 3.734 respectively, $p < .01$), with the family support model achieving the highest classification accuracy (72.3%). Individuals with family motivation were nearly four times more likely to purchase hearing aids, while those with family support were three and a half times more likely. This finding powerfully underscores the social nature of hearing rehabilitation.

Large-scale research has shown that hearing aid adoption is significantly greater when patients attend audiology appointments with a significant other (63.8%) than when attending alone (50.6%) [30], with odds of adoption higher for those attending with children, partners, parents, or siblings compared to friends or carers, likely because familial relationships are stronger and family members are often primary conversation partners [31]. Hearing aid owners take an average of 8.9 years to adopt after candidacy is first determined [32].

Multiple mechanisms explain this robust relationship. Significant others can minimize perceptions of risk and uncertainty associated with purchase decisions, serve as interpersonal sources of information, support decision-making processes, and increase confidence in wise decision-making [30]. Significant others play a crucial role in fostering a deeper understanding of the communication and psychosocial consequences of hearing loss, providing encouragement and motivation, aiding in psychological adjustment, promoting treatment adherence, facilitating effective communication, assisting with the care and operation of hearing aids, and enhancing rehabilitation outcomes.

In the Indian cultural context, family involvement in healthcare decisions carries particular significance. Multi-generational households, strong family interdependence, and collective decision-making traditions mean that family opinion substantially influences individual health behaviors. Evidence suggests that family member encouragement has a significant influence on solution-seeking behavior for hearing problems [17]. The strong family effects observed in our study likely reflect the combination of these cultural values with universal mechanisms of social support.

Research confirms positive associations between social pressure and both hearing help-seeking and hearing aid uptake. However, studies also show that autonomous motivation has a positive influence on adoption [8]. The challenge lies in balancing external social pressure with internal motivation to ensure long-term adherence and satisfaction.

Strengths and Limitations

The current study's strengths include its comprehensive examination of multiple domains, relatively large sample size (n = 495), systematic data collection using a validated checklist, and focus on the understudied Indian context. The high participant inclusion rate (99%) demonstrates good data quality.

However, several limitations warrant consideration. The convenience sampling from a single specialized center limits generalizability to broader populations, particularly rural and underserved communities. The cross-sectional design prevents causal inference about identified predictors. Social desirability bias may have influenced self-reported responses, particularly regarding stigma and family relationships. The relatively modest explanatory power of most models (R^2 ranging from 0.056 to 0.186) suggests that unmeasured factors remain significant. Cultural, linguistic, and health literacy variations within India's diverse population may not be fully captured. Finally, the study was unable to distinguish between first-time users and those replacing existing hearing aids, which may represent different adoption dynamics.

CONCLUSION

The current comprehensive study reveals that hearing aid procurement in India is influenced by a complex constellation of factors spanning demographic, audiological, health, psychosocial, and social domains. Family support and motivation emerged as the most potent predictors, while self-reported hearing difficulties, socioeconomic status, and general health status also played significant roles. Notably, traditional stigma-related variables did not predict

procurement in this clinic-based sample, suggesting that barriers may be more nuanced in the Indian context or that help-seeking individuals have already overcome these obstacles. The findings emphasize the need for holistic, family-centered approaches to hearing rehabilitation that address not only audiological needs but also socioeconomic barriers, realistic expectation-setting, and social support mobilization. Interventions targeting multiple levels-individual, family, healthcare system, and policy-are necessary to improve hearing aid adoption rates and ensure that individuals with hearing loss in India can access and benefit from appropriate amplification. The strong predictive power of family involvement highlights culturally appropriate intervention strategies that leverage India's collective family structures. At the same time, the significance of socioeconomic factors underscores the urgent need for policy reforms to improve the affordability and accessibility of hearing healthcare services.

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