

AGE-RELATED VARIATION IN SPEECH ARTICULATION: A PHONETIC AND PHONOLOGICAL ANALYSIS OF YOUNG AND OLDER NIGERIAN ENGLISH SPEAKERS

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Abstract

This study investigates age-related variations in speech articulation among Nigerian English speakers. It compares young adults (18–35 years) and older adults (65 years and above) to examine how physiological and cognitive changes associated with aging affect articulatory precision, fluency, and segmental production. Drawing on Speech Motor Control Theory and Cognitive Load Theory, the study distinguishes normal age-related phonetic changes from potential pathological conditions within the Nigerian English context. The research adopted a mixed-methods approach. Although 60 participants (30 young adults and 30 older adults) were initially recruited in the Onitsha urban area, complete data were obtained from and analysed for 28 participants, comprising 10 young adults and 18 older adults. Data were collected through structured questionnaires, semi-structured interviews, observations, and a controlled speech corpus. The corpus included diadochokinetic tasks, the reading of a standardized passage, and spontaneous speech. Recordings were analysed using phonetic transcription and Praat software for acoustic measurements. The findings revealed noticeable differences between the two age groups. Older speakers produced more consonant substitutions and omissions, vowel reductions, temporal disfluencies, longer pauses, and reduced vocal intensity. In many cases, these patterns were associated with hearing loss and dental challenges. Younger speakers, on the other hand, exhibited greater articulatory stability and smoother fluency during speech production. The study argues for context-sensitive speech intervention strategies that reflect the realities of Nigerian English rather than relying entirely on foreign speech models.

Keywords: Age-related variation, speech articulation, Nigerian English, phonetics and phonology, articulatory precision, speech motor control.

Introduction

Speech articulation plays a vital role in everyday communication. As people age, noticeable changes often appear in how they speak. These changes are shaped by shifts in muscle strength, breathing support, hearing ability, and mental processing (Ramig & Ringel, 1983). In Nigeria, where English is used as a second language alongside indigenous languages, it is important to understand how these age-related differences affect communication.

This study compares speech articulation between young adults aged 18–35 years and older adults aged 65 years and above. Although the research initially recruited 60 participants (30 in each age group) from the Onitsha urban area, complete data were eventually obtained from 10 young adults and 18 older adults. Despite the modest final sample, the study provides useful insights into how physiological and cognitive changes associated with aging influence articulatory precision, fluency, and segmental production in Nigerian English speakers.

As individuals grow older, they often experience reduced articulatory precision, slower speech rate, more frequent pauses, and reduced vocal strength. These patterns usually arise from weaker respiratory and articulatory muscles, changes in the vocal folds, dental issues, and slower cognitive processing for word retrieval and motor planning (Burke & Shafto, 2008; Tremblay et al., 2018). In a multilingual environment like Nigeria, such changes can sometimes create difficulties when moving between English and local languages, leading to occasional misunderstandings or reduced participation in social conversations.

The present study examines age-related variations in speech articulation among Nigerian English speakers in the Onitsha urban area. Data were gathered through questionnaires, interviews, observations, and a controlled speech corpus. Recordings were analysed using phonetic transcription and Praat software. The findings reveal noticeable differences between the two age groups. While younger speakers showed greater articulatory stability and smoother fluency, older speakers produced more consonant substitutions and omissions, vowel reduction, temporal disfluencies, longer pauses, and reduced vocal intensity. Many of these patterns appear linked to common issues such as hearing loss and dental challenges (Harnsberger et al., 2008; Baese-Berk & Morrill, 2015).

This research draws on Speech Motor Control Theory and Cognitive Load Theory to help distinguish normal age-related phonetic changes from potential pathological conditions within the Nigerian English context. By documenting these patterns, the study contributes to a more culturally grounded understanding of speech and aging. It also offers

practical insights for speech therapy, caregiver support, and policy interventions that reflect the realities of Nigerian English speakers rather than relying solely on foreign models. Above all, the study affirms that while speech may change with age, the wisdom and experience of older speakers remain valuable to our communities.

Literature Review

Speech articulation, the precise coordination of the tongue, lips, jaw, and vocal folds to produce clear sounds, naturally changes as people grow older. These changes are driven by physiological, neurological, and cognitive factors that affect muscle strength, motor coordination, breath support, and processing speed. In multilingual settings like Nigeria, where speakers frequently move between English and indigenous languages, such age-related shifts can be more noticeable and may influence everyday communication, social participation, and access to services.

Several studies have consistently show that older adults tend to speak more slowly, with longer pauses, reduced vocal intensity, and less precise consonant production compared to younger speakers (Ramig & Ringel, 1983; Harnsberger et al., 2008). Common difficulties include substitutions or omissions of final consonants, weaker voice quality, and increased breathiness or tremor (Burke & Shafto, 2008; Tremblay et al., 2018). These patterns are as a result of reduced muscle tone in the articulatory system, decreased lung capacity and respiratory control, thinning of the vocal folds, and slower cognitive processing for word retrieval and motor planning (Ramig & Ringel, 1983; Baese-Berk & Morrill, 2015; Burke & Shafto, 2008). While younger adults (18–35) typically demonstrate fluent, stable articulation and high intelligibility, older adults (65+) often show greater variability, especially in noisy environments or during longer utterances.

Empirical research supports these observations. Ramig and Ringel (1983) documented key acoustic changes with aging, including lowered pitch in men, increased pitch variability in women, reduced vocal intensity, and greater instability in voice quality. Later work by Harnsberger et al. (2008) confirmed slower speech rates, prolonged vowels, reduced consonant precision, and weaker vowel formant transitions in older speakers. These changes were linked to neuromuscular decline and reduced sensorimotor feedback. More recent studies, such as Tremblay et al. (2018), further highlight difficulties in fine motor timing and articulatory accuracy, while Baese-Berk and Morrill (2015) and Burke and Shafto (2008) emphasize the combined effects of hearing loss, cognitive slowing, and muscle weakening on overall intelligibility and fluency.

In Nigerian, these universal patterns reflects everyday realities such as dental health challenges, untreated hearing loss, and limited access to speech therapy. The present study therefore builds on this body of work by examining how these processes manifest specifically in Nigerian English speakers, using both perceptual and acoustic measures to separate normal aging effects from potential clinical concerns.

Theoretical Framework

This study is grounded primarily in Speech Motor Control Theory and Cognitive Load Theory.

Speech Motor Control Theory (Kent & Rosen, 2004; Smith & Zelaznik, 2004) views speech production as a dynamic, feedback-driven process involving constant interaction between the brain's motor planning areas, sensory input, and the physical articulatory system. With advancing age, neuromuscular precision declines, feedback loops become less efficient, and fine motor adjustments for consonants and rapid transitions become more effortful. This framework helps explain the increased articulatory variability, slower rates, and segmental imprecision observed in older Nigerian English speakers.

Complementing this is Cognitive Load Theory (Kahneman, 1973; Kemper et al., 2001), which focuses on the limited mental resources available for speech production. As people age, working memory and processing speed decrease, making it harder to simultaneously plan sentences, retrieve words, and execute precise articulatory movements. This increased cognitive demand often results in more frequent pauses, hesitations, fillers, and simplified structures, patterns clearly visible when comparing young and older participants in this study.

Together, these two theories provide a balanced framework: while Speech Motor Control Theory accounts for the physiological and motor aspects of articulation, Cognitive Load Theory explains the mental effort and resource limitations that influence fluency and planning. This combination guides the interpretation of the findings and the development of practical, context-sensitive recommendations for Nigerian older adults.

Methodology

This study employed a mixed-methods research design integrating quantitative and qualitative approaches to provide a comprehensive analysis of age-related variations in speech articulation among Nigerian English speakers. The design combines controlled speech elicitation tasks and acoustic-phonetic analysis (for objective

measurement) with semi-structured interviews and questionnaires (for subjective perceptions and contextual insights). This approach aligns with Speech Motor Control Theory and the Lifespan Approach to Speech Production, enabling both phonetic/phonological precision and socio-linguistic interpretation. The study distinguishes normal age-related changes from potential pathological indicators in the Nigerian English variety.

Pilot Study

A pilot study was conducted with 12 participants (6 young adults aged 18–35 and 6 older adults aged 65+) drawn from a similar urban community in Onitsha, Ebonyi State, prior to the main study. The pilot tested the clarity, cultural appropriateness, and duration of instruments, feasibility of speech recording protocols, and suitability of elicitation tasks. Minor revisions were made to questionnaire items and recording instructions based on feedback (e.g., simplifying some prompts and adjusting recording duration). The pilot also confirmed the reliability of recording equipment and analysis procedures. Cronbach's alpha for the questionnaire scales in the pilot was 0.82, indicating acceptable internal consistency.

Participants

The target population comprised Nigerian English speakers in urban southeastern Nigeria. Using purposive and stratified sampling, the study initially recruited 60 participants (30 young adults aged 18–35 years and 30 older adults aged 65+ years). However, due to non-response and incomplete data, the final analysed sample consisted of 10 young adults and 18 older adults (overall response rate = 46.7%).

Participants were drawn from community centres, geriatric facilities, universities, and professional networks in Onitsha and environs. Inclusion criteria included being native or highly proficient Nigerian English speakers with at least primary education, no severe cognitive impairment, and willingness to participate. Exclusion criteria included acute neurological events or severe uncorrected sensory impairments. Demographic characteristics of the final sample are presented in Tables 1–4.

Data Collection Instruments

Speech Corpus Development

A controlled speech corpus was developed consisting of approximately 5–7 minutes of elicited speech per participant. Tasks included:

Diadochokinetic (DDK) tasks: Participants were asked to repeat the syllable sequence /pa-ta-ka/ as rapidly and accurately as possible for 10–15 seconds. This task assessed articulatory speed, coordination, and motor precision.

Reading of a standardised passage: Participants read the following adapted Nigerian English version of "The North Wind and the Sun":

The North Wind and the Sun

One day, the North Wind and the Sun were arguing about which of them was stronger. While they were talking, a traveller came along the road wearing a thick warm wrapper. They agreed that the one who could make the traveller remove his wrapper first would be considered the stronger.

The North Wind began first. He blew as hard as he could with great force. But the harder he blew, the more tightly the traveller held his wrapper around his body. The North Wind blew stronger and stronger, yet the traveller refused to let go of his wrapper.

Then it was the Sun's turn. He shone gently at first, spreading his warm rays across the land. The traveller soon began to feel the heat. He loosened his wrapper a little. The Sun continued to shine brighter and warmer. Before long, the traveller removed his wrapper completely and wiped the sweat from his face.

In this way, the Sun showed that gentleness and warmth can achieve more than force and strength.

Spontaneous speech: Picture description and narrative retelling of familiar cultural stories or proverbs.

Sentence repetition: Containing key Nigerian English phonemes and consonant clusters.

Recordings were made in a quiet room using high-quality digital audio recorders at 44.1 kHz sampling rate with head-mounted microphones.

Structured Questionnaire

A 25-item questionnaire (with Likert-scale and open-ended sections) assessed self-perceived speech changes, frequency of specific articulation difficulties, and contextual factors. Sample items include ratings of difficulty in pronouncing words clearly, confidence in being understood in noisy environments, and open responses on changes noticed in speech over time. Semi-Structured Interview Guide

Interviews (15–25 minutes) explored personal experiences. Questions focused on changes in pronunciation of certain sounds (e.g., "th", "sh", final consonants), situations where speech is less understood, and perceived health or lifestyle influences on speech.

Perceptual and Acoustic Analysis Tools

Recordings were analysed using Praat software for segmental accuracy (consonant precision, vowel formants,

substitutions, omissions, insertions), temporal measures (speech rate, pause duration/frequency), and suprasegmental features (fundamental frequency variability, intensity). Perceptual ratings were carried out by three trained linguists/speech-language pathologists using a standardized intelligibility scale, with inter-rater reliability established ($ICC > 0.85$).

Procedure

Data collection occurred in three phases over eight weeks: questionnaire administration, individual speech recording sessions (standardized order of tasks), and follow-up interviews. All sessions were audio-recorded with consent. Health screening (hearing, dental status, basic neurological) was conducted or self-reported with verification where possible.

Reliability and Validity

Instrument reliability for the questionnaire in the main study was Cronbach's $\alpha = 0.87$, with test-retest reliability ($n = 10$) yielding $r = 0.81$. Acoustic reliability was ensured through standardized Praat scripts and inter-rater checks for manual annotations. Validity was established through expert review by linguists and speech therapists, while triangulation across questionnaire, interview, perceptual, and acoustic data strengthened construct validity.

Data Analysis

Quantitative data (questionnaire scores, acoustic measurements, error frequencies) were analyzed using SPSS: descriptive statistics, independent t-tests/Mann-Whitney U tests for age-group comparisons, and correlation analyses (e.g., age vs. pause duration). Effect sizes (Cohen's d) were reported.

Qualitative data from interviews and open-ended responses underwent thematic analysis (Braun & Clarke, 2006) using NVivo, with themes validated through member checking where feasible. Phonological patterns were categorized (e.g., consonant cluster reduction, voicing errors, vowel centralization) and quantified. Integrated findings provide a holistic view of articulatory precision, fluency, and intelligibility in Nigerian English.

DDK tasks were analysed for syllable rate, accuracy, and regularity, while reading and spontaneous speech samples were subjected to detailed phonetic transcription and acoustic measurements

Ethical Considerations

The study adhered to the Declaration of Helsinki. Measures ensured confidentiality, voluntary participation, right to withdraw, and cultural sensitivity. Data are stored securely for five years..

Data Presentation, Analysis and Discussion

The data collected through questionnaires, interviews, speech observations, and the controlled speech corpus revealed clear age-related differences in speech articulation between young and older Nigerian English speakers. Although the study initially recruited 60 participants (30 young adults aged 18–35 years and 30 older adults aged 65+ years), complete responses and usable recordings were obtained from only 10 young adults and 18 older adults (overall response rate of 46.7%). Despite the reduced final sample size, the convergence of self-reported, perceptual, phonetic, and acoustic data provides valuable insights into age-related variations in articulatory precision, fluency, and intelligibility.

To deepen understanding, selected recordings from the speech corpus of the 28 participants who provided complete data were analysed phonetically and acoustically using Praat software. This multi-method approach highlights not only what participants reported and observers noticed, but also the specific segmental and suprasegmental differences between the two age groups.

Demographic Characteristics of Participants

Table 1: Age Distribution

Age Group	Frequency	Percentage (%)
18–25	7	23.3
26–35	8	26.7
65–74	9	30.0
75+	6	20.0
Total	30	100

Table 2: Gender Distribution

Gender	Frequency	Percentage (%)
Male	16	53.3
Female	14	46.7
Total	30	100

Table 3: Educational Level of Participants

Educational Level	Frequency	Percentage (%)
Primary	8	26.7
Secondary	12	40.0
Tertiary	10	33.3
Total	30	100

Table 4: Health-Related Issues of Participants

Health Condition	Frequency	Percentage (%)
Hearing loss	7	23.3
Dental issues (e.g., dentures)	6	20.0
Neurological conditions (e.g., mild stroke, Parkinson's)	4	13.3
None reported	13	43.4
Total	30	100

Speech Articulation Patterns in Young Adults (18–35)

Table 5: Clarity of Articulation (Young Adults, n=10)

Response Category	Frequency	Percentage (%)
Very clear articulation	6	60.0
Clear articulation	3	30.0
Slightly unclear	1	10.0
Poor articulation	0	0.0
Total	10	100

Table 6: Speech Rate (Young Adults, n=10)

Speech Rate	Frequency	Percentage (%)
Fast but smooth	5	50.0
Moderate and steady	4	40.0
Slow/hesitant	1	10.0
Total	10	100

Table 7: Pauses and Hesitations (Young Adults, n=10)

Pauses/Hesitations Frequency	Frequency	Percentage (%)
Rare	7	70.0
Occasional	2	20.0
Frequent	1	10.0
Total	10	100

Table 8: Level of Intelligibility (Young Adults, n=30)

Level of Intelligibility	Frequency	Percentage (%)
Very High	5	50.0
High	4	40.0
Moderate	1	10.0
Low	0	0.0
Total	10	100

Table 9: Common Errors (Young Adults, n=30)

Type of Error	Frequency	Percentage (%)
Mispronunciations (slips of the tongue)	3	30.0
Use of fillers (“uhm,” “like”)	4	40.0
Slurring words together	2	20.0
No noticeable error	1	10.0
Total	10	100

Younger speakers generally showed strong control over their speech. Most spoke clearly and at a comfortable pace, with few interruptions. Their speech was easy to follow, and any mistakes were usually minor slips that happen to anyone when they are tired or speaking quickly

Speech Articulation Patterns in Older Adults (65+)

Table 10: Clarity of Articulation (Older Adults, n=18)

Response Category	Frequency	Percentage (%)
Very clear articulation	3	16.7
Clear articulation	5	27.8
Slightly unclear	6	33.3
Poor articulation	4	22.2
Total	18	100

Table 11: Speech Rate (Older Adults, n=18)

Speech Rate	Frequency	Percentage (%)
Fast but smooth	1	5.6
Moderate and steady	4	22.2
Slow/hesitant	13	72.2
Total	18	100

Table 12: Pauses and Hesitations (Older Adults, n=18)

Pauses/Hesitations Frequency	Frequency	Percentage (%)
Rare	2	11.1
Occasional	5	27.8
Frequent	11	61.1
Total	18	100

Table 13: Level of Intelligibility (Older Adults, n=18)

Level of Intelligibility	Frequency	Percentage (%)
Very High	2	11.1
High	4	22.2
Moderate	7	38.9
Low	5	27.8
Total	18	100

Table 14: Common Errors (Older Adults, n=18)

Type of Error	Frequency	Percentage (%)
Substitution (e.g., /t/ for /d/)	6	33.3
Omission of final consonants	5	27.8
Increased use of fillers (“uhm,” “eh”)	4	22.2
Mispronunciations/slurring	3	16.7
Total	18	100

In contrast, the older adults faced more noticeable challenges. More than half showed some degree of unclear or muffled speech, spoke more slowly, paused frequently, and were sometimes harder to understand. Many substituted or dropped consonants and relied more on fillers when searching for words.

Phonetic and Acoustic Analysis of Speech Samples

Selected recordings from the speech corpus of the 10 young adults and 18 older adults were analysed using phonetic transcription and Praat software. This included analysis of the reading passage, spontaneous speech, and DDK tasks.

Diadochokinetic (DDK) Task

Participants repeated the syllable sequence /pa-ta-ka/ as rapidly as possible.

Young Adult Example (Female, 26 years):

[pa-ta-ka pa-ta-ka pa-ta-ka pa-ta-ka pa-ta-ka pa-ta-ka ...]

Rate: 6.8 syllables per second. Clear distinction between syllables with consistent rhythm.

Older Adult Example (Male, 68 years):

[pa-ta-ka pa-ta-ka pa-ta pa-ka pa-ta-ka pa-ka ...]

Rate: 4.1 syllables per second. Frequent syllable omissions and irregular rhythm. Older Adult Example (Female, 74 years):

[pa-ta pa-ta pa-ka pa-ta ... pa-ta-ka pa-ta ...]

Rate: 3.5 syllables per second. Reduced precision and increased effort.

The DDK task revealed slower rates and greater variability among older speakers, consistent with age-related decline in motor coordination.

Reading Passage Examples

Young Adult Speaker (Male, 28 years) – Clear and fluent production:

[wan dei, di nɔ:θ wind ænd di sʌn we: ɑ:gjuɪŋ əbaʊt wɪtʃ əv dem wɔz strɔŋgə... wail dei we: tɔ:kɪŋ, ə trævələ keɪm əlɔŋ di rɔd we:rɪŋ ə θɪk wɔ:m ræpə...]

Older Adult Speaker (Female, 71 years) – With characteristic features:

[wan dei, di nɔ:t win æn di sʌn we: ɑ:gjuɪŋ əbaʊt wɪtʃ əv dem wɔz strɔŋgə... wail dei we: tɔ:kɪŋ, ə trævələ keɪm əlɔŋ di rɔd we:rɪŋ ə tik wɔ:m ræpə...]

Key observations in older speakers included final consonant omissions (e.g., “wind” → [wɪn], “wrapper” → [ræpə]), substitutions, vowel reduction, slower rate, and longer pauses.

Spontaneous Speech Example (Older Male, 76 years):

[di ol man klaim tɔ rot... i wɔz veri taya... i se di sʌn bi di strɔŋgə pikin...]

These examples from the speech corpus show how substitutions, omissions, and slurring combine to reduce clarity. Dental issues and reduced muscle strength, which many older participants reported, made it harder for them to reach the full contact points needed for precise consonants. Younger speakers rarely showed these patterns except in very fast or casual speech.

Vowel Quality and Reduction

Younger speakers kept clearer distinctions between vowels. Older speakers showed more vowel reduction and centralisation. Words like “because” that younger speakers produced as [bɪ'kɔz] often became [bə'kɔs] or even shorter forms among the elderly.

Acoustic Measurements

Several important acoustic features were measured across the recordings from the speech corpus. The table below summarises the main differences we found:

Acoustic Parameter	Young Adults (18–35)	Older Adults (65+)	Difference
Spch Rt (syll per snd)	4.7	3.2	Slower by 1.5 syl/s
Number of Pauses per Minute	4.5	13.8	Three times more
Average Pause Duration (ms)	310	920	Much longer pauses
Mean Intensity (dB)	69.2	60.8	8.4 dB weaker
Fundamental Frequency Jitter (%)	0.68	1.45	More unstable
Shimmer (%)	3.2	6.8	Increased voice perturbation
Voice Onset Time (VOT) for /t/ (ms)	68	42	Shorter VOT

These measurements were taken from both the reading passage and spontaneous speech tasks. The slower rate and longer pauses in the older group matched what I saw in the observational data and the earlier tables. The drop in intensity and increase in jitter and shimmer also explain the weaker, breathier voices that many older participants had.

When all the findings are put together, the questionnaire responses, direct observations, phonetic transcriptions, and the acoustic measurements, a consistent picture appears. Young adults enjoy stable, fluent articulation that makes communication straightforward. Older adults show the natural effects of aging on muscles, breathing, hearing, and mental processing as is consistent with normal physiological and cognitive changes associated with aging, as explained by Speech Motor Control Theory and Cognitive Load Theory. Many of the consonant weakening and vowel changes are typical of normal aging, though some may overlap with common features of Nigerian English. However, it is important to note that the changes do not reduce the value of what older speakers have to say, instead, they highlight the need for small, practical supports that can help them continue communicating effectively and confidently in their communities. Also, due to the modest sample size, these acoustic results should be interpreted as indicative rather than definitive.

Limitations of the Study

This study has some limitations that should be considered when interpreting the findings. Although 60 participants were initially recruited (30 per age group), only 10 young adults and 18 older adults provided complete responses, resulting in an overall response rate of 46.7%. The particularly low response rate among young adults (33.3%) raises the possibility of non-response bias. It is possible that the young participants who responded were more interested in the topic or had stronger opinions about speech and aging.

Furthermore, the small final sample size (especially n=10 for young adults) limits statistical power and generalizability. Some of the acoustic analyses should therefore be interpreted with caution. Future studies should aim for larger samples and implement strategies to improve response rates, such as follow-up reminders, incentives, or digital data collection methods. Despite these limitations, the convergence of questionnaire, perceptual, phonetic, and acoustic data provides valuable preliminary insights into age-related speech changes in Nigerian English.

Conclusion

This study investigated age-related variations in speech articulation among Nigerian English speakers in the Onitsha urban area by comparing young adults (18–35 years) and older adults (65 years and above). Although

60 participants were initially recruited (30 per group), complete data were obtained from and analysed for 28 participants, comprising 10 young adults and 18 older adults. Despite the modest final sample size and relatively low response rate, the convergence of questionnaire responses, interviews, perceptual judgements, phonetic transcriptions, and acoustic analyses using Praat software revealed consistent and meaningful patterns. Younger speakers generally produced fluent, precise, and intelligible speech, characterized by strong consonant articulation, steady rhythm, and confident delivery. In contrast, older speakers exhibited the natural effects of aging, including more frequent consonant substitutions and omissions, increased vowel reduction, slower speech rates, longer and more frequent pauses, and reduced vocal intensity. These patterns were evident not only in participants' self-reports and observational data, but also in the phonetic transcriptions and acoustic measurements generated with Praat.

The findings align with Speech Motor Control Theory and Cognitive Load Theory. As muscle strength, respiratory support, and processing speed decline with age, the fine coordination required for clear speech becomes increasingly demanding. In the Nigerian context, common conditions such as dental problems and untreated hearing loss may further accentuate these age-related changes. At the same time, certain speech features, particularly some consonant substitutions, appear to reflect both aging processes and long-standing characteristics of Nigerian English. Importantly, these changes do not diminish the communicative or social value of older speakers. In Igbo culture and many Nigerian communities, elders are respected custodians of wisdom, history, and moral guidance. Even when their speech becomes slower or less precise, their words continue to carry authority and meaning. The challenge, therefore, lies not in the changes themselves but in ensuring that communication difficulties do not result in social isolation or frustration. This study provides preliminary but valuable insights into speech production across the lifespan in a multilingual African setting and highlights the need for culturally sensitive approaches to supporting communication among older adults. However, the relatively small sample size and low response rate limit the generalizability of the findings. Further studies involving larger and more representative samples are recommended to strengthen these findings and provide a broader understanding of age-related changes in speech articulation among Nigerian English speakers.

Recommendations

Based on the findings, the following practical steps are suggested to support older Nigerian English speakers:

For Speech Therapy and Healthcare Providers

Develop simple, culturally relevant therapy programmes that focus on articulation exercises, breathing support, and word retrieval. Use familiar materials such as proverbs, local stories, and everyday Igbo-English phrases. Short daily sessions of 15–20 minutes can make a real difference. Health workers should include basic speech screening during routine check-ups for older adults. Speech-language pathologists and community health workers should be trained in context-sensitive intervention strategies that consider both aging effects and features of Nigerian English.

For Families and Caregivers

- Speak clearly and at a moderate pace without shouting.
- Give older speakers enough time to respond.
- Reduce background noise during conversations.
- Encourage storytelling and casual talk rather than finishing their sentences.
- Watch for sudden changes in speech and seek medical help when needed.

For Communities and Policy Makers

Integrate speech and hearing care into existing elderly support programmes. Train community health workers in basic communication support strategies. Public awareness campaigns through churches, markets, and local radio can help families understand that these changes are normal and manageable. There is also a need for more research that builds local speech corpora for Nigerian English and Igbo across different age groups.

In the end, supporting clear communication for older adults is not just about better speech, it is about preserving dignity, maintaining family bonds, and allowing the rich experience of our elders to continue enriching our society. With small, consistent efforts, we can ensure that age does not become a barrier to being heard and valued.

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Appendices

STRUCTURED QUESTIONNAIRE

(25 items – Self-administered)

Section A: Demographic Information

Age: _____ years

Gender: Male Female

Highest level of education: Primary Secondary Tertiary Others (specify) _____

Do you have any of the following? (Tick all that apply)

Hearing difficulty Dental problems/Dentures Neurological condition None

Section B: Self-Perceived Speech Clarity and Changes

(5-point Likert scale: 1 = Strongly Disagree, 5 = Strongly Agree)

I speak English clearly and people understand me easily.

My speech has become less clear as I have grown older.

People sometimes ask me to repeat what I said.

I feel confident speaking English in social gatherings.

My pronunciation of certain English sounds has changed over time.

Section C: Speech Rate and Fluency

I speak at a comfortable speed.

I notice that I speak more slowly now than before.

I often pause or hesitate when trying to find the right words.

I use words like “uhm”, “eh”, or “you know” frequently when speaking.

Section D: Articulation and Sound Production

I find it difficult to pronounce some consonant sounds clearly (e.g., “th”, “sh”, final “t”, “k”, “s”).

I sometimes drop or omit the ending sounds of words.

My voice sounds weaker or softer than it used to.

I have difficulty producing certain vowel sounds clearly.

I experience slurring of words, especially when tired or speaking for a long time.

Section E: Intelligibility and Contextual Factors

People understand me better in quiet places than in noisy environments.

My family and friends find it easy to understand my speech.

Dental problems or hearing challenges affect how well I speak.

I feel embarrassed or frustrated when people do not understand my speech.

Section F: Open-Ended Questions

What changes, if any, have you noticed in your speech as you grew older?

In which situations do you find it most difficult to speak clearly in English?
What things (e.g., exercises, support from family, medical help) do you think would help improve or maintain clear speech for older people?

SEMI-STRUCTURED INTERVIEW GUIDE

(15–25 minutes per session)

Opening Statement:

“Thank you for agreeing to speak with me. We are interested in how people of different ages speak English in our community. There are no right or wrong answers. Feel free to share your honest experiences.”

Core Interview Questions

General Experience

How would you describe your own way of speaking English nowadays?

Changes with Age

2. Have you noticed any changes in the way you speak English compared to when you were younger?

(Probe: pronunciation, speed, voice strength, pauses)

For older participants: Looking back, when did you first notice changes in your speech?

For younger participants: Do you notice any differences when speaking with older people?

Specific Speech Challenges

4. Are there particular English sounds or words that are difficult for you to pronounce clearly? Can you give examples?

Do you sometimes leave out sounds at the end of words (like “t” or “k”)? How often does this happen?

How easy or difficult is it for people to understand you when you speak? In what situations is it easier or harder?

Fluency and Rhythm

7. Do you find yourself pausing or hesitating more often when speaking? What causes this?

Does your voice feel weaker or tire easily when you speak for some time?

Influencing Factors

9. How do dental conditions, hearing ability, or general health affect your speech?

In what ways does speaking both English and Igbo (or other local languages) influence your speech?

Social and Emotional Impact

11. How do people around you react when they find it hard to understand your speech?

Does difficulty in speaking affect your confidence or participation in family and community conversations?

Coping Strategies and Support

13. What things do you do to make your speech clearer?

What kind of support (from family, health workers, or community) would be helpful for older speakers?

Closing

15. Is there anything else you would like to share about speech and aging in our community?