Measuring speech accommodation for older adults: A scoping review

Rose Baker[1*], Susan C. Bobb[2], Catherine Nobles[1], Heidi Reis[1], Heather Harris Wright[1], Matthew Walenski[1] & Kathrin Rothermich[1]

[1]East Carolina University, United States
[2]Gordon College, United States

Abstract. Younger adults accommodate older adults by using higher pitch, a louder voice, and a slower speech rate, as well as simpler vocabulary and sentences. This scoping review synthesizes research on intergenerational accommodation over the last 60 years to explore how existing studies can inspire new research using novel experimental methods. By examining the current body of work, we aim to identify research opportunities at the intersection between intergenerational accommodation and language processing. A comprehensive literature search was performed in October 2022. Articles in the review report original data about the language and social patterns of intergenerational communication of younger individuals addressing older adults. The search revealed 114 articles that match our inclusion criteria. We extracted detailed information about study designs, participant characteristics, and measurements of the effects of accommodation on older adults. Most studies involved participants of the age of 65 years and older, with typical cognitive profiles, who were native English speakers. Discourse analysis was the most dominant study design, often using observational field studies as the primary data source. Our findings indicate a need for future research to include assessments of individual differences and the use of objective tools, such as neuroscience methods, to measure language processing.

Keywords. overaccommodation, cognitive aging, ageism, elderspeak, clear speech

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*. Corresponding author, bakerr22@students.ecu.edu

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JLAR 3 (2025)
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1 Introduction

Intergenerational relationships are crucial to the health and well-being of the growing global population of older adults. Worldwide, the number of people aged 65 years or older was approximately 771 million in 2022 and is projected to reach 16 billion by 2050, a more than 100% increase (United Nations 2023). Conversation between younger and older adults can result in misunderstandings or disconnection, particularly when the older adult exhibits signs of age-related communicative challenges. Cognitive changes associated with aging are characterized by alterations in neuroplasticity, processing speed, and working memory ability (Blazer et al. 2015). It can also be accompanied by age-related reduction in hearing acuity (Uchida et al. 2019) and is connected to sensorimotor functional decline (Sánchez-Izquierdo and Fernández-Ballesteros 2021).

While individual experiences of aging differ, cognitive aging is typically measurable by age 60 and widespread by age 75 (Sánchez-Izquierdo and Fernández-Ballesteros 2021). The collective impact of aging can cause challenges in understanding casual speech (Broderick et al. 2021), although individuals can maintain their productive verbal abilities and grow their vocabulary into late old age (Sánchez-Izquierdo and Fernández-Ballesteros 2021). Thus, aging changes an individual's communication patterns.

When aging affects older adults' communicative ability, younger adults may feel prompted to adjust their speech production to enhance their communication. Communication accommodation theory (CAT) models how speakers dynamically adjust their communication styles to enhance mutual understanding, align with social identities, and to show respect and politeness (Soliz, Giles, and Gasiorek 2022). In a recent overview, Giles, Edwards, and Walther (2023) evaluated how CAT has developed over the last 50 years. Central to CAT is a focus on the dynamics that influence the extent to which individuals align in verbal and nonverbal conversation. CAT is a helpful framework to conceptualize intergenerational dynamics because it acknowledges that speakers accommodate aging listeners to support comprehension (Giles and Gasiorek 2011; Gasiorek 2016). However, the theory also recognizes that poor accommodation practices pose a risk in complex social situations (e. g., babytalk in caretaking). The Communication Predicament of Aging Model (Ryan, Hummert, and Boich 1995), based on CAT, identifies how ageist stereotypes can mislead interlocutors to accommodate based on negative, inaccurate assumptions about their conversation partner. Crucially, age-related stereotypes may derive from visual or conversational cues that are misinterpreted by the younger adult. For example, older adults may respond more slowly than younger adults, who may then assume their older conversation partner is hard of hearing and overaccommodate by becoming louder. In response, adults who can hear quite well may withdraw, experience communication dissatisfaction, and internalize the message that they are communicatively incompetent. Unsatisfying social interactions between generations leads to avoidance and reinforces age stereotypes (Giles et al. 2007). Consequently, younger adults may face an "accommodative dilemma" as they attempt to integrate older adults' social identity and actual communication needs to decide how to adjust in intergenerational accommodation.

Accommodation in speech communication involves a wide range of adjustments speakers make to coordinate or align their behaviors with conversational partners across linguistic, paralinguistic, and extralinguistic domains. These adjustments, of-

ten referred to as phonetic convergence in the acoustic domain, are influenced by cognitive, social, and communicative factors. Research has shown that speakers align selectively across a broad range of acoustic measures, adapting certain features while maintaining others (Ostrand and Chodroff 2021). Accommodation is a multidimensional phenomenon shaped by both automatic and higher-level mechanisms. Moreover, studies have highlighted the roles of adaptability, variability, and evolutionary factors in driving these adjustments, using a combination of experimental and computational approaches to examine their forms and functions (Pellegrino et al. 2024). Intergenerational accommodation typically includes multidimensional acoustic and linguistic patterns (see Kemper 1994). Acoustically, speech directed towards older adults is often slower (Krause and Panagiotopoulos 2019), spoken with higher pitch (Masataka 2002) and exaggerated intonation (Whitbourne, Culgin, and Cassidy 1995) compared to casual speech. These features can overlap with other listener-directed forms of accommodation, such as clear speech (Van Engen 2017), foreigner-directed speech or second-language accommodation (Hazan, Uther, and Grunlund 2015), and infant-directed speech (Kalashnikova et al. 2018). Linguistically, intergenerational accommodation for older adults is characterized by simple syntax and vocabulary, diminutives (e. g. *honey*, *dearest*, *sweetie*), collective pronouns (e. g., *Are we ready for our bath?*), reflective sentence form (e. g., *Take this medicine for me.*; K. N. Williams, Shaw, et al. 2017), and tag questions (e. g., *It's hot out, isn't it?*; Basque et al. 2020; Shaw and Gordon 2021). Intergenerational accommodation often also includes discourse features such as overt politeness, frequent encouragement, and loose turn-taking structure that provides older adults more time to respond (Chen 2019; Grainger 1993). Following CAT, people may adjust their communication for older adults to compensate for assumed age-related decline, to demonstrate compassion and warmth, to exercise cultural respect, or as a result of ageism with the intent to establish control over the older adult (Zhang and Pitts 2018).

CAT and the Communicative Predicament of Aging model suggest that ageism motivates communication adjustments when individuals form impressions about a person based on negative group stereotypes (Ryan, Hummert, and Boich 1995). The combination of high pitch, sing-song intonation, and frequent terms of endearment or tag questions can resemble infant-directed speech; indeed, early work referred to overaccommodation directed toward older adults as (secondary) baby talk (e. g., O'Connor and Rigby 1996). As is the case for most forms of speech accommodation and directed speech, if communication adjustments are overdone or used unnecessarily (i. e., overaccommodation), they are often perceived as patronizing and disrespectful (Hehman, Corpuz, and Bugental 2012). Researchers recognize acute examples of intergenerational overaccommodation most frequently in healthcare, which is often called elderspeak. In their concept analysis, Shaw and Gordon (2021) compare working definitions from over 40 years of elderspeak research and propose a standardized definition of elderspeak that incorporates its ageist origins, acoustic and linguistic characteristics, and its discourse goals. The term elderspeak is widely used in the literature on ageist or patronizing communication oriented toward older adults, but it is limited in its scope because it ignores the potential for positive interactional alignment resulting from sensitive accommodation. This scoping review evaluates research on intergenerational accommodation as an umbrella term over elderspeak to investigate effective communication adjustments that younger adults make for their older conversation partners, integrating the strong history of research on patronizing

accommodation. This view aligns with the theoretical foundations of CAT, which has always recognized that one's intentions may not match how their communicative behavior is perceived by others, leading to a complicated mix of positive and negative outcomes (Giles, Edwards, and Walther 2023).

CAT has the potential to generate more testable assumptions for intergenerational contact as it grows alongside the interdisciplinary study of conversational alignment, such as *entrainment* from dynamic attending theory (Jones 2019) and interaction adaptation theory (IAT; Burgoon and Hubbard 2005). Dynamic Attending Theory (DAT) posits that attention rhythmically fluctuates over time, aligning with expected moments in a stimulus based on temporal patterns to enhance cognitive processing. Alignment improves anticipation and comprehension of linguistic information, potentially compensating for age-related challenges in auditory and cognitive processing. However, overly slow speecha feature often associated with intergenerational accommodationcan disrupt natural processing rhythms (Love et al. 2008; Callahan, Walenski, and Love 2012). By examining how rhythmic patterns in speech influence attention and comprehension, DAT provides a valuable framework for understanding the temporal aspects of accommodation and tailoring communication strategies to better meet older adults' needs.

The concept of entrainment, or the synchronization of one system's behavior with the rhythm or pattern of another (such as tapping a foot to music or matching one's speech rate to a conversation partner) is central to DAT. Entrainment has been explored in CAT to hypothesize the cognitive and neural mechanisms underlying real-time communication adjustments (Gasiorek 2016). However, research using CAT has mostly focused on observations and surveys, and there is very little evidence on the neurocognitive processes that are affected by accommodation. CAT also mostly treats age as a social category. Indeed, age is a powerful social construct, but it is also a biological reality; because CAT acknowledges that younger adults likely accommodate to compensate for age-related changes, the theory could explore the relationships between language processing acuity and accommodation practices to establish constructive communication strategies. Much of the literature discussed in this scoping review takes place in a healthcare setting, leaving a significant gap of knowledge regarding intergenerational accommodation in other contexts. Further research on accommodation outside the power differential of a healthcare setting is needed to elucidate the interaction between aging, intergenerational accommodation, and health and behavior outcomes among older adults. Shaw and Gordon (2021) find in their concept analysis that only 18 out of 83 included studies used experimental approaches to study the phenomenon. After a closer review of 114 articles on intergenerational accommodation, we conclude here that only one study used online, objective, research methods such as biophysiological markers (cortisol; Hehman and Bugental 2015). We did not uncover any methods that allow the investigation of dynamic adjustments and language processing during speech production and perception, such as eye tracking or electrophysiology. Technological advancement in neural and cognitive measurement tools make it possible to investigate unexplored parts of accommodation, especially brain responses. In future studies, it will be crucial to test communication entrainment among older adults, explore processing strategies for speech perception that change with age, and record biophysiological responses to accommodation.

The current scoping review builds on previous research to provide methodological groundwork for exploring accommodation with older adults. The objective is to

JLAR 3 (2025)
10.15460/jlar.2025.3.1.1509

review the methods that have measured accommodation for older adults in natural settings and how older adults perceive it. Due to the highly interdisciplinary nature of the topic, our team adopted a scoping approach rather than performing a systematic review to confirm the extent to which our research objective applies across research areas (Munn et al. 2018). Scoping reviews are suited to surveying methods used in a diverse body of research. The articles collected in this review broadly cover linguistic, social, and psychological domains. They also span theoretical perspectives including Communication Accommodation Theory, related speech phenomena such as elderspeak and Clear Speech, and cognitive aging. First, we review who has been studied via participant sampling trends and associated neurocognitive screening measures. Then, we summarize the history of study designs and the use of specific elicitation methods or prompts to identify the main purpose of each method. In the discussion, we use two themes to account for the effect of accommodation, one centering on facilitation of comprehension and the other on clinical outcomes. We then develop a framework for researching and understanding intergenerational communication moving forward. Finally, we propose a list of interactional variables that future studies could include to address gaps in the research.

2 Method

This review was conducted according to the methodology outlined in chapter 10 of the JBI manual of evidence synthesis (Peters et al. 2020) with the framework described by Arksey and O'Malley (2005). Results were reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews (PRISMA ScR: Tricco et al. 2018). This scoping review protocol was registered via OSF Registries (Baker, Reis, and Rothermich 2022). A scoping review maps the extensiveness of available literature, identifying key concepts and gaps, making it ideal for exploring diverse and emerging fields such as intergenerational accommodation. Unlike a systematic review, which focuses on specific questions and homogeneous studies for in-depth analysis, a scoping review is broader and more exploratory. In this paper, the scoping review approach aligns with the goal of examining a wide range of evidence, which a systematic review's narrower focus would not adequately address.

2.1 Search strategy

Librarian and search expert HR, with consultation from authors RB and KR, developed a search strategy and a list of search terms that reflected the target participants, concept, context, and outcome. The review targeted older adult subjects, the target concept was communication accommodation directed toward older adults, the context was intergenerational conversation, and the outcomes were affective response and comprehension. Authors added synonyms and related vocabulary based on expert knowledge to the search terms list. The research strategy was peer reviewed using a modified PRESS (Peer Review of Electronic Search Strategies, McGowan et al. 2016). Search terms can be found via the OSF registration (Baker, Reis, and Rothermich 2022). The search was first developed in Medline (2024) via PubMed, then translated into Scopus (2022) via Elsevier, CINAHL (2022) via EBSCOhost, PsycINFO (2022) via EBSCOhost, Linguistics and Abstracts (2022) via ProQuest, and SocINDEX (2022) via

ProQuest. The search strategy located both published and unpublished studies. All searches were executed on 10/07/2022 and 37 articles were added from the reference list of Shaw and Gordon (2021) . All studies were written in English.

2.2 Selection criteria

2.2.1 Title and abstract screening

The search resulted in articles on communication oriented toward older adults in any communication setting. All identified citations were collated and uploaded into *EndNote 20* (2013) and exported into the screening tool Covidence (Innovation 2023), which removed duplicates (see "Identification," Figure 1). Titles and abstracts were dual screened independently within Covidence by 3 authors (RB, CN, and SB) with a fourth author (KR) acting as tiebreaker for conflicts. The articles identified from Shaw and Gordon (2021) were discussed in detail by reviewers RB and KR. Inclusion criteria specified that studies must present original experimental data centered on intergenerational communication or language directed towards older adults in conversation, real or imagined. In the title and abstract screening, articles were excluded if they: were systematic reviews or dissertations (see Brown and Draper 2003), studied the speech of older adults patronizing younger adults (see Giles and Williams 1994), solely described the language ability of older adults (see Dijkstra et al. 2006), researched hearing perception (see Mamo et al. 2019), studied cognitive abilities too generally (see Bindoff et al. 2021), centered on human-robot interaction (see Zhou et al. 2022), or did not present original data (e. g., seminal theoretical work from Ryan, Hummert, and Boich 1995; E. B. Ryan et al. 1986).

2.2.2 Full text assessment

Authors collected full text versions of all articles retained after the title and abstract screening. Reviewers RB, CN, and SB assessed them for final inclusion, recording and reporting all reasons for exclusion as in the PRISMA flow chart (see "Studies assessed for eligibility," and the associated "Studies excluded," Figure 1). At this point, studies were required to adhere to stricter inclusion criteria regarding study design, experimental factors, communication setting, language of research, experimental outcomes for analysis, subjects entered in the study, presentation of original research, and presence of detail regarding the study's methodology for relevance to our planned analyses. Reviewers eliminated all literature reviews as well as articles that were broadly of the wrong design, such as editorials or theory papers that were not eliminated in the initial screening process. One article was labeled not experimental before the category wrong design was introduced, and several articles had insufficient data to warrant inclusion. Articles not written in English were excluded for wrong language. When articles posed research questions that did not center on the language content or context between at least one younger and one older adult, for instance about peer contact, it was labeled wrong setting and removed. If an article did not take language or communication as the primary object of research interest, such as reports of how pharmaceutical messaging impacts medicine use in older adults, it was labeled wrong factors. Reviewers considered whether articles reported the technical linguistic traits of social communication or effects of directed speech as results of the study; if they did not, they were excluded and labeled wrong outcomes. If a study

did not investigate communication with the primary intent of testing older adults, such as collecting impressions from nurses about their patients, they were excluded and labeled wrong subjects. Disagreements at this stage regarding inclusion status or exclusion labels were settled by a vote from reviewer KR and discussion amongst reviewers. Therefore, the final list included only peer-reviewed studies written in English that described human communication between younger and older adults and their affective and cognitive responses.

2.3 Data extraction

Reviewers RB, KR, and SB extracted data after developing an extraction form in Covidence's built-in extraction tool, and RB and KR settled conflicting records to reach consensus. The following information was collected: first author, title, study design, methods for recording demographic language background, listed neurocognitive diagnoses and tests, and the effects of intergenerational communication on facilitation of understanding and Resistiveness to Care.

2.4 Data analysis

After the extraction form was exported to Microsoft Excel, the authors reviewed studies' methodological approaches to develop themes. To ensure consistency, an initial set of broad categories was created based on common features across studies. Multiple categories were then collapsed into these categories to convey study characteristics more concisely. For example, self-report studies, online surveys, or questionnaires were collapsed to "survey studies". Due to the range and complexity of research designs, each study was reviewed a second time and recoded so that each study received only one study design and stimulus type label. Authors tallied participant age, screening, and language criteria, study design, and accommodation stimuli. Further, authors noted the number of studies that recruited older adults with cognitive decline, where intergenerational accommodation has been studied globally, the distribution of study designs by decade, which neurocognitive factors were acknowledged in the literature, the tools used to measure them, and how functional ability had been connected to accommodation.

3 Results

The scoping review uncovered 114 studies total. Figure 1 illustrates the article selection process.

3.1 Participant criteria

3.1.1 Participant recruitment

We reviewed the trend of studies that included older adults as research participants and their neurocognitive health traits. As summarized in Table 1, we were particularly interested in studies that recruited older adults, measured neurocognitive health, included people with age-related cognitive decline in the study, and screened for hearing loss.

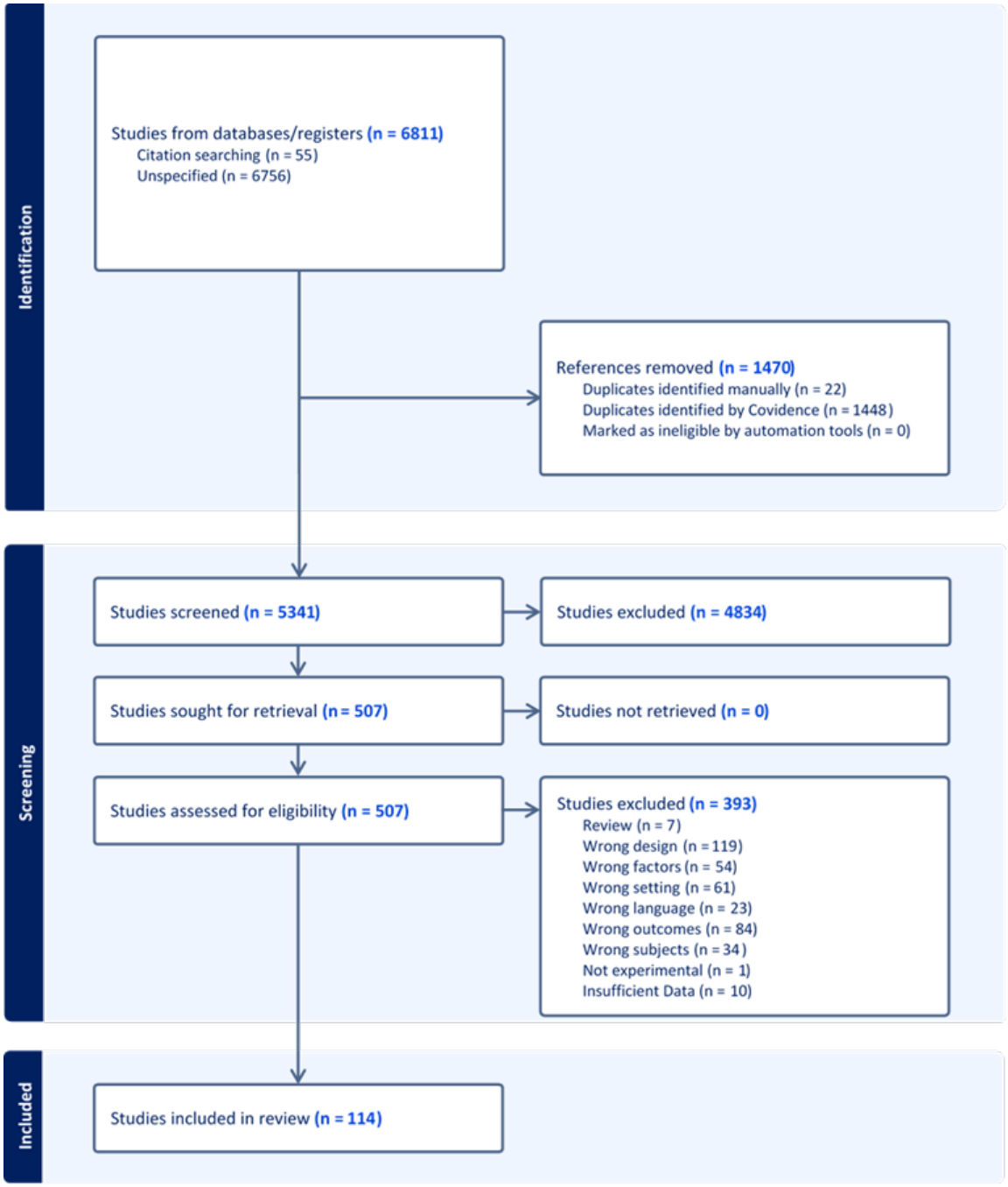

Figure 1: PRISMA flow chart

Table 1: Older adult sampling trends

Parameter	**Frequency (out of 114)**
Included older adults	86
Neurocognitive measures used with older adults	51
Age-related decline present	33
Hearing ability	11

Studies provided idiosyncratic "old age" minimum cutoffs, though the lower limit tended to be between 60–70 years old. The median lower age limit for older adulthood in our sample is 65, including from imaginary vignette studies. The range of the lower limit was 32, with a minimum of 48 years and a maximum of 80 years. The mean age was 65.17 years for inclusion to the studies. To our knowledge, there was no maximum age limit reported in the literature. Figure 2 illustrates minimum old age over time.

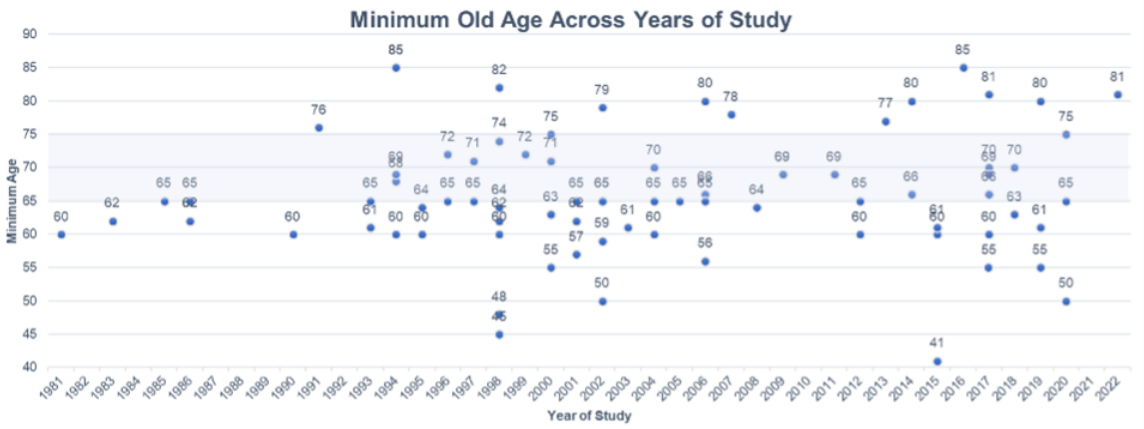

Figure 2: Old age over time

3.1.2 Neurology, cognition, and hearing

There is no standard approach to gathering data on neurocognitive health. Among the 51 studies examining neurocognitive health traits, studies usually recruited adults who were "active in society" (e. g., Scott and Caughlin 2015) or tested within normal range for hearing (Krause and Panagiotopoulos 2019), cognitive ability (Kemper, Ferrell, et al. 1998), verbal ability (Hummert and Mazloff 2001; Park and Song 2005), or functional ability (Salari and Rich 2001). For a breakdown of specific cognitive measures, see Table 5 below. Some physicians assessed participants' cognitive fitness for the research task (Greene et al. 1986; O'Connor and Rigby 1996; Whitmer and Krauss Whitbourne 1997). Other researchers noted that older adults were alert or active enough to participate, without further explanation (see Whitbourne, Culgin, and Cassidy 1995). Hearing ability was used as a screening criterion in 11 studies. The methods used to assess hearing ability across the studies varied. Some studies employed the Digit Span Test as a measure of hearing (Cohen and Faulkner 1986), while others screened for hearing acuity without specifying the method used (Williams, Perkhounkova, et al. 2017; Kemper, Ferrell, et al. 1998; Kemper, Finter-Urczyk, et al. 1998; Kemper and Harden 1999). Pure-tone audiometry tests were utilized in several studies (Krause and Panagiotopoulos 2019; Schmitt and Carroll 1985; Van Engen 2017). Additionally, some studies relied on self-reported hearing loss to assess hearing ability (Lagacé et al. 2012; McGuire et al. 2000; Ashburn and Gordon 1981). Studies that did not measure it directly are not included in our count for participant criteria because they instead captured impressions of hearing ability influencing communication dynamics (e. g., Park and Song 2005; Lee and Lee 2021). In summary, our review found that typical participants were at least 65 years old with no diagnosed or apparent deficits and normal or corrected-to-normal hearing.

3.1.3 Language diversity

Most communication studies were conducted in English. Of the 114 studies reviewed, 30 included participants either from another culture or who spoke a language other than American English. 16 studies compared American English accommodation with non-American English accommodation, and the remaining 14 language-diverse studies focused exclusively on non-English-speaking participants (Table 2). Comparative studies are broken down by country and language to indicate that accommodation in comparative studies observed complex cultural differences between communication settings, which frequently operate in multilingual settings or vary based on culture rather than linguistic content. For instance, data collected by Cavallaro et al. (2016) captures accommodation dynamics in Singapore, where participants were multilingual and switched between languages. Accommodation results could vary based on cultural differences captured by country setting or by linguistic traits captured by participant language. The global research collected here suggests that key features of accommodation for older adults such as pitch changes and discourse management strategies are consistently observed across different languages and cultures.

3.2 Study design, stimulus, and screening methods

To explore how intergenerational accommodation has been studied, we also collected information about each article's study design, accommodation stimulus, and participant screening methods. Appendix I provides a comprehensive table of each reference, its publication year, and its study design and stimulus label assigned in the review. Design refers to the primary source of data for analysis and the stimulus is the primary source of or cue for accommodation. Figure 3 presents the distribution of study designs and Table 3 lists stimuli type.[2]

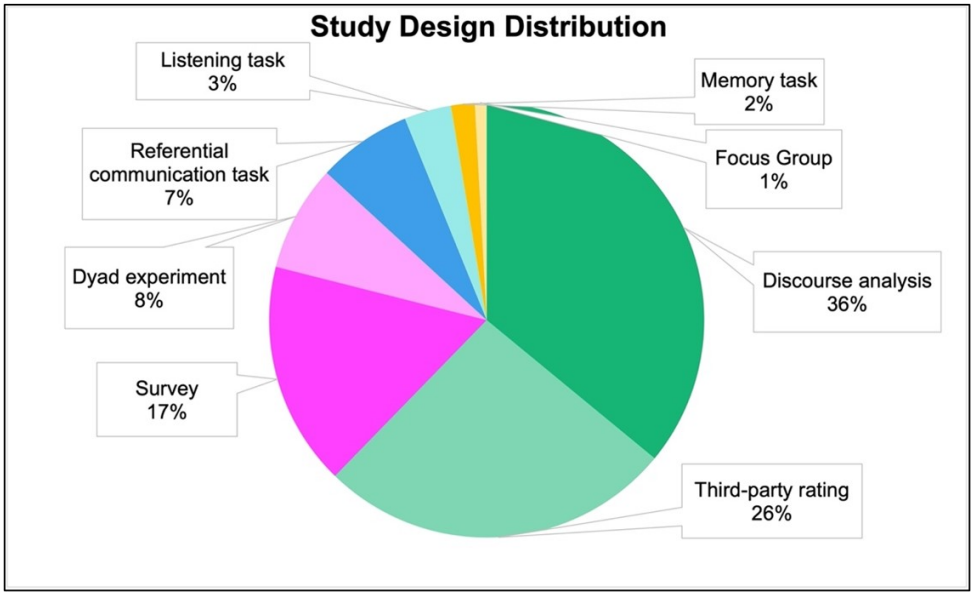

Figure 3: Study design distribution

2. For a full list of each article in the review, its study and stimulus design, see 6.

JLAR 3 (2025)
10.15460/jlar.2025.3.1.1509

Table 2: Diverse language and culture data

Place	**Language**	**Frequency**	**Reference**
Comparative language studies (n = 16)			
France, Ireland, Slovakia, Spain, Sweden, UK	French, Slovakian, Spanish, Swedish	1	Woolhead et al. 2006
New Zealand	New Zealand English	1	Marsden and Holmes 2014
Quebec	French	1	Lagacé et al. 2012
Scotland	Chinese	1	Clarke et al. 2014
Singapore	English, Mandarin, Hokkien, Teochow, and Cantonese	1	Cavallaro et al. 2016
Sweden	Swedish, Farsi	1	Plejert, Jansson, and Yazdanpanah 2014
USA, Bulgaria	Bulgarian	1	Giles et al. 2010
USA, Thailand	Thai	1	Keaton, McCann, and Giles 2017
USA, Ghana, South Africa	English	1	Giles, Makoni, and Dailey 2006
USA, India	Bengali	1	Giles et al. 2007
USA, Italy	Italian	1	Giles, Ballard, and McCann 2002
USA, Japan, Thailand	Japanese, Thai	1	McCann et al. 2003
USA, North, Vietnam, South Vietnam	Vietnamese	1	McCann et al. 2004
USA, Taiwan	Mandarin	2	Giles et al. 2001; Lin, Harwood, and Hummert 2008
USA, Mongolia	Mongolian	1	Choi et al. 2013

Place	Language	Frequency	Reference
Independent language studies (n = 14)			
China	Chinese	1	Zhang and Hummert 2001
Germany	German	3	Sachweh 1998; Schnabel et al. 2020; Thimm, Rademacher, and Kruse 1998
Japanese	Japanese	2	Backhaus 2009; Masataka 2002
Malaysia	Mandarin, Cantonese, Bahasa Melayu (Malay)	1	Chye and David 2006
South Korea	Korean	2	Lee and Lee 2021; Park and Song 2005
Sweden	Swedish	3	Jansson 2016; Österholm and Samuelsson 2015; Samuelsson, Adolfsson, and Persson 2013
	Swedish, Farsi	1	Yazdanpanah et al. 2019
The Netherlands	Dutch	1	Ytsma and Giles 1997

Table 3: Accommodation stimuli

Stimulus	Frequency	Reference
Field Study	43	e. g., Cockrell 2020
Vignette	29	e. g., Flamion et al. 2020
None	18	e. g., Lee and Lee 2021
Recorded stimuli	13	e. g., Wylie, Brank, and Bornstein 2015
Map	7	Kemper et al. 1995; Kemper et al. 1996; Kemper, Ferrell, et al. 1998; Kemper, Finter-Urczyk, et al. 1998; Kemper, Othick, et al. 1998; Kemper and Harden 1999; Hehman, Corpuz, and Bugental 2012
Discussion cards	1	Scott and Caughlin 2015
Collage	1	Montepare, Steinberg, and Rosenberg 1992
Prompt	1	Woolhead et al. 2006
Picture book	1	Masataka 2002
Guessing game	1	Flamion et al. 2020
Block puzzle	1	Hehman and Bugental 2015

3.2.1 Discourse analysis

Researchers most frequently studied intergenerational accommodation by analyzing participants' discourse production (36 %), often based on a field study. Studies in this category frequently used quantitative approaches for behavioral and communication coding; researchers were trained to identify target speech acts or linguistic features of accommodation, and summary results indicated patterns in accommodation behavior. Our extraction revealed the following list of features for analysis:

- slow rate of speech
- simple vocabulary / clauses / sentences
- short words / utterances or sentence fragments
- altered emotional tone / exaggerated praise or politeness
- exaggerated pitch contour / singsong intonation
- repetition, diminutives / terms of endearment
- collective pronouns
- tag questions
- directives / imperatives
- reflectives
- interruptions / hesitations
- ignoring / minimal input
- long pauses / extra fillers
- raised / lowered pitch
- excessively soft / loud voice
- exaggerated pronunciation / stress
- "other" for writing in additional factors such as humor or avoidance.

Based on video or audio recordings collected via field study, studies identified: social speech acts related to power and control (e. g. directives, Cavallaro et al. 2016; Grainger 1993; Marsden and Holmes 2014), negative discourse effects such as infantilization (e. g. meaningless interactions, Salari 2005), and positive discourse effects such as politeness that protects the self-esteem needs of older adults (i. e. face threat, Backhaus 2009; Chen 2019). A smaller portion of discourse analyses used a formal discourse analytic method such as Conversational Analysis (Hutchby and Wooffitt 2008; e. g., sound prolongation, Yazdanpanah et al. 2019).

3.2.2 Third-party rating and survey data

The second most common study design was third-party rating tasks (26 %). Participants read or listened to a sample of speech with intergenerational accommodation features and provided their impressions as a third-party observer (e. g., Alden and Toth-Cohen 2015). Speech samples could take the form of a written vignette or recorded speech. When studies used rating scales for responses, there was a distinct lack of uniformity in the object of interest and items in the response scales; some rated communication itself (Harwood et al. 1997), and some rated impressions of the older adult recipients (e. g., Chen et al. 2017). There was also a distinct lack of uniformity in the structure of response scales; for instance, one scale predicts the way older adults sound when they speak (i. e. Vocal Characteristics Belief Scale, Atkinson and Sloan 2017), and another captures how interlocutors in the vignette seem to feel

about each other (e. g. considerate, dominant) as well as the rater's impressions of younger and older characters (e. g., helpful, intelligent, incompetent, weak; Giles, Fox, and Smith 1993). Such studies tend to focus on how stereotypes prime perception of speech and language (e. g., Lin, Harwood, and Hummert 2008). One scale stands out for its potential for further use: the Emotional Tone Rating Scale (Williams et al. 2012) has been used in several studies and includes items for respondents to rate communication as controlling (directive, bossy, domineering, controlling) and person-centered (respectful, supportive, polite, caring; see also Williams et al. 2018). The third most common study design was survey data (17 %), which were distinguished from rating tasks in our review by their lack of a language stimulus. Participants provided their impressions of intergenerational conversations based on experience or observation.

3.2.3 Dyad experiments and referential communication tasks

Dyad experiments and referential communication tasks use stimuli to cue accommodation in younger adults and test its impact on the behavior and performance of older adults. Dyad experiments (8 %) capture natural conversation between two participants in a controlled environment, at times including a referential task. We further consider referential communication tasks distinct from dyad experiments because they were performed without a second participant present. Instead, referential tasks (7 %) are designed to elicit accommodation based on an activity and have used recorded speech (e. g., Wylie, Brank, and Bornstein 2015), a map (Hehman and Bugental 2015; Kemper, Ferrell, et al. 1998), and vignettes for imaginary interactions with older adults as stimuli. Imaginary interactions prompted participants to imagine an intergenerational interaction, drawing on personal experience and the prompt to predict how an older adult might respond. For instance, Melton and Shadden (2005) presented participants with a vignette in the form of notes written about a client for a telephone company, then instructed them to "pretend that they were speaking directly to their partner," giving them instructions to use a remote control. Such a study was therefore labeled a referential task with a vignette stimulus, and it captured an imaginary interaction. The only biophysiological measures we uncovered in this review were performed in a referential communication paradigm to gauge stress responses to accommodation (Hehman and Bugental 2015).

3.2.4 Other designs

Four studies used listening tasks (3 %) to find the effect of recorded accommodation on speech perception among older adults. These studies overlap methodologically with research on clear speech, a speech register used across all ages and designed to be particularly interpretable. Two studies used memory tasks (2 %) to test how accommodation influenced memory performance (Gould, Saum, and Belter 2002; McGuire et al. 2000). Finally, one study used focus groups (1 %); conversation prompts spurred discussion in groups around the world about intergenerational communication and ageism (Woolhead et al. 2006). The discussion groups included two distinct cohorts: one comprising older adults and the other comprising health and social care professionals. Older adults were selected to represent diverse socio-economic, ethnic, and functional backgrounds, encompassing both the "young-old" and "old-old" age groups. Health and social care professionals included participants from various occupations, such as nursing, medicine, social work, and allied health professions, with

a broad range of experience and roles. The groups were examined separately, allowing for focused discussions on dignity in care from both the recipients' and providers' perspectives. The results show that both older adults and professionals emphasized respect, inclusion, privacy, and active listening as essential for preserving dignity. Systemic barriers, including time constraints and bureaucratic pressures, limited professionals' ability to implement respectful communication despite their awareness of its importance. These consistent findings across countries underscore the universal need for person-centered communication to uphold dignity in care settings.

3.2.5 Cognitive factors

In our review, some studies focused on cognitive factors related to aging. Table 4 reports the frequency of studies that assessed age-related neurocognitive factors including dementia, memory skills, mild cognitive impairment, and stroke and aphasia, where dementia was by far the most common.

Table 4: Neurocognitive factors reported among aging people

Factor	**Frequency**	**Reference**
Dementia	26	Caporael 1981; Caporael and Culbertson 1986; Carpiac-Claver and Levy-Storms 2007; Cavallaro et al. 2016; Corwin 2018; Cunningham and Williams 2007; Fagan 2004; Herman and Williams 2009; Jansson 2016; Kemper 1994; La Tourette and Meeks 2000; Österholm and Samuelsson 2015; Sachweh 1998; Salari 2005; Savundranayagam 2014; Savundranayagam and Moore-Nielsen 2015; Shaw et al. 2022; Thimm, Rademacher, and Kruse 1998; Williams 2006; Williams, Kemper, and Hummert 2003; Williams et al. 2009; Williams et al. 2018; Williams, Perkhounkova, et al. 2017; Williams, Shaw, et al. 2017; Williams and Herman 2011; Yazdanpanah et al. 2019
Memory skills	4	Balsis and Carpenter 2006; Gould, Saum, and Belter 2002; Gould and Dixon 1997; Kemper and Harden 1999
Mild cognitive impairment	4	Ashburn and Gordon 1981; Corwin 2018; Schnabel et al. 2020; Shaw et al. 2022
Stroke and aphasia	3	Corwin 2018; Salari 2005; Yazdanpanah et al. 2019

Relatedly, researchers used a variety of cognitive health measurement tools, summarized in Table 5. Commonly, researchers assessed older participants for inclusion using neurocognitive tools, excluding older adults who displayed age-related decline in memory and processing. Several clinical studies included a broad battery of neurocognitive and mental health screening measures and tests. For example, the most recent experimental study on elderspeak at the time of the review, Shaw et al. (2022),

collected clinical diagnostic data from participants admitted to the hospital, and these included dementia, traumatic brain injury, mild cognitive impairment, Huntington's disease, alcohol-related dementia, schizophrenia, brain tumors, and developmental delays, as well as general functional abilities.

Table 5: Cognitive health measurement tools

Tool	**Frequency**	**Reference**
Mini Mental Status Exam (Kurlowicz and Wallace 1999)	7	Cunningham and Williams 2007; Krause and Panagiotopoulos 2019; Makoni and Grainger 2002; McGuire et al. 2000; Savundranayagam 2014; Savundranayagam and Moore-Nielsen 2015; Van Engen 2017
Shipley cognitive test (Shipley 1940)	6	Kemper et al. 1995; Kemper et al. 1996; Kemper, Ferrell, et al. 1998; Kemper, Finter-Urczyk, et al. 1998; Kemper, Othick, et al. 1998; McGuire et al. 2000
Digits forward and backward Wechsler subtests	5	Cohen and Faulkner 1986; Kemper et al. 1996; Kemper, Ferrell, et al. 1998; Kemper, Othick, et al. 1998; Kemper and Harden 1999
Wechsler Adult Intelligence Scale (WAIS, Wechsler 1997)	1	Hehman and Bugental 2015
Minimum Data Set Cognition Scale (Hartmaier et al. 1994)	3	Herman and Williams 2009; Williams et al. 2009; Williams and Herman 2011
Functional Assessment Staging instrument (Salthouse and Babcock 1991)	2	Shaw et al. 2022; Williams, Perkhounkova, et al. 2017
Vocabulary test	1	Kemper and Harden 1999
Reading span (Salthouse and Babcock 1991), alpha span (Craik 1986), and sentence repetition test (Kemper 1986)	1	Gould and Dixon 1997
Short Portable Mental Status Questionnaire (Pfeiffer 1975)	1	La Tourette and Meeks 2000
Blessed Orientation-Memory Concentration test (Katzman et al. 1983)	1	Balsis and Carpenter 2006
Confusion Assessment method (Wei et al. 2008)	1	Shaw et al. 2022

3.2.6 Functional ability

Functional ability refers to collective practical skills that are vital to independent living and are maintained in typical aging; in this review, functional ability was measured by a total of 10 studies using only four methods. First, the Guttman health scale for the aged (Rosow and Breslau 1966) was adapted by O'Connor and Rigby (1996) to measure participants' ability to perform basic functional tasks such as getting dressed to leave the house and predict participants' impressions of patronizing accommodation. Second, Schnabel et al. (2020) used the Barthel Index as an indicator of functional status, which scores patients' ability to take care of themselves when they have a neuromuscular or musculoskeletal disorder (Mahoney and Barthel 1965). Lower Barthel Index scores were a significant predictor for how controlling a nurse's accommodation was. The third and fourth measures were used by the same study. Shaw et al. (2022) employed the Cumulative Illness Rating Scale (Salvi et al. 2008) and the Pain Assessment in Advanced Dementia Scale (Warden, Hurley, and Volicer 2003) in a study that also gathered comprehensive medical input to predict the presence of negative, patronizing intergenerational accommodation. Functional ability was elsewhere used to describe older adult participants (e. g., Carpiac-Claver and Levy-Storms 2007). Overall, older adults who are assessed to have lower functional ability receive more patronizing accommodation and tend to show an increased preference for accommodation.

4 Discussion

Our review of research approaches in intergenerational accommodation uncovered a history of comprehensive inquiry to acoustic, linguistic, and discourse form and function with a strong analytical tradition. Studies included older adult participants across varying ages, across multiple levels of cognitive health and functional ability, and across different languages and cultures. In the discussion, we will confirm previous findings of how intergenerational accommodation affects comprehension and clinical outcomes. Our observations will contribute to recommendations for future research and methodological approaches.

4.1 Participant sampling

Classifying "older" adults situates people on a complex spectrum of social age and neurocognitive ability (see brain age, Soumya Kumari and Sundarrajan 2024). In our review, old age spanned decades. Though the mean age for older adults across studies was 65 years, adults could be "older" if they were 50 years old or well into their 80s. While 65-year-olds are, indeed, "older," they are generally more socially active than adults beyond this age threshold. Chronological age does not always match how old an individual feels, or their subjective age (Kotter-Grühn, Kornadt, and Stephan 2016). Studies in the review generally recruited older adults with typical cognitive functioning and hearing, as judged by screening measures for participant inclusion. Frequently, studies that recruited "typical" participants aimed to identify the impact of stereotypes on intergenerational communication. There is a gap in the research for distinguishing between age cohorts, and individuals with cognitive decline due to aging should be included as participants in future research.

Though hearing acuity often declines with age and can have a profound impact on social communication (Aydelott, Leech, and Crinion 2010), the reviewed studies did not routinely screen for typical hearing in aging, with the exception of clear speech studies. Clear speech is a register used by people of any age to communicate with individuals in a noisy environment or with those who are hearing impaired (Kemper and Lacal 2004). Clear speech acoustic features overlap with intergenerational accommodation in form and audience (slowed, loud speech, greater pitch variation; Krause and Panagiotopoulos 2019; Van Engen 2017). By carefully comparing clear speech outcomes with intergenerational accommodation outcomes and consistently screening for hearing ability, future studies may be able to distinguish between patronizing language and helpful, age-sensitive acoustic accommodation.

4.2 Study design, stimuli, and measures

Discourse analysis, the most frequent study design, identified features of accommodation sourced from fieldwork. Frequently, observations took place in caregiving settings. Other study designs included third party rating tasks, surveys, dyad experiments, referential communication tasks, listening tasks, memory tasks, and one focus group. Studies elicited accommodative speech with a creative array of stimuli; beyond field studies, researchers used vignettes, their own recorded stimuli, and maps. Other studies used their own referential communication tasks to evoke a natural conversation style.

These approaches highlighted the adaptability of methodologies to different research questions, but also exposed a lack of standardization, particularly in measuring the impact of accommodation on older adults. Our analysis underscores critical gaps in the literature, particularly regarding participant characteristics such as cognitive, hearing, and functional abilities. Only three studies measured older adults' functional abilities using standardized tests—a concerning oversight given the vulnerability of individuals dependent on caregivers to the negative effects of elderspeak (see Edwards and Noller 1993). Notably, only one study, Hehman and Bugental (2015), employed biophysiological methods to measure language processing or comprehension. This omission is particularly striking given the potential of techniques such as EEG, pupillometry, or fMRI to offer objective insights into how accommodative speech is processed and whether it facilitates or hinders comprehension. Future research should integrate biophysiological measures to capture real-time language processing and validate subjective self-reports or behavioral outcomes.

Moving forward, we recommend combining discourse analysis with controlled experimental designs that can generalize findings across settings and populations. Stimuli should be diversified to reflect real-world conversational contexts, while maintaining standardization to enable comparability across studies. Referential communication tasks, for example, can be adapted with greater ecological validity by incorporating multimodal cues and naturalistic conversation flows. Moreover, studies should expand beyond caregiving contexts to explore accommodation in broader intergenerational interactions, such as workplace or community settings.

4.3 Accommodation feature analysis

A combination of communication features that improve comprehension could form the basis of effective intergenerational accommodation. However, it is difficult to

JLAR 3 (2025)
10.15460/jlar.2025.3.1.1509

ground this approach in the extant literature, where findings appear contradictory. In some studies, certain features of intergenerational accommodation worsened comprehension performance. Acoustically, older adults struggled with high-pitched speech (Kemper and Harden 1999) and loud speech (Ryan, Bourhis, and Knops 1991). High-pitched speech may impair comprehension because of high-frequency hearing loss in older adults (Aydelott, Leech, and Crinion 2010) and its similarity to baby talk (Ryan, Bourhis, and Knops 1991). Ageism interacted with the efficacy of accommodation, hindering memory performance, raising communicative problems, and lowering self-reported competence (Gould, Saum, and Belter 2002; Hehman and Bugental 2015; Wylie, Brank, and Bornstein 2015; Kemper et al. 1995; Kemper et al. 1996). Changes in speech rate also impact comprehension. Fast speech rates can be difficult to process (Schmitt and Carroll 1985), and slow speech, a core feature of elderspeak (Schroyen et al. 2018), can tax working memory rather than support it (McGuire et al. 2000). Additional findings in healthy adults and children reveal patterns of worse or atypical performance at sentence comprehension tasks with slowed speech input (Love et al. 2008; Callahan, Walenski, and Love 2012).

Other research suggests that accommodation can support comprehension. For instance, syntactic simplification and semantic elaboration with repetition improved comprehension among older adults; however, when both adjustments were used together, it did not improve (Kemper and Harden 1999). Clear speech improved speech perception difficulties (Van Engen 2017; Krause and Panagiotopoulos 2019). Older adults paid more attention to accommodation, improving comprehension (Gould and Dixon 1997; Kemper, Othick, et al. 1998; McGuire et al. 2000). Some research indicates that older adults reported increased confidence in their decision-making abilities (Scott and Caughlin 2015), and Certified Nursing Assistants rated accommodation vital to promoting cooperation, comprehension, and managing stress levels (Grimme, Buchanan, and Afflerbach 2015). Where accommodation created positive rapport, it also enhanced memory performance among older adults (Gould, Saum, and Belter 2002). The degree to which accommodation is helpful also seems to depend on individual cognitive differences like working memory (Williams 2006).

Together, these findings paint a complicated picture of the aspects of intergenerational accommodation that could benefit aging listeners. Effective intergenerational accommodation requires a balanced approach that moderates adjustments to speech rate, pitch, and complexity, avoiding extremes that risk patronization or cognitive overload. Strategies like clear speech, syntactic simplification, semantic repetition, and fostering positive rapport can enhance comprehension, but their success depends heavily on individual cognitive and sensory profiles and the specific communicative context. More studies are needed to explore online, dynamic methods such as neuroscience and eye-tracking techniques to explore real-time interactions and uncover the mechanisms driving successful accommodation.

4.3.1 Diverse languages

A significant portion of studies tested the use of accommodation in participants with diverse language backgrounds and found similar patterns (see Shaw and Gordon 2021, etc.). Results suggest that the features of intergenerational accommodation are recognizable and measurable across many different languages, although it is likely that culture influences how older adults perceive accommodation (Shaw and Gordon

2021). Research suggests that culture influences aging stereotypes, respect towards elders, and communication norms that shape the perception of accommodation. For instance, when young people avoid contact with older adults in the US, Ghana, South Africa, and India, all interactants experience low communication satisfaction, but positive stereotypes improve satisfaction for younger adults (Giles, Makoni, and Dailey 2006; Giles et al. 2007). Filial piety, an ethical principle of love for ancestors, could explain higher politeness, positive aging stereotypes, deference towards elders, and avoidance in Mongolia and China (Choi et al. 2013; McCann et al. 2003; McCann et al. 2004). Accommodation is intertwined with age-related stereotypes and social norms of politeness regardless of language and culture. Conversations with elders across various languages and cultures reflect a struggle to balance respect and care, highlighting the social distance created by age gaps. To build up to dependable hypotheses about how language background may predict accommodation outcomes, studies conducted in English ought to gather participants' language profiles at the time of testing.

4.4 Clinical outcomes

Our review collected information from clinical research to explore how people who receive medical care respond to intergenerational accommodation, since they are especially vulnerable to ageist systems. This research is frequently set in healthcare environments such as nursing facilities and hospitals (e. g., Greene et al. 1986; Park and Song 2005; Lee and Lee 2021). The earliest study in this review centered on nursing home residents, finding that patronizing accommodation encourages dependency among older adults (Caporael 1981). Since then, studies have consistently identified the power imbalance inherent to institutional care settings (Ashburn and Gordon 1981; Shaw et al. 2022). Older adults with dementia may exhibit resistiveness to care (RTC) through noncooperation or aggressiveness towards caregivers, which was addressed by 12 clinical studies in our review. Seven discourse studies observed how older adults responded to clinical intergenerational accommodation and its power dynamics (Chye and David 2006; Clarke et al. 2014; Grainger 1993; Grimme, Buchanan, and Afflerbach 2015; Salari 2005; Samuelsson, Adolfsson, and Persson 2013; Savundranayagam 2014; Yazdanpanah et al. 2019), and the remaining five employed the Resistiveness to Care Scale to identify RTC behavior (Cunningham and Williams 2007; Herman and Williams 2009; Williams et al. 2009; Williams, Perkhounkova, et al. 2017; Williams and Herman 2011; for the RTC scale, see Mahoney et al. 1999). Importantly, ageist and patronizing intergenerational accommodation has been linked to more frequent RTC and other negative consequences for patients, such as isolation, decline, and patient avoidance of social contact (Chye and David 2006; Cunningham and Williams 2007; Clarke et al. 2014). The negative clinical effects of ageist accommodation are serious: it can discourage older patients from seeking help with chronic pain (Clarke et al. 2014); it can activate the nervous system into a fight-or-flight response (Salari 2005); it leads older adults to internalize a sense of helplessness (Chye and David 2006); and it often precedes RTC events (Cunningham and Williams 2007; Herman and Williams 2009; see Samuelsson, Adolfsson, and Persson 2013 for evidence against). Crucially, recent studies suggest that person-centered care, in which clinicians use language that recognizes their patients' individuality, builds rapport with older adults (Williams et al. 2018),

JLAR 3 (2025)
10.15460/jlar.2025.3.1.1509

may reduce RTC behavior (Savundranayagam 2014), and maintains patient autonomy (Savundranayagam and Moore-Nielsen 2015). Treating older adults as active participants in conversation encourages openness, particularly about chronic pain (Clarke et al. 2014). Positive intergenerational contact has clinical ramifications; observers rated older adults who received person-centered care more competent and satisfied (Savundranayagam et al. 2007). Various studies in this review advocate for healthcare personnel to use person-centered language (Cockrell 2020; Grimme, Buchanan, and Afflerbach 2015; Shaw et al. 2022; Williams et al. 2018). To emphasize dignity and adult status in long-term care, nurses should seek opportunities to emphasize the individuality of their patients and offer older adults' freedom of choice (Woolhead et al. 2006). Our review concludes that aging adults resist care more often when care providers use ageist intergenerational accommodation (see recommendations below). Future research should consider how the online language processing methods we have previously identified could clarify RTC behavior further.

4.5 Recommendations for future studies

Taken together, the studies reviewed here suggest that for intergenerational accommodation to enhance communication, it should be individualized. Accommodation has the potential to support older adults when adjustments match needs.

Table 6: Recommendations for standardized communication study with older adults

Measure	**Method**
Background	
Age Gender Education level Race and ethnicity	Demographic report
Individual Differences	
Neurological health	Self-report Alzheimer's, Parkinson's, Huntington's, or other neurodegeneration
Cognitive ability	Screen for Dementia: Functional Assessment Staging Tool (Hartmaier et al. 1994)
Hearing ability	Screen for normal range: Puretone thresholds (250–8 000 Hz)
Physical health	Cumulative Illness Rating Scale-Geriatric (CIRS-G) (Salvi et al. 2008)
Mental health	Geriatric Depression Scale (Greenberg 2007), State-Trait Anxiety Inventory (Spielberger, Gorsuch, and Lushene 1970), Rosenberg's Self-Esteem Scale (Rosenberg 1979)
Personality	Ten Item Personality Inventory (TIPI) (Chiorri et al. 2015)
Language behavior	Language in Adulthood Questionnaire (LIA) (E. Ryan et al. 1992)

Participant criteria should be measured with consistent methodology, and experimental research should expand its toolbox to identify sensitive versus ageist accommodation. Table 6 provides methods to record older participant profiles with tips for gathering individual difference data. This information would help identify variables that contribute to complex patterns of language processing. Communication Accommodation Theory could grow to model how these variables come together when an older adult perceives accommodation. Ultimately, by fine-tuning our understanding of how individual differences relate to accommodation, we could support the development of targeted communication strategies and model the effects of intergenerational accommodation with greater nuance.

Future research should incorporate objective biophysiological methods to test whether aging predicts accommodation outcomes. For instance, following Hehman and Bugental (2015), researchers could measure stress in dyad interlocutors pre- and post-interaction using cortisol. Similarly, objective measures of cognitive load and stress such as heart rate variability (HRV), pupil dilation, or skin conductance could reveal age-related changes to online accommodation (Ayres et al. 2021; Larmuseau et al. 2020). Electrophysiology, especially brainwave synchronization during interactions, remains unexplored in intergenerational accommodation research but demonstrates engagement or withdrawal in other accommodation experiments (Dikker et al. 2017). EEG testing would contribute to developing theory for entrainment in conversation, when oscillations in the brain's cortex align to the speech envelope during naturalistic speech perception (Alexandrou et al. 2020). Future studies can draw on dynamic attending theory (Jones 2019) to make hypotheses and interpret findings in this novel direction.

Dynamic Attending Theory (DAT) provides a compelling framework for further understanding how temporal attention supports the synchronization of perceptual and cognitive processes with rhythmic speech. In cross-generational communication, DAT can help to explain how older adults may face challenges in aligning with the timing of speech signals due to age-related changes in auditory and cognitive processing. Cortical tracking, a method that uses EEG to measure how well neural oscillations in the auditory cortex align with the speech envelope, offers a precise tool for investigating temporal synchronization. By examining differences in cortical tracking between younger and older adults, researchers can uncover the neural mechanisms underlying speech comprehension and identify strategies to enhance alignment in cross-generational interactions. This approach directly connects neural responses to speech dynamics, offering valuable insights into how rhythmic accommodation can better meet the needs of older adults.

While these theories offer valuable perspectives, incorporating them into empirical research requires careful control of potential confounding factors. Cognitive decline, hearing loss, and reduced attentional resources in older adults may impact temporal synchronization and mutual adaptation, complicating interpretations of neural and behavioral alignment. Additionally, environmental noise or variability in speech rate and prosody could obscure the effects of accommodation strategies. Future studies must address these challenges through rigorous experimental design, ensuring robust insights into how DAT informs effective communication across generations.

Studies based in CAT notably lack reference to age-related cognitive decline; to model interactions with attention to cognitive changes, it will be necessary to examine how social predictions in CAT interact with patterns of aging in the brain. One age-

related processing change is neural compensation, when the aging brain recruits new or additional cortical areas to perform at previous levels (McDonough, Nolin, and Visscher 2022). Compensation contributes to cognitive reserve, a construct that explains age-related differences in processing (Kemper and Lacal 2004; Pettigrew and Soldan 2019). An older adult's individual neural compensation pattern is a positive strategy that could be linked to better communicative performance. While such a connection may be speculative, attention to cognition in future studies will at the very least provide a new avenue to evaluate truly helpful accommodation.

5 Conclusion

This scoping review of intergenerational accommodation revealed trends in sampling participants, study designs and stimuli, assessment methods, and outcomes. The findings presented here acknowledge the impressive history of research on the linguistic, acoustic, and discourse features of intergenerational accommodation. Intergenerational accommodation has been studied using discourse analysis, rating tasks, and dyad and referential communication tasks, but it has not utilized tools for online language processing. The accommodation data has been largely made up of observational fieldwork, vignettes, recorded stimuli, and map tasks. The evidence to date suggests that accommodation outcomes depend on the individual profile of older adults, and our review highlights the need for more studies to uncover and predict these subtleties with an emphasis on cognitive theory. Future work should evaluate how intergenerational accommodation is perceived by older adults based on complex factors such as language background, neurocognitive health, functional ability, and personality. When we understand how to create individualized communication strategies, we contribute to work that seeks to treat older adults in the way they want to be treated.

Ethics statement

This study was a scoping review of research on intergenerational accommodation over the last 60 years. There are no implications on academic freedom due to author involvement.

Because this study does not involve human subjects, it was not reviewed by the IRB. The study protocol was published on Open Science Framework in 2022 before any data analysis occurred with Baker, Reis, and Rothermich 2022.

Data for the study is stored in password-protected online filing system through East Carolina University.

Conflict of interest

The authors have no conflict of interest to declare.

JLAR 3 (2025)
10.15460/jlar.2025.3.1.1509

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JLAR 3 (2025)
10.15460/jlar.2025.3.1.1509

6 Appendix

Table 7: Full list of studies included in the review

Author(s)	**Design**	**Stimulus**
Shaw et al. 2022	Discourse analysis	Field study
Lee and Lee 2021	Survey	None
Schnabel et al. 2020	Third-party rating task	Field study
Flamion et al. 2020	Referential task	Vignette
Cockrell 2020	Discourse analysis	Field study
Yazdanpanah et al. 2019	Discourse analysis	Field study
Chen 2019	Discourse analysis	Field study
Krause and Panagiotopoulos 2019	Listening task	Recorded stimuli
Williams et al. 2018	Discourse analysis	Field study
Schroyen et al. 2018	Referential task	Vignette
Williams, Perkhounkova, et al. 2017	Discourse analysis	Field study
Atkinson and Sloan 2017	Third-party rating task	Vignette
Corwin 2018	Discourse analysis	Field study
Chen et al. 2017	Survey	Vignette
Williams, Shaw, et al. 2017	Discourse analysis	Field study
Van Engen 2017	Listening task	Recorded stimuli
Keaton, McCann, and Giles 2017	Survey	None
Jansson 2016	Discourse analysis	Field study
Cavallaro et al. 2016	Discourse analysis	Field study
Scott and Caughlin 2015	Dyad	Discussion cards
Savundranayagam and Moore-Nielsen 2015	Discourse analysis	Field study
Österholm and Samuelsson 2015	Discourse analysis	Field study
Wylie, Brank, and Bornstein 2015	Referential task	Recorded stimuli
Alden and Toth-Cohen 2015	Third-party rating task	Vignette
Hehman and Bugental 2015	Referential task	Recorded stimuli
Grimme, Buchanan, and Afflerbach 2015	Discourse analysis	Field study
Savundranayagam 2014	Discourse analysis	Field study
Plejert, Jansson, and Yazdanpanah 2014	Discourse analysis	Field study
Marsden and Holmes 2014	Discourse analysis	Field study
Clarke et al. 2014	Discourse analysis	Field study
Lombardi et al. 2014	Survey	Recorded stimuli
Choi et al. 2013	Survey	None
Samuelsson, Adolfsson, and Persson 2013	Discourse analysis	Field study
Fowler and Soliz 2013	Survey	None

JLAR 3 (2025)
10.15460/jlar.2025.3.1.1509

Author(s)	**Design**	**Stimulus**
Lagacé et al. 2012	Discourse analysis	Field study
Hehman, Corpuz, and Bugental 2012	Referential task	Map
Williams and Herman 2011	Discourse analysis	Field study
Giles et al. 2010	Survey	None
Backhaus 2009	Discourse analysis	Field study
Williams et al. 2009	Discourse analysis	Field study
Herman and Williams 2009	Discourse analysis	Field study
Lin, Harwood, and Hummert 2008	Third-party rating task	Vignette
Giles, Bouchard Ryan, and Anas 2008	Survey	None
Savundranayagam et al. 2007	Third-party rating task	Vignette
Giles et al. 2007	Survey	None
Cunningham and Williams 2007	Discourse analysis	Field study
Carpiac-Claver and Levy-Storms 2007	Discourse analysis	Field study
Ryan, Anas, and Gruneir 2006	Third-party rating task	Vignette
Chye and David 2006	Discourse analysis	Field study
Balsis and Carpenter 2006	Third-party rating task	Vignette
Woolhead et al. 2006	Focus group	Prompt
Williams 2006	Discourse analysis	Field study
Melton and Shadden 2005	Referential task	Vignette
Salari 2005	Discourse analysis	Field study
Giles, Makoni, and Dailey 2006	Survey	None
McCann et al. 2004	Survey	None
Park and Song 2005 (2004)	Survey	None
Fagan 2004	Discourse analysis	Field study
O'Connor and St. Pierre 2004	Third-party rating task	Vignette
Giles, Zwang-Weissman, and Hajek 2004	Third-party rating task	Vignette
McCann et al. 2003	Third-party rating task	None
Williams, Kemper, and Hummert 2003	Dyad	Field study
Makoni and Grainger 2002	Discourse analysis	Field study
Masataka 2002	Dyad	Picture book
Gould, Saum, and Belter 2002	Memory task	Recorded stimuli
Giles, Ballard, and McCann 2002	Survey	None
Williams and Garrett 2002	Survey	None
Hummert and Mazloff 2001	Discourse analysis	Recorded stimuli
Salari and Rich 2001	Discourse analysis	Field study
Zhang and Hummert 2001	Discourse analysis	None
Giles et al. 2001	Survey	None
Harwood 2000	Survey	None
McGuire et al. 2000	Memory task	Recorded stimuli
La Tourette and Meeks 2000	Third-party rating task	Recorded stimuli
E. B. Ryan et al. 2000	Third-party rating task	Vignette

Author(s)	**Design**	**Stimulus**
Kemper and Harden 1999	Dyad	Map
Sachweh 1998	Discourse analysis	Field study
Kemper, Othick, et al. 1998	Dyad	Map
Kemper, Finter-Urczyk, et al. 1998	Dyad	Map
Kemper, Ferrell, et al. 1998	Referential task	Map
Thimm, Rademacher, and Kruse 1998	Referential task	Vignette
Hummert et al. 1998	Survey	Vignette
Edwards and Noller 1998	Third-party rating task	Recorded stimuli
Cai, Giles, and Noels 1998	Survey	None
Ytsma and Giles 1997	Third-party rating task	Vignette
Harwood et al. 1997	Third-party rating task	Vignette
Gould and Dixon 1997	Third-party rating task	Vignette
Whitmer and Krauss Whitbourne 1997	Third-party rating task	Vignette
Kemper et al. 1996	Dyad	Map
Harwood and Giles 1996	Third-party rating task	Vignette
O'Connor and Rigby 1996	Third-party rating task	Vignette
Kemper et al. 1995	Dyad	Map
Whitbourne, Culgin, and Cassidy 1995	Third-party rating task	Vignette
Ryan, Meredith, and Shantz 1994	Third-party rating task	Vignette
Kemper 1994	Discourse analysis	Field study
Hummert and Shaner 1994	Discourse analysis	Vignette
Ryan, Hamilton, and See 1994	Third-party rating task	Vignette
Ryan, Maclean, and Orange 1994	Third-party rating task	Recorded stimuli
Harwood et al. 1993	Third-party rating task	Vignette
Grainger 1993	Discourse analysis	Field study
Giles, Fox, and Smith 1993	Third-party rating task	Vignette
Edwards and Noller 1993	Third-party rating task	Recorded stimuli
Montepare, Steinberg, and Rosenberg 1992	Dyad	Collage
Ryan, Bourhis, and Knops 1991	Third-party rating task	Vignette
Ryan and Cole 1990	Survey	None
Gibb and O'Brien 1990	Discourse analysis	Field study
Cohen and Faulkner 1986	Listening task	Recorded stimuli
Caporael and Culbertson 1986	Discourse analysis	Field study
Greene et al. 1986	Discourse analysis	Field study
Schmitt and Carroll 1985	Listening task	Recorded stimuli
Culbertson and Caporael 1983	Discourse analysis	Field study
Caporael, Lukaszewski, and Culbertson 1983	Third-party rating task	Field study
Ashburn and Gordon 1981	Third-party rating task	Field study
Caporael 1981	Third-party rating task	Field study