Perceptions of Hearing Healthcare: A Qualitative Analysis of Satisfied and Dissatisfied Online Reviews

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CONFLICTS OF INTEREST STATEMENT

All authors whose names are listed above hereby affirm that they have no conflicts of interest.

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ABSTRACT

Purpose: The aim of this study was to examine the hearing healthcare experience of satisfied and dissatisfied consumers as reported on Google reviews.

Method: Using qualitative thematic analysis, open-text responses from Google regarding hearing healthcare clinics across 40 U.S. cities were examined. During the original search 13168 reviews were identified. Purposive sampling led to a total of 8420 5-star reviews and 321 1-star reviews. The sample consisted of 500 5-star (satisfied) and 234 1-star (dissatisfied) reviews, describing experiences with audiology clinics, excluding reviews related to Ear Nose and Throat (ENT) services, other medical specialties, and those not relevant to hearing healthcare.

Results: Satisfied and dissatisfied consumer reviews yielded nuanced dimensions of the hearing healthcare consumer experience, which were grouped into distinct domains, themes, and sub-themes. Six and seven domains were identified from the satisfied and dissatisfied reviews, encompassing 23 and 26 themes respectively. The overall experience domain revealed emotions ranging from contentment and gratitude to dissatisfaction and waning loyalty. The clinical outcomes domain highlights the pivotal contribution of well-being and hearing outcomes to the consumer experience, while the standard of care domain underscores shared expectations for punctuality, person centered care, and efficient communication. Facility quality, professional competence and inclusive care were also highlighted across positive and negative reviews.

Conclusion: Findings indicate dimensions of satisfied and dissatisfied hearing healthcare consumer experiences, identifying areas for potential service refinement. These consumer experiences inform person-centric service-delivery in hearing healthcare.

Keywords: Consumer dissatisfaction, consumer feedback, consumer satisfaction, hearing healthcare, online consumer reviews.

INTRODUCTION

A new type of healthcare consumer, known as the "e-patient", has emerged through the widespread adoption and integration of digital technologies in society. The resultant improved connectivity facilitates communication and information sharing. In the past, healthcare consumers rarely questioned or requested clarification of treatment options and recommendations made by clinicians. In contrast to a passive participatory role, the modern healthcare consumer seeks out health information online, leading to increased participation in managing their healthcare (Masters, 2017). A manifestation of this shift is seen in how healthcare consumers now interact with online platforms. These digital platforms have reinvented the way in which consumers evaluate and access healthcare services, and also how they share their healthcare experiences publicly (Emmert et al., 2014). Online consumer reviews increase the transparency of consumer needs and expectations, challenging healthcare providers to be more proactive in providing person-centered care (Deshwal & Bhuyan, 2018; Han et al., 2019).

Person-centered care can be promoted through the utilization of consumer feedback during the process of assessing and executing quality improvements (Hall et al., 2018). Despite the growing research regarding consumer satisfaction with healthcare services, a dearth of literature on elements contributing to the overall hearing healthcare consumer experience and the understanding thereof remains (Manchaiah et al., 2021a). There has, nonetheless, been a recent growing interest in how hearing healthcare is represented in online reviews (Heselton et al., 2022; Manchaiah et al., 2021a, 2021b).

According to the World Health Organization (WHO) hearing loss affects one in five people. Individuals with hearing loss experience a diverse set of challenges, as shaped by their unique circumstances and surroundings, calling for individually tailored care (Entwistle & Watt, 2013). In this context, addressing hearing loss extends beyond intervention by means of amplification. Psychosocial elements and the experiences of the consumer during the service-

delivery process, are to be taken into consideration if clinicians aim to approach care holistically (Barker et al., 2017; Bennett et al., 2022; Jayakody et al., 2018).

Furthermore, person-centered care could improve consumer satisfaction, adherence to treatment, and consumer health status (Grenness et al., 2014). This study aimed to employ the use of consumer feedback, in the form of online reviews, to better understand the hearing healthcare consumer experience. A better understanding of the hearing healthcare consumer experience could provide practicing clinicians with insights into how consumer dissatisfaction could be minimized. Additionally, an increased understanding of the hearing healthcare consumer experience may lead clinicians to implement strategies that foster more responsive and higher standards of person-centered care (Manchaiah et al., 2021a; Murphy et al., 2019; Shaw, 2014).

Healthcare consumer feedback is typically determined using quantitative measures such as standardized questionnaires with closed-ended questions. These are less time-consuming for respondents and relatively easy for researchers to code and consequently analyze (Rowley, 2014). However, questionnaires incorporating more qualitative, open-ended questions may provide deeper insights into the consumer experience (Rowley, 2014; Manchaiah et al., 2018). Even though evaluations of the consumer experience by means of standardized questionnaires may provide a broad indication of patient satisfaction, they seldom pinpoint the source of the perceived satisfaction or dissatisfaction (Schlesinger et al., 2015). The unequal balance of power between provider and consumer may prevent candid reviews of services when elicited by clinicians (Black & Jenkinson, 2009).

In contrast to standardized questionnaires, online reviews are mostly unstructured, and consumer generated. . The analysis of online reviews can enable researchers to report on nuanced themes which may be missed by traditional, standardized consumer surveys (Ranard et al., 2016). In turn, these themes can provide feedback which may prove to be more practically applicable within the clinical setting. Notably, in a study by Ranard et al. (2016)

online consumer reviews yielded 12 additional themes describing the consumer experience which were not identified by conventional consumer surveys for example, scheduling and compassion of staff. Analyzing text responses to open-ended questions could therefore yield additional beneficial elements when examining populations of diverse demographic compositions (Manchaiah et al., 2022).

Online consumer reviews have been referred to as the 'missing link' for consumers seeking to understand the experience of other consumers and for clinicians seeking to learn from consumers to improve their service delivery (Glover et al., 2015; Hong et al., 2019; Ko et al., 2019; Schlesinger et al., 2015). Fellow consumers' online reviews are typically viewed as unbiased and trustworthy (Pitman, 2022). Research has shown that approximately 49% of consumers consider online reviews just as trustworthy as personal recommendations, while 28% trust online reviews as much as they would a credible article (Pitman, 2022).

Large sets of textual data, such as online reviews, have been analyzed through automated text pattern analysis, for gaining rapid and reliable insights (Manchaiah et al., 2019). This method was used by Manchaiah et. al (2019) to examine consumer feedback on direct-to-consumer (DTC) hearing devices on Amazon, identifying fundamental themes from the data set. More recently, hearing healthcare consumer reviews on Google were examined using automated Natural Language Processing (NLP) techniques (Manchaiah et al., 2021a, 2021b). The automated text pattern analysis uncovered valuable domains and clusters related to clinical experiences as reported by hearing healthcare consumers (Manchaiah et al., 2021a). The same dataset was analyzed using Linguistic Inquiry Word Count (LIWC) which identified some key language dimensions related to overall satisfaction ratings, e.g., higher ratings noted when users were personally, socially, and emotionally engaged with the hearing device experience (Manchaiah, et al., 2021b).

Automated analyses of online reviews, although of value, are not able to distinguish whether the views expressed by consumers were negative, positive, or neutral (Manchaiah et al., 2019;

Manchaiah et al., 2021b). Furthermore, the software was not able to consider aspects such as irony, sarcasm, idioms, and the context of expressions (Tausczik & Pennebaker, 2010). In contrast to an automated analysis, a thematic, qualitative inquiry may delve deeper into the nuances of these reviews. A manual thematic analysis could offer insights into the explicit and implicit ideas within the data, as well as capturing the subtleties, context, and emotions that automated methods may miss (Manchaiah et al., 2022). Therefore, thematic analysis can be used to complement existing automated analyses, to better understand the consumer experience. Subsequently, this study aimed to comprehensively explore the hearing healthcare experience of satisfied and dissatisfied consumers reported on Google reviews, using qualitative inductive thematic analysis.

METHOD

Research Design

This cross-sectional study examined online hearing healthcare consumer reviews.Qualitative, inductive, thematic analysis was used to identify, analyze, and report on the themes or patterns within the dataset (Braun & Clarke, 2006). This study received institutional review board clearance (reference number: 16078022 [HUM012/0122]).

Data Extraction Procedure

Online reviews left by hearing healthcare consumers on Google regarding various audiology-related services and institutions, spanning 40 cities of the United States (U.S.) were extracted for the primary/initial dataset (primary dataset used in studies by Manchaiah et al., 2021 a, 2021b). Data from cities with various population sizes (i.e., 1 million, 500 000 to 1 million, 200 000 to 500 000, and <200 000) and cities from various regions (i.e., Northeast, Midwest, South, West) were included. This search for hearing healthcare reviews posted on Google was conducted by a research assistant. No time criteria were applied to existing Google reviews;

instead, all available reviews, regardless of their date of creation, were extracted. By extracting both old and new reviews, the assumption was made that the data set contains reviews encompassing periods before and after potential service improvements. Focusing solely on the most recent reviews may introduce a bias, as clinics may have enhanced their service quality in response to negative feedback. Conversely, exclusively considering older reviews may overlook insights into improvements that have positively impacted the consumer experience, which is integral to the study's findings and subsequent clinical implications. Various keywords were used during the search for audiology clinics within aforementioned 40 cities including: 'hearing clinics' in 'city name'; 'audiology clinics' in 'city name'; or 'hearing aid center' in 'city name'. (Manchaiah et al., 2021a, 2021b). This search yielded a compilation of hearing healthcare clinics indexed by Google.com.

Reviews were obtained from hearing healthcare clinics in different settings such as hospitals, Ear Nose and Throat (ENT) practices, or independent practices. As part of our search criteria, clinics with fewer than 10 reviews were omitted from the dataset. This decision was grounded in two key assumptions made by the research team. Firstly, it was posited that clinics with fewer than 10 reviews on their Google profile might be newly established or less frequently visited by consumers. Secondly, the rationale for prioritizing clinics with a higher review count was based on the belief that more established clinics could potentially offer a more comprehensive representation of consumer experiences. The accumulation of more reviews increases the likelihood of capturing diverse opinions and experiences from consumers with varying demographic backgrounds.

Reviews were left by consumers who were either the patient themselves or who attended an appointment with a family member, next of kin, or an underaged child (Manchaiah et al., 2021a). Moreover, the hearing healthcare consumer reviews on Google were obtained through a statement allowing for open responses, *"Share details of your own experience at this place",* with a request to rate the experience on a 5-point scale (1=*very poor experience*; 5=*very good experience*). Clinic related meta-data (e.g., URL, city, clinic name) and cities (i.e.,

region, population, percentage of the population over 65 years of age) were extracted and exported to a Microsoft Excel document. The meta-data that was extracted was published separately (Manchaiah et al., 2021b).

Inclusion criteria for data analysis

The initial search yielded a total of 13 168 individual reviews. From this, 3546 reviews provided no text in the response and were excluded from the thematic analysis. The remaining reviews with text-responses (n=9622), were extracted and imported to a Microsoft Excel spreadsheet for analysis. Two further criteria were applied, recommended, and implemented by the second author (R.J.B.), an experienced qualitative researcher. Firstly, a cut-off review length of 10 words or more was set. This criterion ensured data used was rich in content, avoiding analysis of short phrases or single word responses, which are likely to have insufficient information for thematic analysis. Lastly, for the purposes of the current study 2-, 3-, and 4-star reviews were not included in the dataset due to their potential neutral nature and due to the researcher's interest in examining polarizing experiences. To gain insights into experiences resulting in satisfaction and dissatisfaction respectively, only 1- and 5-star reviews were used for the current study. The remaining 1- and 5-star written reviews, which were compliant with length restrictions, were 321 and 8420 respectively. The entire set of 1-star reviews available (n=321) and a portion of the 5-star reviews (n=500) were further utilized. A sample of 500 5-star-reviews were selected, ensuring an adequate sample size to reach data saturation. If data-saturation had not been achieved at this juncture, an additional set of 50 reviews (5-star) would have been selected for further analysis. This procedure would persist until the point of saturation was attained.

Any reviews pertaining to hospitals or Ear Nose and Throat practices were excluded in this study, so that this study could focus on reviews describing audiology clinic experiences. In the case of the 5-star reviews, all excluded reviews (n=20) were replaced to maintain the target amount of 500 reviews since additional reviews were available to serve as substitutes.

Resultingly, a final amount of 500 5-star reviews was analyzed. However, the process could not be repeated for the 1-star review data due to the unavailability of substitute reviews. Therefore, a final total of 234 (n) 1-star reviews were analyzed after omitting all reviews unrelated to hearing healthcare services (n=87).

Data Analysis

Online consumer reviews were extracted and imported into a Microsoft Excel worksheet for inductive thematic analysis, aiming to organize and describe the dataset comprehensively. An inductive approach may be more successful in the identification of nuanced themes and sub-themes present in the data, that may be overlooked when data is analyzed with a predetermined framework in mind (Manchaiah, 2022b). This approach enabled the researcher to assess the hearing healthcare experience from the consumer perspective, as the data was not based on a predetermined or existing framework (Manchaiah et al., 2021a, 2022; Patton, 2002).

Thematic analysis was carried out, as described by Braun and Clarke (2006). Firstly, the raw/unprocessed reviews were coded into representative units of information. Each review was carefully examined by the first author (S.vB), subdivided and coded into representative meaning units. The researcher mostly retained the original wording of the consumer, when possible, thereby increasing the trustworthiness of the research results. Additionally, the rigorous recording of all details identified within reviews remained a priority. Secondly, meaning units deduced were coded under relevant sub-themes (frequency counting on Excel spreadsheet; ‘Sum Functions’ to calculate the total amount of codes per sub-theme) and then grouped into similar themes. In the case of no applicable sub-theme to code a particular meaning unit under, a new sub-theme was identified. Likewise, new themes were identified to accommodate sub-themes not suited for categorization under existing themes at that point in the data analysis process. Finally, the themes were grouped into categories of domains.

Before embarking on this study, the first author had limited experience with qualitative analyses. Recognizing this, the second author provided comprehensive training and ongoing supervision throughout the research process. The training commenced with the second author illustrating the fundamentals of qualitative thematic analysis, initiating the analysis collaboratively. Together, both researchers set up the data analysis spreadsheet in Microsoft Excel, commenced the development of the codebook, and jointly converted the first 25 reviews into meaning units. Following this, the first author independently proceeded with the subsequent set of 25 reviews, presenting these to the second author for review and discussion. Each of these 25 reviews was scrutinized to ensure the rigor of the data analysis and to provide constructive training feedback to the first author . This process repeated for a third set of 25 reviews.

Following this, the first author commenced with the conversion of larger batches (100) of raw reviews into meaning units. Regular meetings with the second author ensued to discuss each conversion, refining as necessary. During these meetings the researchers (S.vB and R.J.B) could acknowledge potential personal biases. Moreover, reflexive memos, encompassing the reflections, insights, and inquiries of boththe first and second authors , were shared to facilitate consensus during data analysis.

Once all 500 of the 5-star reviews were converted to meaning units, the first author revisited them, highlighting any questions or concerns for discussion withthe second author. Inconsistencies were addressed and the commencement of further steps were contingent on the resolving thereof.

Upon the joint review of all meaning units derived from the 5-star reviews, the second author demonstrated how data grouping was conducted, including the development of the codebook. Initially, they coded 25 meaning units collaboratively for the second author to illustrate the process. The first authorthen independently coded 25 meaning units, presenting them to the second author. for discussion, review, and potential amendments. This process iterated for

two additional rounds of 25 codes before the first author, having demonstrated competence, progressed to coding in batches of 100. The second author meticulously checked each code, offering guidance and fostering skill development throughout. Upon completion, the first author re-examined the codebook, identifying units present in categories which were in contradiction with the true meaning of these units. Re-examination also aimed to identify data, which was exceedingly broad and varied, causing a sub-theme, theme or domain, respectively, to lack coherence (Braun & Clarke, 2006). Upon completion of the coding process,the first and second authors . shared the codebook and coding data, including identified themes with the third, fourth and last authors (DW.S, L.BdJ and V.M.). The five researchers engaged in discussions about coding, code allocation, and theme descriptions.

Having demonstrated proficiency with the 5-star reviews, the first author conducted the analysis of the 1-star reviews with less supervision. Following standard practice, the second author cross-checked a random sample of 20% to ensure accuracy and consistency in the coding process. An audit trial of the data analysis recorded modifications and determinations made bythe first and second authors. Verification of results by a second researcher (R.J.B.) during various stages of the data-analysis process, established inter-coder reliability (Castleberry & Nolen, 2018). This practice enhances data transparency, subsequently bolstering trustworthiness (Manchaiah, 2022b). Furthermore, cross-checking ensured different perceptions of the inquiry were taken into consideration which aids in strengthening the integrity of the findings and overall trustworthiness of the study (Anney, 2014)

Moreover, thematic data saturation was verified by reviewing whether any new themes could be identified during the final 10% of the 5-star and 1-star data (Green & Thorogood, 2018). No novel sub-themes, and consequently no novel themes nor domains, emerged from the final 10% of the 5-star dataset. New information, in the form of meaning units deduced from reviews, produced no change to the codebook (Guest et al., 2006). Consequently, no further 5-star reviews were retrieved for analysis. Novel sub-themes emerged from the final 10% of the 1-star dataset (n=234), however we were unable to retrieve additional reviews as all 234

reviews, matching aforementioned criteria in terms of review length (10 or more words) and content (non-audiological content excluded) were already included in the analysis. Thus, thematic data saturation was reached for the 5-star data set, but not for the 1-star dataset. As more 1-star review data becomes available in the future, these findings should be revisited and updated to incorporate any additional or new themes identified.

RESULTS

Domains, themes, and sub-themes were identified for satisfied and dissatisfied consumers (Please refer to Appendices A and B respectively).

Satisfied (5-star) Review Domains (Table 1)

Overall experience

Consumers praised institutions, clinicians, and staff members for their excellence, professionalism, uniqueness, and continuity in their overall experience. Regarding professionalism, frequently mentioned factors included efficient service delivery and respectful conduct by clinicians and support staff. Additionally, the theme gratitude and a sense of loyalty towards the institution, clinician, and/or staff members were expressed by many consumers. Loyalty extended to a willingness to travel for services. Furthermore, consumers appreciated feeling welcomed, receiving quality and friendly care, and finding the service process effortless, comfortable, and enjoyable.

Standard of care

Consumers commented on various factors contributing to the overall standard of care encompassing communication, timeliness, ethical and best practice service delivery, finances, products, and personalized care. Firstly, successful communication within the therapeutic relationship (clinician and consumer) and beyond (administrative/support staff and consumer),

were described within this theme. Effective communication involved addressing inquiries and providing comprehensive explanations of procedures and results in a clear manner. Consumers appreciated the incorporation of their feedback into hearing aid adjustments. Notably, one consumer (a parent/caregiver) applauded the clinician for including their child in the conversation. Secondly, timeliness was evaluated through punctual and comprehensive service delivery, good turn-around time for device adjustments and repairs, and accommodative appointment scheduling.

Thirdly, institutions and clinicians who adhered to ethical and best-practiced principles, transparency, and honesty were commended by consumers. In this sense, consumers praised the clinicians' dedication to service delivery (amount of effort) and emphasized the personalized nature of the entire experience. The latter involved creative problem-solving, personalized guidance and the presentation of viable alternatives/solutions, if required. Lastly, regarding finance, consumers stressed the importance of a pressure-free sales approach and the reasonability of product and/or service pricing was often commented on. Additionally, increased quality, variety and diversity of products offered positively affected consumers' overall experiences.

Clinical outcomes

Clinical outcomes were further categorized in terms of the consumer's general well-being, hearing-specific outcomes, and device-specific outcomes. Terms like" life-saving experience" or "life-changing" were used to describe improved general well-being after treatment. In this context, many individuals felt optimistic after visiting the institution – and anticipated future appointments. Within this theme consumers also commented on their improved hearing ability among other hearing-related benefits after receiving treatment. Additionally, consumers expressed contentment with their hearing devices with some stating how the hearing aids 'are the best thing that ever happened to them'. These statements encompassed various devices such as hearing aids and hearing protection devices.

Facilities

Several factors contributed to the consumer's overall experience of the facilities visited (location, amenities, atmosphere/environment*)*. These included convenient location, the ease of access to the institution, and availability of parking. Furthermore, the layout, cleanliness, aesthetics, and overall organization of the clinic were highlighted as positive aspects. In terms of equipment, three consumers noted that the facility they visited had state of the art equipment. Consumers also stressed the significance of the institution's atmosphere – valuing a welcoming, peaceful, and professional environment. Furthermore, one consumer mentioned the importance of a child-friendly setting.

Audiologist

Two themes emerged, namely personal traits and professional traits displayed by clinicians, which contributed to consumers viewing clinicians in a positive light. While numerous traits were identified, the primary soft skills of audiologists noted by most consumers included friendliness/being pleasant; helpfulness; patience; attentiveness/caring; and kindness. Moreover, a range of professional traits contributing to a positive experience emerged from the data including professional behavior; knowledgeability; and the clinician's perceived mastery in the field. Further, a few consumers commented on efficiency, competency, and good bed-side manners as attributed to a positive health care experience.

Support and/or administrative staff

Similarly, to the previous domain two themes emerged - personal traits and professional traits which were exhibited by staff, contributing to consumers viewing staff members of an institution in a positive light. Among these, the most frequently mentioned personal trait was the friendliness of staff members with whom consumers interacted with. A total of 89 consumers commented on appreciating the friendliness of staff. Second to that, consumers also held helpfulness in high regard. Furthermore, the main professional traits described by consumers included staff being knowledgeable within their field of expertise and servicing

consumers in a professional manner. Additional qualities that were mentioned included, but were not limited to, competency, trustworthiness, and treating consumers in a respectful manner.

Unsatisfied (1-star) Review Domains (Table 2)

Overall experience

General negative remarks were made by consumers, whilst others gave specific reasons contributing to their overall dissatisfaction. Phrases included expressions like “awful”, “disappointed”, “poor service”, and “bad experience”. Consumers also highlighted unprofessional behaviors and processes included the staff’s manner of responses to queries and questions, the behavior of students who train at attended institutions, and dissatisfaction with the format that test results were provided (e.g., provided on a piece of paper instead of a formal document). Furthermore, any inconvenience caused to the consumer contributed to an overall dissatisfaction with services. In this context, a loss of loyalty to the clinician or institution was stated by some unsatisfied consumers. Within this theme consumers used the online review platform to warn the public/other potential consumers of services provided by certain clinicians and or institutions. Thus, loss of loyalty to the clinician/institution resulted in many consumers seeking alternative care and some reported receiving better care elsewhere.

Clinical outcomes

Consumers described experiences specifically related to outcomes obtained from clinical experiences. These included outcomes related to the consumer’s overall well-being, hearing- and device-related outcomes. In terms of overall well-being, this theme focused on clinical experiences resulting from the poor management of consumer doubts, concerns, and needs. Furrher, various factors contributed to the poor hearing outcomes experienced by consumers after audiological assessment and intervention. These factors ranged from consumers disputing their diagnoses, to disagreeing with treatment plans or receiving inadequate treatment recommendations. Device-related outcomes related to various problems consumers

encountered with devices purchased from specified institutions, including but not limited to, hearing aids and hearing protection devices which contributed to an overall negative consumer experience.

Standard of care

This theme involved various factors contributing to the overall standard of care consumers received at an institution which resulted in a negative experience. Ineffectual processes and policies are identified by consumers, as well as the inadequate general management of these. Examples include tedious appointment scheduling; inadequate appointment policies; disorganized processes; disconnect between different departments; and the inability of institutions and staff to handle criticism constructively. Further, services that were not provided in a timely manner contributed to a negative experience as consumers often spent prolonged periods in waiting rooms before hearing assessments. Extended waiting times for appointments, products, and test results generated frustration among consumers. Additionally, dissatisfaction was expressed when staff members and clinicians were late and didn't provide comprehensive care. Responsiveness from clinicians, specifically with regards to concerns and problems raised during the session, was a critical expectation. Thus, the absence of personalized care or person-centered care resulted in poor experiences and negative ratings.

Moreover, dishonest service delivery by audiologists, administrative or support staff members, and institutions was observed. With regards to finances, concerns included suspected credit card fraud and insurance fraud which resulted in potential legal actions in some cases. In this sense, consumers commented on being charged exorbitant fees for goods and services, obscured costs, and inconsistent pricing accompanied by poor payment policies. Institutions focusing on sales-driven approaches and offering pricier hearing aids also elicited dissatisfaction among consumers. In turn, this related to grievances about the lack of affordable hearing aid options, poor return and warranty policies on *products*, and practical issues such as short hearing aid battery life.

Furthermore, consumers described various communication breakdowns – particularly between consumers and providers (audiologist and support staff). With regards to telephonic communication, the lack of proper phone skills, reminder calls, and voice mail options were noted. Providers' failure to respond to emails and calls was seen as unresponsiveness. In addition, clear communication about medical aid and co-payments, appointment scheduling, and cancellation were cited. In this context, consumers expected clinicians and support staff to introduce themselves, offer comprehensive explanations of procedures, and ensure efficient communication during service delivery.

Facilities

Within this theme, amenities of clinic facilities and location related factors contributed to a negative experience for consumers. Specific factors highlighted by consumers which contributed to a poor rating included the size of the institution; inappropriate/poor advertisement of products and services within the waiting area; and disorganization of the clinic. Unappealing characteristics of the institution's location included confusing and expensive parking services, difficult-to-find locations, and locations that caused consumer inconvenience.

Audiologist

Personal and professional qualities of the audiologist, with whom the consumer had interacted, resulted in an overall unpleasant experience when this included unhelpfulness, disrespect, unfriendliness, impatience, and arrogance relating to the clinicians' personal qualities. Audiologists who display a lack of sympathy and compassion also received a poor rating. Various professional qualities displayed by the audiologist causing the consumer to have an unpleasant experience included a lack of general professionalism and condescending and argumentative behavior. Clinicians who came across as unknowledgeable further caused harm to the clinician-consumer relationship, also resulting in poor consumer experience.

Support/administrative staff

The personal and professional qualities of the administrative and or support staff with whom the consumer interacted with were also discussed in the context of a negative consumer experience. Various personal qualities, often referenced to as a lack of soft skills or people skills, displayed by staff members of the institution caused an unpleasant consumer experience. The most prominently mentioned shortcomings included a lack of helpfulness and accommodation. Less frequently noted, but equally as significant, were qualities such as impatience, unfriendliness, thoughtlessness, and failure to acknowledge mistakes through apologies. In addition, various unprofessional behaviors displayed by support or administrative staff such as any form of disrespect or rudeness shown by the staff member towards the consumer was highlighted. Incompetence or lack of knowledge and skills of staff were also negatively perceived by the consumer.

Inclusivity

Consumers who felt discriminated against or who could not benefit from services due to these not being friendly to all, described several contributing factors to exclusion. Institutions not well-equipped to assess and provide treatment to the pediatric population were noted. Conversely, reports also emerged about institutions inadequately addressing the needs of the elderly population. Further, some consumers expressed discontent with the absence of access to deaf professionals or the lack of ability of the audiologist or staff members to communicate by means of sign-language. In addition, consumers stated that the institute's inability to make services more accessible to individuals with a handicap or disability showed a lack of care. Instances of *racism* were also reported by consumers who caution other potential fellow minority or foreign consumers against this clinic. In this context, consumers also highlighted instances where staff members were unfamiliar or insufficiently trained in serving a diverse population. Lastly, another factor contributing to a negative experience was an institution's non-acceptance of a consumer's medical aid or if they were shown away based on their medical plan.

DISCUSSION

The purpose of this study was to explore consumer experiences with hearing health care services through analysis of online consumer reviews. Six common domains describing the hearing healthcare consumer experience were identified for highly satisfied (5-star ratings) and highly dissatisfied (1-star ratings) consumers, with one additional domain for dissatisfied consumers (i.e., inclusivity). Various operational-, staff-, and practitioner-specific factors influencing the consumer experience were identified, as were product, process, and outcome specific factors.

Overall Consumer Experience

The ‘overall consumer experience’ domain encompassed consumers’ overall satisfaction or discontent when interacting with hearing healthcare services. Satisfied consumers frequently expressed positive recommendations and demonstrated loyalty towards the institution or clinician. This aligns with general primary healthcare research linking consumer satisfaction and loyalty (Setyawan et al., 2020). Favorable recommendations, including online referrals, distinguish providers from competitors, enhance a clinician's credibility, and simultaneously attract new consumers (Gingold, 2011; Hanauer et al., 2014). Likewise, negative consumer reports could dissuade others from visiting a respective institution (Gingold, 2011). These findings highlight the importance of implementing strategies to enhance institutional and or clinician online presence respectively. This contributes to building a new consumer base whilst ensuring loyalty from existing consumers.

Standard of Care

Distinct themes were identified for the 'standard of care’ domain reflecting how the quality of hearing healthcare was perceived. These encompassed factors such as *communication, timeliness, financial* and *ethical* aspects of hearing healthcare and the degree to which *personalized care* was provided.

In a study by Manchaiah et al. (2021a), an automated text analysis namely, Natural Language Processing analyses (automated text analysis) was applied to the original data set (9622 reviews) and identified clinician communication as a cluster; reflecting the prominence of *communication,* which was also identified as a qualitative theme in the current study. However, the study findings of Manchaiah et al. (2021a) revealed predominantly positive therapeutic communication interactions (between clinicians and consumers) in contrast to the current study which identified positively and negatively communication themed comments. The apparent underrepresentation of negative communication themed experiences may be considered a limitation of automated analysis, precluding readers from gaining insights into unfavorable communication encounters. Examining unfavorable communication encounters have shown the potential to enhance service delivery in various healthcare sectors (Menendez et al., 2019; Orhurhu et al., 2019). The current study adds depth to existing literature of the hearing healthcare experiences reported by dissatisfied consumers (1-star).

In addition to the therapeutic relationship, interactions between consumers and administrative or support staff were examined. Insights emerged regarding the importance of prompt and careful email and phone call responses, precision in conveying financial details, and challenges associated with miscommunications in appointment scheduling. These aspects should be incorporated into office management protocols by practice managers and clinicians in an attempt to be proactive and prevent such incidents from reoccurring. Communication within the therapeutic relationship was, nevertheless, identified as predominantly positive in the current study, and its prominence throughout the data underscores the important role of consumer-clinician partnerships for improved care, clinical outcomes, and psychosocial support (Amutio-Kareaga et al., 2017; Bellon-Harn et al., 2019; Epstein & Street, 2011; Street, 2013). Insights gained may aid hearing healthcare professionals and support staff to customize interactions based on elements known to improve and deteriorate communication with consumers, respectively. Elements may include the types of questions and responses posed, tone of voice, body language and facial expressions used.

Financial consideration was also a prominent theme as part of standard of care, emphasizing issues around hearing healthcare affordability. Substantial out-of-pocket expenses is a significant barrier to hearing aid adoption rates (Donahue et al., 2010; Jilla et al., 2020). Clinicians could explore offering affordable hearing aid packages to cater to diverse financial capacities within their clinics. Similarly, timeliness was another theme highlighted by dissatisfied consumers when confronted with prolonged appointment waiting periods. Consumers expressed a preference for thorough service delivery without a rushed atmosphere. Extended appointment waiting times and short interactions with clinicians have been associated with lower levels of consumer satisfaction (Anderson et al., 2007). Therefore, optimizing appointment scheduling to balance clinician availability with minimal waiting times is important for a positive consumer experience (Kuiper et al., 2023).

Lastly, personalized care was a prominent and a recurring theme that aligns with the concept of the person-centered care recognized for enhancing healthcare outcomes, satisfaction, and adherence to treatment regimens (Michie et al., 2003). In the current study, satisfied consumers frequently used phrases such as, "*The audiologist/staff listened to me*", reflecting a preference for person-centered care, as a central aspect to perceived standard of care. Understanding consumer perceptions of care standards can inform valuable frameworks for continued professional development (CPD) training workshops and undergraduate programs.

Clinical Outcomes

The clinical outcomes of hearing healthcare service provision greatly influenced the overall consumer experience. Satisfied consumers frequently described an improvement in general well-being following treatment as "life-changing" or "lifesaving". However, despite a positive outcome the highly informed e-patient may be more prone to complain when best-practice protocols are not followed. For example, a dissatisfied consumer highlighted the absence of Real-Ear-Measurement testing, endorsed by most hearing organizations as best practice (American Speech-Language-Hearing Association, 2006). Addressing consumers' hearing needs typically involved fitting amplification devices and many satisfied consumers reported

positive outcomes. These positive responses reflect the reported benefits of better social interactions, reduced listening effort, less anxiety and depression, and greater independence (Mahmoudi et al., 2019). In contrast, dissatisfied consumers reported problems that physical modifications, re-orientation, and fine-tuning of the hearing aid software could easily resolve. The importance of comprehensive counseling and training on hearing aid use, for improved device satisfaction, including the value of follow-up appointments, is emphasized by these findings (Saunders et al., 2018).

Facilities

Consumer experiences were influenced by the exterior and physical attributes of clinics as also highlighted by previous surveys of hearing healthcare experiences (Bidmon et al., 2020; Hendriks et al., 2017). Important factors that clinics should be mindful of include parking, a professional and welcoming environment, and physical accessibility to the clinic during the service delivery process.

Audiologist

The *personal and professional clinician qualities* were important to the consumer experience. Clinician pleasantness, friendliness, and empathy as reported previously in general health care, are important to an overall positive impression and could potentially foster consumer loyalty (Bidmon et al., 2020). Moreover, consumers frequently associated what they perceived as a knowledgeable and skilled audiologist with a positive experience, which highlights a consistently held value across various healthcare fields (Huang et al., 2020). The predominant aspect that drew the most feedback from dissatisfied consumers was disrespectful or impolite demeanor exhibited by the audiologist. Disrespectful behaviour hampers collaboration and communication and contributes to a hostile atmosphere (Grissinger, 2017).

Administrative and Support Staff

Non-clinical personnel played a significant role in shaping the consumer experience, a concept supported by prior research (Hendriks et al., 2017). Satisfied consumers frequently noted the

584 friendliness and helpfulness of staff, which aligned with the findings of Manchaiah et al.
585 (2021a) using the same dataset albeit with a different analysis approach. Perceived
586 unfriendliness, disrespect, or a lack of knowledgeable and expertise from staff members was
587 typical of experiences reported by unsatisfied consumers. The identification of staff attributes
588 as a discrete domain underlines the essential role that recruitment and training of hearing
589 healthcare staff members play in the successful operation of an audiology practice.
590 Accordingly, clinicians should prioritize ongoing training focused on person-centered service
591 for their administrative staff (Kasewurm, 2005; Manchaiah et al., 2021b).

592 **Inclusivity**

593 Within the 1-star reviews, inclusivity surfaced as a new domain that was not identified by the
594 automated textual analysis conducted by Manchaiah et al. (2021a, 2021b). A lack of
595 inclusivity, and the perceived discrimination based on *race*, *disability*, or *insurance type*, were
596 described within this domain. The inclusivity-related statements covered various demographic
597 characteristics such as age, race, physical mobility, handicap, and those who communicate
598 using American Sign Language.

599 It is well-established that discrimination cultivates poor physical and psychological health
600 outcomes for minority populations (Carter et al., 2017; Yearby, 2018). Therefore, if hearing
601 healthcare consumers perceive bias held by providers and support staff, it may lead to delayed
602 help-seeking behaviors, non-compliance with treatment regimes, mistrust, and avoidance of
603 the healthcare system entirely (Sabin et al., 2009). The promotion of inclusive care provision
604 for minority groups consequently requires healthcare providers to foster cultural competency.
605 Culturally competent clinicians need to have knowledge about the consumer's core cultural
606 issues, develop self- and situational awareness, use a culturally appropriate communication
607 repertoire, and be highly adaptable during communication interactions and the provision of
608 care (Teal & Street, 2009). Sign-Language-dependent consumers were particularly vocal
609 about having access to a staff member or clinician who could communicate using Sign-
610 Language. Hearing healthcare institutions should therefore consider employing persons who

611 are certified as American Sign Language (ASL) interpreters to address this bias (Olson &
612 Swabey, 2017).

613 **Study Limitations and Future Recommendations**

614 The study has some some limitations. Sampling bias might be present due to the unconfirmed
615 spontaneity of all consumer reviews. As businesses often request reviews from consumers
616 (Manchaiah et al., 2021a), this could lead to a skewed prevalence of positive statements
617 (Black & Jenkinson, 2009). The demographic of consumers posting online reviews may also
618 be younger, more educated, and more technologically proficient, thus potentially limiting the
619 generalizability of the study results. Furthermore, demographic details for individual reviewers,
620 in this context, are unknown which does limit generalizability. In addition, the 1-star dataset
621 did not reach thematic data saturation as new sub-themes emerged within the concluding 10%
622 of the dataset. This suggests that a larger dataset might have revealed additional novel
623 themes. It is recommended that future research further explores the dissatisfied hearing
624 healthcare consumer experience by analyzing 2- and 3-star reviews as these may contain
625 elements of dissatisfaction. Future research could furthermore explore practical strategies to
626 address service delivery deficiencies identified in this study. Additionally, the active
627 engagement of consumers in the decision-making and implementation processes for
628 improvements could offer significant value (Crawford et al., 2002).

629 **Conclusions**

630 The seven identified domains of consumers' experiences regarding hearing health care
631 satisfaction provide insights for improving services and interactions between providers and
632 consumers.The thematic review revealed that effective communication is crucial in the
633 consumer-clinician partnership, underscoring its importance not only between clinicians and
634 consumers but also among administrative and support staff.
635 Financial considerations, the importance of personalized care, timeliness, and the profound
636 effect of clinical outcomes on consumers' overall experience were all key to the consumer's

perceived satisfaction. Inclusivity should be prioritized as a cultural competency among healthcare providers, particularly for diverse consumer populations, including those requiring sign language communication.

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DATA AVAILABILITY STATEMENT

The datasets generated and or analyzed during the current study are available from the corresponding author on reasonable request.

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841
842 **TABLES**
843
844 **Table 1. Domains and themes identified for satisfied consumers (5-star reviews)**

Domain	Theme	Example of a meaning unit
Overall experience (n= 829; 31.0%)	Excellence (452; 54.5%)	*"Among all the other clinics that I've been to, this is one of the best."*
	Professionalism (33; 4.0%)	*"My follow-up appointments were consistent."*
	Gratitude/loyalty (338; 40.8%)	*"I would recommend this clinic to anyone with hearing issues."*
	Continuity (3; 0.4%)	*"Even though the clinic name has changed over the years the one constant has been the presence of X"*
	Unique (3; 0.4%)	*"X allowed me to pet kittens and bunnies while she was working on my hearing aids"*
Clinical outcomes (n=288; 10.9%)	General well-being (77; 26.7%)	*"It's wonderful to be able to actively participate in things that I once struggled with."*
	Hearing specific outcomes (157; 54.5%)	*"I have heard things I haven't heard in twenty years."*

	Device-specific outcomes (54; 18.8%)	*"X and her team made a plan to assist my grandmother with stylish and comfortable hearing aids."*
Standard of care (n=617; 23.3%)	Timeliness (148; 24%)	*"The appointment was not rushed in any way."*
	Personalized care (193; 31.3%)	*"I appreciate the personal attention the staff pays to each patient."*
	Ethical service delivery (17; 2.8%)	*"X was extremely transparent."*
	Evidence based practice (5; 0.8%)	*"X believes in evidence-based practice in his clinic."*
	Communication (185; 30.0%)	*"Everything was explained to me in a way that I understood."*
	Finances (50; 8.1%)	*"No-high pressure sales tactics."*
	Products (19; 3.1%)	*"This clinic has the latest and best technology."*
Facilities (n=54; 2.0%)	Equipment (3; 5.6%)	*"It was easy to see early on that they have state-of-the-art testing equipment."*
	Amenities (22; 40.7%)	*"Great coffee at this clinic."*
	Location (17; 31.5%)	*"The clinic's location is easy to find."*
	Atmosphere/environment (12; 22.2%)	*"Friendly atmosphere."*
Audiologist (n=494; 18. 7%)	Personal traits (311; 63%)	*"X is the most patient healthcare professional I have come across."*
	Professional traits (183; 37%)	*"I was impressed with X's professional conduct immediately."*
Administrative and support staff (n=365; 13.8%)	Personal traits (264; 72.3%)	*"The staff are always pleasant."*
	Professional traits (101; 27.7%)	*"The staff's knowledge far surpassed my expectations."*

Note. For cases where participants have included potentially identifying data within their open-text responses (e.g., the name of the audiologist or visiting clinic or their names), the research team has deidentified the data by replacing the name with the symbol "x" while deducing meaning units.

Table 2. Domains and themes identified for unsatisfied consumers (1-star reviews)

Domain	Theme	Example of a meaning unit
Overall experience (n= 317; 30.1%)	Dissatisfaction (153; 48.3%)	*"My experience at this institution bothered me enough to post a review about it, and I've never posted a review before."*
	Unprofessionalism (23; 7.3%)	*"Very unprofessional."*
	Loss of loyalty (141; 44.5%)	*"I highly recommend going elsewhere."*
Clinical outcomes (n= 83; 7.9%)	Well-being (19; 22.9%)	*"I left this clinic feeling more hopeless."*
	Hearing-related outcomes (35; 42.2%)	*"I had to do research and diagnose myself."*
	Device-related outcomes (29; 34.9%)	*"The hearing aids hurt my ears."*
Standard of care (n=409; 38.9%)	General management (33; 8.1%)	*"Scheduling appointments are difficult."*
	Timeliness (47; 11.5%)	*"I feel like they don't value my time."*

	Lack of personalized care (22; 5.4%)	*"This office doesn't understand individualized care- they take a cookie-cutter approach."*
	Untrustworthy/unethical (62; 15.3%)	*"I was fitted with a different hearing aid than I was charged for, while they were fully aware that this is what they are doing."*
	Communication (137; 33.5%)	*"I have attempted calling their business multiple times without getting an answer."*
	Finances (92; 22.5%)	*"Money-hungry people working here."*
	Products (13; 3.2%)	*"Hearing aid batteries only last four days tops."*
Facilities (n= 14; 1.3%)	Amenities (4; 28.6%)	*"Not a well-organized clinic."*
	Location (10; 71.4%)	*"Off-the-wall location."*
Audiologist (n= 68; 6.5%)	Personal qualities (50; 73.5%)	*"The audiologist was rude when we expressed our concerns."*
	Professional qualities (18; 26.5%)	*"X's website claims she is a rare expert in tinnitus- not my experience."*
Support staff/administrative staff (140; 13.3%)	Personal qualities (98; 70%)	*"Not accommodating regarding the sudden payment, I had to make due to their lack of providing the right information."*
	Professional qualities (42; 30%)	*"The way business is handled by the staff is a joke."*
Inclusivity (n= 21; 2.0%)	Pediatric population (4; 19%)	*"They don't assist anybody under the age of 18 years."*
	Deaf population (5; 23.8%)	*"I'm disappointed that the audiologist couldn't use sign language to communicate with the deaf customer."*
	Race (6; 28.6%)	*"Staff are extremely racist."*
	Handicap/disability (1; 4.8%)	*"No parking designated for those with a handicap. No elevators either."*
	Geriatric population (2; 9.5%)	*"The staff discriminated against my elderly father."*
	Insurance (2; 9.5%)	*"I was turned away due to my insurance type."*
	General lack of inclusivity (1; 4.8%)	*"You would think that the staff would be used to a diverse population by now given the area."*

Note. For cases where participants have included potentially identifying data within their open-text responses (e.g., the name of the audiologist or visiting clinic or their names), the research team has deidentified the data by replacing the name with the symbol "x" while deducing meaning units.