

Nonverbal Communication in Dementia Care: A Review of Its Application and Influence on Patients' Quality of Life

Lijia Liu, Di Wang*

School of Nursing, Dalian University, Dalian 116622, Liaoning, China

*Author to whom correspondence should be addressed.

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Abstract: *Objective:* To review the mechanism, application scenarios, and existing problems of nonverbal communication in improving dementia patients' quality of life and to provide a reference for nursing practice and future research. *Methods:* Literature related to "dementia", "non-verbal communication", and "quality of life" published from 202 to 2024 was searched through CNKI, Wanfang, PubMed, etc., are included in studies on clinical nursing, non-pharmacological interventions, and communication strategies for narrative integration. *Results:* Existing studies show that nonverbal communication elements (eyes, gestures, touch, spatial distance, intonation, and environmental cues) can improve patients' subjective security and quality of life through cognitive activation, emotion regulation, memory arousal, behavioral stability, self-care promotion, and social participation. Application needs and implementation priorities differ across hospitals, elderly care institutions, and home care. Current evidence is limited by small sample sizes, high heterogeneity, and a lack of standardized assessment tools and high-quality randomized controlled trials. *Conclusion:* Nonverbal communication is a key nursing strategy to compensate for language barriers and improve quality of life in dementia care. In the future, it is necessary to establish a unified evaluation system, conduct high-quality multi-center research, and explore AI's potential to support objective quantification and individualized intervention of nonverbal signals.

Keywords: Dementia; Touch; Facial expression; Gesture; Intonation

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1. Introduction

Dementia is a primary cause of disability and dependency in aging societies across the world. The global prevalence of dementia continues to rise, significantly increasing the pressure on healthcare and caregiving systems^[1]. As the disease progresses, patients experience gradual impairment of language expression, comprehension, and executive functioning. Traditional care interaction models centered on verbal commands have become less effective, and unmet needs can easily manifest as behavioral issues such as anxiety, agitation, and

refusal of care, further eroding the quality of life (QoL) ^[2-4]. Compared with verbal processing, many patients with moderate-to-severe dementia retain partial abilities to perceive and emotionally interpret nonverbal cues, such as facial expressions, touch, intonation, rhythm, spatial distance, and familiar objects ^[5-6]. Therefore, systematically utilizing nonverbal communication (NVC) to support information exchange, emotional soothing, and social connection is recognized as a critical nursing strategy to compensate for language barriers, preserve dignity, and enhance QoL ^[7-9].

Despite a significant increase in research on nonverbal communication interventions over the past decade—including touch, gaze/facial expressions, gestures, music and rhythm, spatial and environmental optimization, identity/appearance consistency, and multimodal perception with AI assistance—the evidence base remains constrained by heterogeneous intervention composition and dosage descriptions, inconsistent implementation, a lack of objective quantification, and fragmented QoL-related outcomes.

This review synthesizes nursing and related interdisciplinary literature from 2002 to 2024, elucidating the key elements and pathways of action, comparing application differences across scenarios, summarizing existing challenges, and proposing future research and practical directions. This provides evidence for the development of standardized and contextualized nursing strategies.

2. Conceptual definition and characteristics of communication impairment in dementia

2.1. Definition of nonverbal communication

Nonverbal communication is a multimodal process that conveys information and regulates interactions without relying on spoken or written language. It utilizes facial expressions, eye contact, gestures, body posture and movement, touch, spatial distance and positioning, paralinguistic features (intonation, volume, speech rate, rhythm, pauses), appearance and identity markers, and environmental/physical cues (lighting, color, familiar objects, sounds, smells, etc.) to convey information and regulate interactions ^[5-6]. This concept originated from early research on “body language”, which subsequently incorporated dimensions such as eye contact, facial expressions, touch, and spatial cues in communication. Wanko Keutchafo et al. further expanded it to include personal positioning, appearance, and environmental factors, establishing it as a crucial channel in dementia care for compensating for language deficits, sustaining the expression of needs, and regulating emotions ^[10].

Based on nursing practice and intervention feasibility, nonverbal communication can be categorized as follows: (1) Visual and Postural/Facial: Gentleness of expression, consistency of smiling, duration of eye contact, body orientation, and gestural demonstration ^[3]; (2) Tactile: Forewarned light touch, supportive handholding, and rhythmic stroking ^[4, 9]; (3) Paralinguistic/Acoustic: Affable tone, slowed speech rate, volume control, and rhythmic structure with pauses ^[3, 7]; (4) Spatial and Kinesthetic: Angle of entry into visual field, 45° lateral-anterior approach, interactive distance, and synchronized movement/rhythm ^[11]; (5) Environmental and Object Cues: Familiar photographs and personalized furnishings, noise and glare control, and soothing music ^[5-6]; (6) Appearance and Identification: Uniform work attire, name tags, neatness, and recognizability ^[12-13]; (7) Multimodal Integration and Technology Support: Sensor, video, and AI recognition feedback assistance ^[11]. This classification emphasizes quantifiable and trainable intervention units, providing a framework for subsequent dose titration, implementation consistency, and mechanistic chain development.

2.2. Communication impairments in dementia and residual capabilities

Dementia involves network degeneration across multiple brain regions (particularly the left temporal, parietal, and frontal lobes), impairing semantic retrieval, syntactic processing, working memory, and executive function. This manifests as word-finding difficulties, speech simplification, and impaired comprehension of complex instructions ^[2-3]. Slowed information processing and reaction times further impair recognition and verbal expression of basic needs, such as pain or thirst, diminishing the quality of life ^[14]. Relatively, processing of emotional salience, recognition of basic facial expressions and affective intonation, along with nonverbal channels such as rhythm and tactile cues, show delayed impairment in mid-stage disease ^[6], forming exploitable residual “islands of function.” Based on emotion salience and multisensory integration theories, cues such as facial expressions, gaze, intonation, rhythm, and tactile feedback can enhance attention orientation and situational inference while reducing the cognitive load on language and executive circuits, thereby amplifying residual communication abilities ^[7-8]. Therefore, nursing assessments should focus on the imbalance between “impaired language” and “relatively preserved emotion/multisensory processing.” Strategically employing slowed, clear speech, short sentences, synchronized gestures, emotional intonation, appropriate tactile cues, and intuitive objects or visual aids can enhance information transfer efficiency while preserving patient dignity and establishing a foundation for patient-centered communication.

3. Search and data sources

This review retrieved literature published from January 2002 to June 2024 from CNKI, Wanfang, VIP, PubMed, and Web of Science. Search terms: (dementia OR Alzheimer*) AND (“nonverbal communication” OR gesture OR “eye contact” OR touch OR proxemics OR paralinguistic OR “environmental cues”) AND (“quality of life” OR mood OR behavior OR ADL OR “social participation”). Supplementary manual tracing of the references. Included: Clinical or care studies on patients with dementia (interventions, observational, qualitative, mixed-methods) with explicit links to nonverbal elements; excluded: studies solely on medication, single-case reports, conference abstracts without full-text access.

4. Effects of nonverbal communication mechanisms on dimensions of quality of life

4.1. Cognitive facilitation (attention and orientation support)

“Cognitive facilitation” refers to the process of externalizing task steps through structured, predictable, multimodal, nonverbal cues, thereby offloading the working memory and semantic retrieval burdens. This enhances attention orientation, command compliance, and completion rates of activities of daily living (ADL) steps. Wanko Keutchafo et al.’s review indicates that gaze, facial expressions, gestures, spatial positioning, tactile cues, and rhythmic intonation collectively form an “external working memory scaffold”, substituting sequential cues for internal retention ^[10]. Communication adaptation studies have demonstrated that adjusting speech rate/pauses to match the patient’s processing speed while synchronizing pointing and sequential gestures improves instruction decoding and reduces mis-initiation ^[7-8]. Results from Gitlin et al.’s RCT and domestic activity-customized studies indicate that step-by-step verbal cues combined with redundant pointing gestures, facial “start-maintain-end” markers, rhythmic slowed intonation, 45° lateral-frontal visual field entry paired with “anticipatory light touch”, and single-sample presentation can improve step completion and duration in sequential tasks such as eating, dressing, and personal hygiene while enhancing self-efficacy ^[4, 11].

Current evidence is limited by the lack of standardization in intervention dosage and implementation consistency (no systematic reporting of gesture frequency, eye contact proportion, tactile cue hierarchy, or number of simultaneously presented objects), outcomes predominantly consisting of macro-level or subjective metrics, absence of process-oriented objective data such as eye-movement tracking, action-posture synchronization indices, and response latency, and insufficient examination of moderating or mediating effects related to disease stage, sensory function, and cultural differences. To enhance comparability and mechanism validation, it is recommended to establish a minimum reporting set (gesture frequency per minute, speech rate and pause structure, tactile cue hierarchy, number of simultaneously visible objects), introduce multimodal quantification using video, wearable, and acoustic data, and validate the pathway “attention maintenance → reduced error rate → functional improvement” using multi-level or structural equation modeling. Additionally, stratification by disease stage, sensory status, and cultural preferences should be conducted [7–8, 10].

4.2. Memory retrieval

Memory loss is a core symptom of dementia. The progressive forgetting of past events and significant individuals (relatives and spouses) continuously erodes patients’ sense of identity and amplifies orientation anxiety [1–3]. Against the backdrop of declining verbal processing, nonverbal, multisensory, and emotionally potent cues emerge as compensatory pathways. Nonverbal cues bridge the externalization of autobiographical and situational emotional memories: familiar objects (old photographs, habitual tools), personalized contextual arrangements (family or occupational symbols), rhythmic touch, and emotional intonation can trigger synergistic scene re-enactment and emotional tagging, reducing anxiety caused by temporal and personal misattribution [3–4, 7–8]. Multisensory/multimodal environmental stimuli (targeted lighting + vintage music + visual nostalgia displays) enhance memory retrieval fluency by activating residual affective-sensory pathways [5–6]; Music and rhythmic interventions (tapping, rhythmic gestures) provide a “beat framework” for procedural and emotional memory, encouraging patients to hum along or mimic movements [15–16]; Anthropomorphic or symbolic objects (dolls) provide tactile-visual dual input, enhancing emotional memory network activation and buffering experiences of loneliness and identity drift [17–18]; Evidence indicates that multisensory stimulation yields higher response rates than single-channel stimulation in evoking “narratable fragments” and emotional positivization. However, the heterogeneity across studies partly stems from the unstandardized stimulation intensity and individualized matching of participants. Future research should quantify memory recall quality using objective metrics (reaction time and automatic facial emotion encoding) [4, 6, 9, 19].

4.3. Emotional regulation and security

Nonverbal communication serves as a channel for information exchange and is a critical medium that influences patients’ emotional states. The emotional regulation function of nonverbal communication relies on the synergistic modulation of autonomic arousal, threat assessment, and social soothing cues, such as soft tones, slow approaches, anticipatory touch, and stable facial expressions, which collectively reduce sympathetic arousal and minimize startle responses and resistance. Tactile contact and mirrored facial expressions promote oxytocin/endorphin-related calming responses [8]. Liao Aiwu et al. noted that appropriate distance, neat appearance, appropriate eye contact, and friendly expressions can alleviate anxiety and fear in dementia patients [13]. More importantly, these carefully calibrated nonverbal cues allow patients to genuinely perceive caregivers’ warmth, kindness, and respect. This fosters a crucial sense of security and belonging at the psychological level, enabling patients to experience

warmth, intimacy, and respect. Concurrently, Zhao Yan et al.'s research on doll therapy supports this conclusion: nonverbal interactions with dolls create a sense of companionship, reducing loneliness and depressive moods while effectively buffering underlying depressive tendencies, thereby providing indispensable emotional relief to older adults [20]. Furthermore, the background environment (uniform lighting, noise < 55 dB, low-intensity familiar music) combined with identity recognition (uniform appearance, name tags) jointly creates a "predictable-low-threat" situational framework, reducing agitation triggers [12-13]. Comprehensive interventions demonstrated effects on moderately reduced anxiety, depression, and agitation. However, many studies lack objective physiological synchronization evidence (skin conductance and heart rate variability). Future research should incorporate multimodal physiological data collection and standardized nonverbal dose recordings to confirm these causal links.

4.4. Behavioral synchrony and stability

Agitated behaviors (such as shouting, aggression, and refusal of care) are common and challenging psychosocial symptoms in patients with dementia [21]. Behavioral synchrony and rhythmic coordination in interactions are key nonverbal mechanisms for reducing misinterpretation and agitated behaviors: caregivers establish an immediate collaborative framework by matching the patient's current movement speed, sitting height, and micro-gestures (nodding, breathing rhythm), thereby diminishing the perceived power imbalance between "control and being controlled" and reducing defensive behaviors [3-4, 7]. During initial and sustained interactions, caregivers match patients' movement speed, seating height, and nodding/breathing rhythms while guiding the interaction pace through gradual deceleration and clear pauses foster the perception of "support rather than imposition" [3-4, 7, 19]. Adapting the speech rate and pause structure reduces cognitive processing load and defensive responses [3, 7]. Forewarned light touch and postural synchronization have been reported to correlate with reduced aggression and shouting [8, 19]. Home care observations also indicate that tailored nonverbal interactions—such as timely eye contact, emotionally congruent smiles, brief repetitive questioning, and gentle shoulder taps—can restore a sense of being understood and calm agitated emotions [10]. Complementary environmental and spatial strategies (avoiding sudden approaches from behind, maintaining a visible side-front angle, establishing clear personal space boundaries, low noise levels, and procedural cues) further reduce the triggering of external stimuli [9, 19]. Multicomponent nonverbal interventions integrating synchrony and contextual adaptation elements have shown moderate effects in multiple studies, reducing agitation frequency or intensity and potentially yielding indirect improvements in quality-of-life measures (though still constrained by a lack of operational standardization and objective synchrony metrics) [6, 10, 19].

4.5. Self-Efficacy and functional maintenance

Increasing evidence suggests that optimized nonverbal communication is associated with enhancements in key dimensions of quality of life for individuals with dementia (including autonomy, sense of dignity, safety, social engagement, emotional well-being, and reduced caregiver burden). Preserving functional independence and self-efficacy adheres to the "Minimal Sufficient Cueing" principle: sequential gesture demonstrations (indicating the next action), contextual pointing (with an open palm directed toward the target object), directional tactile guidance through light touches on the elbow or hand, and distraction-free environments (presenting only the necessary items at a time) work in concert to decrease task complexity and decision/choice load, thereby improving ADL step completion rates [11]. Positive facial feedback and intonation (with an encouraging rising pitch) reinforce

patients' sense of self-efficacy, reducing learned helplessness; individualized activity matching (aligning interests with residual abilities) promotes persistence and agency by enhancing the perceived meaning of the intervention; and structured documentation of prompt frequency, prompt level, and patient response (independent/prompted/assisted) facilitates replicable "dose-response" data. Research indicates that in activities such as dressing and eating, gesture cues (precise pointing to fastening locations) paired with encouraging expressions maintain patient autonomy in decision-making while providing necessary support, thus reducing functional decline from over-substitution [22]. After systematic nonverbal communication training, improvements in independent living skills were observed, along with reductions in safety incidents, such as aspiration and falls, highlighting the dual value of functional maintenance and safety [23]. Randomized controlled trials and practice trials have shown that integrating nonverbal step-by-step cues with individualized activity plans can maintain or reverse declining ADL trajectories during extended follow-ups, while also reducing caregiver burden scores [11, 22-23]. Future research should incorporate dual metrics—self-efficacy scales and objective activity tracking (wearable step counts/upper limb movement complexity)—to strengthen the evidence for the mechanism of the intervention.

4.6. Social participation and belonging

In the mid-to-late phases of dementia, compromised language comprehension and expression, along with recurrent verbal frustration, give rise to a "failure-withdrawal-reduced opportunity" cycle. This cycle reduces the frequency of social interactions, exacerbates loneliness, and undermines the dimensions of social participation and belonging in the quality of life. Nonverbal behaviors emerge as essential compensatory mechanisms: body orientation/leaning forward, positioning near group centers, eye contact, and nodding indicate "joining/maintaining attention" or seeking clarification; light touches on forearms, shoulders, or tabletops, combined with gaze, initiate turns, evoke responses, and maintain shared presence; immediate gaze reciprocation, emotional attunement, rhythmic nodding, and subtle posture mirroring from caregivers/peers enhance perceived visibility and interaction effectiveness, mitigating further withdrawal [3-4, 7, 10]. Structured group activities (music, rhythmic movement, crafts, reminiscence) facilitate access and sustained participation through circle/ring seating, visual object-passing sequences, explicit tactile/visual turn cues, and optimized low noise, familiar object cues, and lighting contrast. Rhythm and synchronized emotional expressions further bolster group identification [9, 19]. Situational observations indicate that leaning forward, approaching, and touching act as pivotal signals for patients to actively seek inclusion and attention when they are verbally impaired [24]. Companion objects/comfort dolls, pet interventions, and affective tactile media serve as "emotional anchors" during periods of low motivation or emotional defensiveness, boosting spontaneous initiation rates, response likelihoods, and positive emotion sharing [17-18]. The integration of comprehensive strategies with person-centered care models significantly elevated group activity attendance, spontaneous nonverbal communication initiation, and subjective sense of belonging. However, current research necessitates addressing the evaluation and quantification of interaction quality metrics, as well as the inadequate cross-cultural adaptation of touch/interpersonal distance protocols.

4.7. Comprehensive quality of life findings

While existing studies predominantly report outcomes in single domains (emotional stability, reduced behavioral issues, improved participation), the integrated mechanism chain reveals that nonverbal communication (NVC) interventions exert their effects through several channels: (1) attention orientation and emotional regulation

(facial expressions, intonation, rhythm); (2) enhanced security and familiarity (environmental/object cues, identity recognizability); (3) guiding execution and intentional behavior (gesture modeling, tactile cues, rhythmic synchronization); and (4) accumulating interaction cycles and a sense of belonging (gaze-nod-posture mirroring loop). These mechanisms collectively reduce the frequency of unmet needs and behavioral and psychological symptoms of dementia (BPSD) triggers, enhance self-efficacy in daily functioning, and improve subjective evaluations of social connections. This ultimately contributes to an indirect increase in the overall quality of life. Most small-sample trials or quasi-experiments observed within 4–12 weeks of follow-up showed modest increases in QoL scale scores (QoL-AD/DEMQOL or proxy versions), approximately 5%–10% of baseline total scores, alongside reductions in depression/apathy items and agitation scores (NPI, CMAI, etc.), supporting the “multiple-pathway synergistic” hypothesis ^[9, 11].

5. Application of nonverbal communication in different dementia care settings

5.1. Application of nonverbal communication in hospitals

In hospital settings, nurse-patient communication is crucial for maintaining high-quality healthcare services and building trust. When interacting with patients with dementia who have language barriers, nonverbal communication is vital for sustaining connections and ensuring effective communication. The core value of this approach lies in its ability to convey instructions and care more directly, fostering patient security and alleviating negative emotions in patients. Bender et al. noted that hospital nurses employing strategies such as eye contact, hand gestures, and maintaining a distance of ≤ 1.2 meters during communication effectively reduced patients' cognitive burden ^[25]. This approach particularly enhances patient cooperation during procedures, such as intravenous punctures and examinations. Clinical practice by Zhang et al. confirmed that nurses can significantly alleviate patient anxiety and improve treatment compliance by employing nonverbal approaches, such as smiling, maintaining calm eye contact, and offering gentle touch or handshakes, while attentively observing facial expressions and body language to anticipate needs ^[26].

5.2. Application of nonverbal communication in nursing homes

In elderly care settings, nonverbal communication is crucial for overcoming barriers with dementia patients whose verbal abilities are impaired and who often exhibit ritualistic characteristics. Compared with verbal communication, the proficient use of nonverbal methods facilitates more effective interaction between caregivers and patients. As Wanko Keutchafo noted in their research, caregivers in nursing homes commonly rely on nonverbal communication because this consistency reduces the cognitive burden for residents; they need not repeatedly adjust to different communication styles when interacting with various caregivers ^[10]. Zalete corroborated this in nursing home research, finding that when caregivers establish positive relationships through eye contact, nods, and smiles, residents' well-being and satisfaction significantly improve ^[27]. Based on these findings, Zalete advocated integrating nonverbal communication skills into caregiver education and pre-service training to elevate the quality of eldercare services ^[27].

5.3. Application of nonverbal communication in home-based elderly care

As the primary long-term living environment for patients with dementia, the home setting holds irreplaceable value in accelerating patients' physical and mental recovery through its design and atmosphere. In family caregiving, nonverbal communication serves as a unique bridge, effectively fostering emotional bonds between patients and

family members, infusing the household with warmth, and enhancing caregivers' convenience and comfort. The daily companionship of family members vividly exemplifies nonverbal communication. Zhu Hongwei et al. also highlighted this in their comprehensive care intervention study, demonstrating that this sustained sense of presence effectively soothes patients' emotional fluctuations, providing them with solid psychological support and a profound sense of security ^[28]. Building on this, Chen et al.'s research on home-based elderly care needs assessment emphasizes that nonverbal cues within the home environment—such as family-specific gestures, body language, intonation, and even familiar room arrangements—can profoundly resonate with patients' emotional dimensions ^[29]. These seemingly insignificant details carry profound family memories, effectively stimulating the patients' sense of belonging. They allow patients to feel valued and recognized as integral members of their families, even while facing illness.

6. Challenges in applying nonverbal communication with dementia patients

The variation in nonverbal communication abilities among patients with dementia is directly correlated with disease severity: patients with mild dementia may effectively utilize facial expressions and gestures, while those with moderate dementia begin to experience diminished comprehension and expression capabilities. However, patients with severe disease commonly exhibit widespread, nonverbal communication impairments. Particularly in the severe stage, patients often display confused, disordered, or difficult-to-interpret nonverbal behaviors, significantly increasing the difficulty and error rate for caregivers to accurately interpret them, thereby complicating nonverbal communication. Furthermore, even when faced with interpretable signals, caregivers' energy and acuity diminish under prolonged high-pressure caregiving, inevitably leading to missed or misinterpreted nonverbal cues. Additionally, in institutional settings, differences in geographical backgrounds and cultural habits between patients and nursing staff create another layer of barriers. This leads to divergent interpretations and expressions of nonverbal behaviors, further exacerbating the difficulties in nonverbal communication.

7. Summary

Nonverbal communication interventions leverage the relatively preserved emotional and multisensory processing pathways in patients with dementia. Through multiple mechanisms, including cognitive activation, memory recall, emotional regulation, behavioral synchronization, self-efficacy, and social engagement, they can promote multidimensional improvements in the quality of life across various care settings. Current evidence shows an overall positive trend but remains constrained by limitations, including suboptimal research design quality, insufficient operationalization of interventions and dosages, gaps in outcome and mechanism chains, inadequate characterization of disease stages and cultural variations, and the exploratory stage of objective quantification and AI technology. Future efforts should establish standardized reporting and evaluation frameworks, conduct high-quality, mechanism-driven, technology-enabled multicenter studies, and enhance cultural and ethical considerations and individual adaptation. This will advance nonverbal communication from experiential practice toward standardized, precision-based, and intelligent care strategies, providing robust evidence to support higher-quality and more dignified care for individuals with dementia.

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