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Research paper

Beyond knowledge: Nurses' attitudes, emotional involvement, and care strategies in Alzheimer's disease: A cross-sectional mixed-methods study

Ivan Rubbi [a,†], Pierluigi Lezzi [b,†], Roberto Lupo [c], Rebecca Coluccia [d], Federico Cucci [e], Donato Cascio [f], Giorgio De Nunzio [g,h], Valeria Cremonini [a], Elsa Vitale [i], Luana Conte [f,h,*]

[a] School of Nursing, University of Bologna, 48018 Faenza, Italy
[b] Department of Territorial Care, Social Health District, Local Health Authority (ASL) of Lecce, Lecce, Italy
[c] "San Giuseppe da Copertino" Hospital, Local Health Authority (ASL) of Lecce, 73043 Copertino, Italy
[d] Independent Nurse, Lecce, Italy
[e] Città di Lecce Hospital, Gruppo Villa Maria, 73100 Lecce, Italy
[f] Department of Physics and Chemistry, University of Palermo, 90128 Palermo, Italy
[g] Department of Mathematics and Physics, University of Salento, 73100 Lecce, Italy
[h] Advanced Data Analysis in Medicine (ADAM), Laboratory of Interdisciplinary Research Applied to Medicine (DReAM), Local Health Authority (ASL) of Lecce and University of Salento, 73100 Lecce, Italy
[i] Local Health Authority (ASL) of Bari, 70126 Bari, Italy

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ABSTRACT

Background: Alzheimer's disease (AD) poses significant challenges to nursing practice, particularly due to behavioural and psychological symptoms of dementia (BPSD), which contribute to care complexity, professional burden, and safety risks for both patients and healthcare professionals. Nurses play a central role in dementia care across hospital, residential, and community settings; however, variability in care strategies, including communication-based and relational approaches as well as training-informed practices, attitudes, and dementia-specific knowledge, remains a critical issue.

Aim: To examine nurses' care management of people with AD, focusing on perceived challenges, care strategies, emotional involvement and attitudes towards dementia, and their associations with professional and training-related characteristics.

Methods: A cross-sectional mixed-methods study was conducted among Italian nurses working in hospital, residential, and community settings. Data were collected online using a structured questionnaire including sociodemographic variables, professional experience, care strategies and the Dementia Attitudes Scale (DAS). The items on care challenges and management strategies also included free-text fields, which provided the qualitative data. Quantitative data were analysed descriptively and inferentially, while free-text responses were analysed through qualitative content analysis. Quantitative and qualitative findings were then integrated at the interpretation stage to provide a more comprehensive understanding of nurses' experiences and attitudes.

Results: A total of 187 nurses participated. Most had experience caring for people with AD, although specific experience was often limited. BPSD, particularly agitation and aggression, were identified as the main care challenges. Nonpharmacological approaches, especially communication strategies and family involvement, were most frequently adopted. The DAS showed good internal consistency and sampling adequacy. Higher dementia knowledge was associated with specific training and broader clinical experience, whereas emotional involvement was mainly related to greater relational comfort.

Conclusions: despite good relational comfort, relevant gaps in dementia-specific knowledge persist among nurses. Structured education and organisational support are needed to enhance evidence-based nursing care for people with AD.

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* Corresponding author at: Department of Physics and Chemistry, University of Palermo, 90128 Palermo, Italy.
E-mail address: luana.conte@unipa.it (L. Conte).
† These authors equally contributed to this manuscript.

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Summary of relevance

Problem or Issue

In Alzheimer's disease, agitation and aggression are among the most challenging issues in day-to-day care. These episodes can threaten the safety of both patients and healthcare professionals, complicate the therapeutic relationship, and increase stress for nurses.

What is already known

Available guidance suggests prioritising nonpharmacological strategies and a person-centred approach. In everyday practice, however, management is not always consistent and often depends on experience, the care setting, and the training received.

What this paper adds

This paper describes what nurses actually face across different care settings and which strategies they most often use. Agitation and aggression remain the most frequent critical issues; the most commonly used responses mainly rely on communication and involving family members. At the same time, the findings point to clear training needs and to the value of more practical, shared guidance to make management more consistent and sustainable.

1. Introduction

Dementia represents one of the main global health challenges of the 21st century, with significant clinical, social, and economic implications, especially in relation to the progressive aging of the global population (Livingston et al., 2017; World Health Organization, 2023). Most recent epidemiological estimates indicate that over 55 million people currently live with a form of dementia globally, with a projected increase to approximately 139 million by 2050, mainly due to the increase in life expectancy (Fang et al., 2025; Livingston et al., 2017).

Alzheimer's disease (AD) constitutes the most common form of dementia and is characterised by a progressive deterioration of cognitive functions, behavioural changes, and a gradual loss of functional autonomy, with a significant impact on the quality of life of affected individuals and their caregivers (Gale, Acar, & Daffner, 2018; Lane, Hardy, & Schott, 2018). Beyond cognitive decline, the management of AD is strongly conditioned by the presence of behavioural and psychological symptoms of dementia (BPSD), which include agitation, aggression, sleep disturbances, apathy, wandering, and communication difficulties (Gitlin, Kales, & Lyketsos, 2012; Kales, Gitlin, & Lyketsos, 2015). These symptoms can manifest at any stage of the disease and represent one of the main determinants of care burden, increased risk of institutionalisation, and rising healthcare costs (Gitlin et al., 2012; Livingston et al., 2017; Lupo et al., 2022). This scenario places growing pressure on health and social care systems, requiring sustainable care models, stronger integration among the healthcare professionals involved in dementia care, and a strengthening of the nursing workforce's competencies, particularly in hospital, residential, and community settings (Carriero et al., 2021; Gauthier, Rosa-Neto, Morais, & Webster, 2021; Rubbi et al., 2023).

Furthermore, BPSD constitute one of the main sources of stress for nursing staff, affecting patient safety, the care climate, and the psychological well-being of healthcare professionals (Ganzer, 2007; Kales et al., 2015). In this context, international evidence recommends that the management of behavioural disturbances be based primarily on nonpharmacological interventions, reserving pharmacotherapy for cases of greater severity or risk, with a view to appropriateness and safety of care (Bellei et al., 2015; Gitlin et al., 2012; Livingston et al., 2017). Nonpharmacological interventions include adapted communication strategies, environmental modifications, and family involvement, the effectiveness of which depends largely on the competencies of nursing staff and available organisational support (Fang et al., 2025). However, numerous studies highlight marked variability in care practices and a frequent absence of structured protocols, with management often relying on individual experience rather than standardised, evidence-based pathways (Cotter, 2006; Ganzer, 2007).

A further relevant element is represented by the role of the family, recognised as an essential component of the care pathway and continuity of care. Family caregivers provide a large share of daily assistance, particularly in home settings, and hold a unique biographical knowledge of the person, including habits, preferences and possible triggers of behavioural symptoms, which can inform person-centred care planning (Gauthier et al., 2021; Varela, Varona, Anderson, & Sansoni, 2011). At the same time, prolonged caregiving is associated with considerable physical and emotional strain (Varela et al., 2011). The involvement of family caregivers contributes to improving the daily management of the disease but requires adequate educational and emotional support from nurses to reduce care burden and prevent burnout (Gauthier et al., 2021; Varela et al., 2011).

Nurses occupy a central position in this scenario. Across hospital, residential and community settings, they are the professionals most continuously involved in the direct care of people with AD, with responsibilities that range from the early recognition and monitoring of BPSD to the implementation of nonpharmacological strategies, the safe management of pharmacological treatment, the education and support of family caregivers, and the coordination of care within the multi-professional team (Fang et al., 2025; Ganzer, 2007; Gauthier et al., 2021). This role is often exercised under demanding conditions, including time pressure, safety risks related to agitation and aggression, high emotional involvement and, frequently, limited dementia-specific training and the absence of structured protocols (Cotter, 2006; Ganzer, 2007; Kales et al., 2015).

Within this context, it is important to analyse the nurse's role in caring for people with AD, considering not only the care strategies adopted in daily practice but also nurses' knowledge, attitudes, and emotional involvement (Fang et al., 2025; Gauthier et al., 2021). Recent literature underscores how the quality of nursing care in dementia is closely influenced by specific training, professional experience, and attitudes towards people with cognitive impairment (Fang et al., 2025; Vatanabe, Manzine, & Cominetti, 2020). In particular, inadequate levels of training preparation have been associated with difficulties in managing BPSD, greater reliance on pharmacological strategies, and increased emotional burden for operators (Ganzer, 2007; Gitlin et al., 2012).

In this complex framework, the assessment of nursing attitudes towards dementia assumes increasing importance. In this study, through the validated Dementia Attitudes Scale (DAS), the cognitive and affective dimensions of care, such as relational comfort and perceived knowledge, are explored, offering useful indications for identifying training needs and areas for professional improvement (Ganzer, 2007; Vatanabe et al., 2020). Nevertheless, evidence on how nurses working in different care settings perceive and manage these challenges in everyday practice, and on how their attitudes relate to training and professional experience, remains limited, particularly in the Italian context.

2. Aim

In light of these considerations, the presented observational study aims to analyse the clinical-nursing management of the patient with AD, exploring the main challenges faced by nurses, the strategies adopted in daily practice, and attitudes towards dementia, in relation to sociodemographic, professional, and training variables. The correlation of these aspects allows for the interpretation of results not only in descriptive terms but also as potential indicators of organisational criticalities and training needs.

3. Methods

3.1. Study design

An observational cross-sectional mixed-methods study was conducted, aimed at evaluating the clinical-nursing management of patients with AD and nurses' attitudes towards dementia. Quantitative data were complemented by qualitative data collected through free-text questionnaire responses.

3.2. Setting

The study was carried out in Italy, involving nurses working in different care settings, including hospitals, nursing homes (RSA), home care, and community services. Data collection took place online via the Google Forms platform, between 9 January 2025 and 24 June 2025.

3.3. Participants

The sample consisted of 187 nurses, recruited via convenience sampling through the dissemination of the questionnaire on social networks (Facebook and Instagram).

3.3.1. Inclusion criteria

Being a registered nurse actively practising the profession, working (or having worked) in healthcare or social-healthcare settings, and providing informed consent to participate in the study.

Nurses were eligible regardless of whether they had previous direct experience caring for people with AD, as the study aimed to capture attitudes, perceptions, and care approaches across different levels of exposure to dementia care.

3.3.2. Exclusion criteria

Healthcare professionals other than nurses; incompletely filled questionnaires.

3.4. Data collection instrument

Data were collected using a structured questionnaire, composed of four sections:

1. Sociodemographic and professional characteristics, including gender, age, geographical area, years of work experience, and care setting.
2. Professional experience with patients with AD, including duration of care experience and the stage of the disease mostly encountered.
3. Clinical-nursing management, with particular reference to the main care challenges, strategies adopted, use of personalised care plans, multiprofessional approach, specific and continuing education, emotional involvement of the operator, and the role of the family. The two questions on the main care challenges and on the strategies used to manage agitation or aggression (questions 9 and 10) combined predefined multiple-choice options with a free-text field, in which participants could report further issues or describe their approach in their own words; these written responses constituted the qualitative data of the study.
4. DAS, a validated instrument composed of 20 items on a 7-point Likert scale, is divided into two domains:

- *Social Comfort*, relating to the degree of ease in the relationship with people with dementia;
- *Dementia Knowledge*, referring to beliefs and understanding of the pathology.

The final sample size was found to be adequate for the planned descriptive and inferential analyses and for the psychometric evaluation of the instrument used, in line with methodological recommendations for survey-based observational studies and multi-item scales, which indicate samples greater than 100–150 subjects and a ratio of at least 5–10 participants per item (Cohen, 1988; DeVellis, 2017; Politi and Beck, 2021).

3.5. Data analysis

Only completely filled questionnaires were included in the analysis. Sociodemographic, professional, and experiential characteristics of the sample were analysed using descriptive statistics (frequencies, percentages, means, and standard deviations). For the DAS, scores for the *Social Comfort* and *Dementia Knowledge* domains were calculated. Internal consistency was evaluated using Cronbach's alpha, and sampling adequacy via the KMO index. Differences in mean DAS domain scores in relation to sociodemographic and professional variables were analysed using Student's t-test or one-way ANOVA, depending on the number of groups, considering a significance level of $p < 0.05$. Multiple-choice questions regarding care challenges and management strategies were analysed using frequencies and percentages.

Free-text responses were analysed through inductive qualitative content analysis, following the phases described by Elo and Kyngäs (Elo and Kyngäs, 2008): preparation, in which all responses were read repeatedly to obtain a sense of the whole; organisation, in which responses were openly coded and the codes were grouped and abstracted into categories describing care challenges and management strategies; and reporting, in which each category was described and exemplified through illustrative quotations. Quantitative and qualitative findings were then integrated at the interpretation stage in order to contextualise and further explain the quantitative results.

3.6. Ethical considerations

This study was conducted in accordance with the principles of the Declaration of Helsinki and relevant national and international ethical standards for research involving human participants. Given the observational, noninterventional nature of the study and the anonymous collection of data, formal approval from an Ethics Committee was not required according to Italian regulations. Participation was voluntary, and all participants provided informed consent electronically before completing the online questionnaire. No personally identifiable information was collected, and data were analysed in aggregated form to ensure confidentiality and anonymity. Access to the dataset was restricted to the research team and used exclusively for scientific purposes.

4. Results

The sample consists of 187 nurses, predominantly female (65.2%), with a mean age of 34.9 ± 12.7 years, reflecting a relatively young professional population. The geographical distribution shows a prevalence of participants from Southern Italy (63.6%), while the North and Centre are equally represented (18.2% each).

From a professional perspective, a polarisation of work experience emerges, with a significant proportion of nurses having less than one year of practice (40.1%), alongside a substantial group with over 10 years of experience (33.2%). The most represented care setting is the hospital setting (54.5%), followed by nursing homes (RSA) (22.5%) and home care (13.4%) (Table 1).

As shown in Table 2, most participants (89.3%) reported having experience caring for people with AD. However, over half of the nurses declare specific experience of less than one year (52.9%),

Table 1
Sociodemographic characteristics of the sample.

	n	%
Gender		
Female	122	65.2
Male	63	33.7
Other	2	1.1
Age (mean ± SD)	34.9 ± 12.7	
Geographical area		
South	119	63.6
North	34	18.2
Centre	34	18.2
Experience		
< 1 year	75	40.1
> 10 years	62	33.2
1-5 years	34	18.2
6-10 years	16	8.6
Care setting		
Hospital	102	54.5
Nursing home (RSA)	42	22.5
Home care	25	13.4
Outpatient clinics	9	4.8
Community Health District	5	2.7
Emergency Medical Service (118)	2	1.1
Job seeking	1	0.5
Community Health District	1	0.5

Table 2
Professional experiences with patients with Alzheimer's.

	n	%
Experience with users with Alzheimer's		
Yes	167	89.3
No	20	10.7
Years of experience caring for users with Alzheimer's		
< 1 year	99	52.9
1-5 years	56	29.9
6-10 years	16	8.6
> 10 years	16	8.6
In which disease stage does the professional have most experience		
Early stage	81	43.3
All	48	25.7
Intermediate stage	35	18.7
Advanced stage	23	12.3
Use of personalised care plans for patients		
Yes	104	55.6
Sometimes	57	30.5
No	26	13.9
Utility of the multiprofessional approach		
Fundamental	142	75.9
Very important	44	23.5
Slightly important	1	0.5
Specific training of the professional		
No	109	58.3
Yes	78	41.7
Utility of continuing education		
Fundamental	144	77
Very important	41	21.9
Not relevant	1	0.5
Slightly important	1	0.5
Emotional involvement during care		
A lot	100	53.5
Quite a bit	70	37.4
A little	12	6.4
Not involved	5	2.7
Utility of family involvement		
Fundamental	157	84
A lot	29	15.5
A little	1	0.5

suggesting frequent recent or discontinuous exposure to the care of these patients. The most frequently encountered disease stage is the early stage (43.3%), while only a quarter of the sample (25.7%) reports experience across all stages of the course, including the most advanced ones. Personalised care plans are used systematically by only 55.6%, while 30.5% report occasional use.

Personalised care plans are used systematically by 55.6% of respondents, while 30.5% report using them only occasionally. The multidisciplinary team approach was considered fundamental by 75.9% of nurses, highlighting the perceived importance of collaborative care in the management of AD. However, despite this recognition of the importance of coordinated care, 58.3% of participants reported not having received specific training on dementia, although almost all respondents considered continuing education to be fundamental or very important (98.9%). Caring for people with AD was also described as emotionally demanding, with more than 90% of nurses reporting being very or fairly involved in patient care. In this context, family involvement was recognised by 84% of participants as an essential component of the care pathway, supporting communication and continuity of care.

4.1. Psychometric properties of the Dementia Attitudes Scale

The psychometric analysis of the DAS highlighted good internal consistency for the *Social Comfort* domain, with a Cronbach's α of 0.719, a value considered adequate for observational studies. The KMO index of 0.887 confirms high sampling adequacy, supporting the robustness of the inferential analyses conducted (Table 3).

Inferential analysis highlighted statistically significant differences in scores for DAS areas in relation to specific individual sociodemographic and professional characteristics. Male nurses show higher scores in *Social Comfort* ($p < 0.001$), but lower values in *Dementia Knowledge* compared to females ($p = 0.004$). Similarly, nurses with less than one year of experience present greater relational comfort ($p < 0.001$), but significantly lower knowledge of the pathology ($p < 0.001$). Specific training on dementia is associated with higher levels of knowledge ($p < 0.05$), while experience gained across all stages of the disease correlates with a better global understanding of AD ($p < 0.001$). Furthermore, high emotional involvement is associated with higher scores in *Social Comfort* ($p < 0.001$).

The main difficulties reported in managing patients with AD concern behavioural symptoms, particularly agitation (82.4%) and aggression (68.4%), followed by communication difficulties (45.5%). Other problems, such as sleep disturbances (24.1%) and mobility difficulties (13.4%), are less frequently reported. For the management of agitation and aggression, the most used strategy is represented by communication techniques (79.7%), followed by family involvement (39.6%). Pharmacological administration is reported by 32.6% of nurses, while environmental modifications are reported by 21.4%.

The qualitative content analysis identified several recurrent categories related to both care challenges and management strategies. Illustrative quotations from participants' open-ended responses are presented in Table 6 to exemplify the categories emerging from the analysis.

5. Discussion

This observational study contributes to a deeper understanding of the clinical-nursing management of people with AD, integrating quantitative data on professional attitudes with a qualitative analysis of the main challenges and care strategies reported by nurses. In relation to the study aim, the results provide a descriptive picture of nursing practices and the factors that may influence their effectiveness, offering useful findings for clinical and organisational reflection.

The collected data suggest that the management of patients with AD is perceived by nurses as a care area characterised by high complexity. This interpretation is supported not only by the

Table 3
DAS domains, internal consistency calculations, and sampling adequacy.

DAS areas	Items	*Range*	α	KMO	Points
Social Comfort	1,2,4,5,6,8,9,13,16,17	10-70	0.719	0.887	1 = Strongly Disagree; 7 = Strongly Agree
Dementia Knowledge	3,7,10,11,12,14,15,18,19,20				

DAS, Dementia Attitudes Scale.
DAS response scale: 1 = Strongly disagree; 7 = Strongly agree.

Table 4
Scores of DAS areas regarding sociodemographic and professional characteristics of the sample.

	Social Comfort		*Dementia Knowledge*	
	M ± DS	p	M ± SD	p
Gender				
Male	39.1 ± 2.77	**< 0.001****	47.1 ± 8.98	**0.004****
Female	35.6 ± 5.61		51.8 ± 9.24	
Other	37.0 ± 4.24		55.5 ± 17.68	
Geographical Area				
South	36.6 ± 5.16	0.101	50.2 ± 9.63	**0.005****
North	35.7 ± 5.60		54.0 ± 8.45	
Centre	38.3 ± 3.96		46.6 ± 8.53	
Experience				
< 1 year	38.9 ± 2.36	**< 0.001****	46.0 ± 8.72	**< 0.001****
1-5 years	34.8 ± 4.98		55.8 ± 8.03	
6-10 years	34.7 ± 6.90		53.8 ± 10.62	
> 10 years	35.7 ± 6.08		51.5 ± 8.55	
Experience with users with AD				
No	37.5 ± 4.12	0.522	52.0 ± 7.53	0.381
Yes	36.7 ± 5.20		50.0 ± 9.65	
Years of exp. caring for users with AD				
< 1 year	38.3 ± 3.16	**< 0.001****	47.4 ± 8.68	**< 0.001****
1-5 years	35.3 ± 5.22		53.6 ± 8.97	
6-10 years	35.0 ± 7.55		52.3 ± 11.25	
> 10 years	34.1 ± 7.99		54.3 ± 8.81	
Most experienced disease stage				
Early stage	38.9 ± 2.83	**< 0.001****	45.7 ± 8.41	**< 0.001****
Intermediate stage	35.3 ± 5.87		51.9 ± 9.72	
Advanced stage	36.5 ± 5.62		52.9 ± 7.83	
All	34.3 ± 5.76		55.4 ± 8.29	
Use of personalised care plans				
No	36.2 ± 6.29	0.107	49.3 ± 7.81	**0.014***
Sometimes	35.7 ± 5.24		53.3 ± 8.98	
Yes	37.5 ± 4.59		48.8 ± 9.76	
Specific professional training				
No	35.4 ± 5.21		53.2 ± 8.27	
Yes	38.6 ± 4.29		46.2 ± 9.54	
Utility of continuing education				
Not relevant	38	**0.018***	46	0.505
Slightly important	40		39	
Very important	34.59 ± 4.96		51.44 ± 6.99	
Fundamental	37.35 ± 4.99		50.01 ± 10.05	
Emotional involvement during care				
Not involved	33.8 ± 6.22	**< 0.001****	50.4 ± 10.36	**0.005****
A little	32.2 ± 6.34		48.1 ± 11.70	
Quite a bit	35.3 ± 5.02		53.4 ± 6.82	
A lot	38.5 ± 4.19		48.3 ± 10.23	
Utility of family involvement				
A little	40	0.059	39	0.126
A lot	37.8 ± 6.27		52.9 ± 6.99	
Fundamental	37.1 ± 4.78		49.8 ± 9.76	

** p = < 0.01; * p = < 0.05. Statistically significant results are highlighted in bold.

Table 5
Quantitative analysis of the main responses provided by the sample on challenges and strategies used in the management of the patient with Alzheimer's.

	n	%
9. What are the main challenges you face in managing patients with Alzheimer's?		
Agitation	154	82.4
Aggression	128	68.4
Communication difficulties	85	45.5
Sleep disturbances	45	24.1
Mobility problems	25	13.4
Other*	3	1.5
10. What strategies do you use to manage cases of aggression or agitation?		
Communication techniques	149	79.7
Family involvement	74	39.6
Administration of drugs	61	32.6
Environmental modification	40	21.4
PRN therapy after medical consultation	4	2.0
Nonpharmacological therapies (aromatherapy, doll therapy, sensory room)	4	2.0

* Other responses for Question 9 included: pressure ulcers; intervention of Emergency Services due to behavioural unmanageability; disorientation.

quantitative findings but also by the categories emerging from the open-ended responses, which highlighted behavioural symptoms, communication difficulties, and aggression as major challenges in daily care. In particular, BPSD, such as agitation and aggression, emerge as the most frequently reported difficulties. This evidence appears consistent with what is reported in the literature, where BPSD are described as elements associated with an increase in care burden and professional stress (Caldo et al., 2023; Kales et al., 2015; Livingston et al., 2017).

Alongside behavioural symptoms, communication difficulties represent a further element of complexity in the nursing management of the person with AD. These difficulties seem potentially capable of interfering with the therapeutic relationship and the effectiveness of care interventions, particularly in phases where cognitive and linguistic impairment becomes more marked. From a practical perspective, these findings highlight the need for targeted education aimed at improving nurses' communication competencies in dementia care. Such training may include strategies such as simplified language, validation techniques, nonverbal communication, and adaptation of communication according to the patient's cognitive stage.

This result appears consistent with the literature, which highlights how the progressive alteration of linguistic and communicative skills can hinder the nurse–patient interaction, increase the risk of misunderstandings, and indirectly contribute to the onset or exacerbation of behavioural symptoms (Kales et al., 2015; Livingston et al., 2017).

In this perspective, communication should not be considered only a general relational skill but also a personalised care strategy. Nurses may need to adapt both verbal and nonverbal communication according to the patient's cognitive status, behavioural triggers, and individual preferences.

Table 6
Qualitative categories and illustrative quotations related to care challenges and management strategies.

Category	Description of main elements reported by nurses	Illustrative quotations
Behavioural symptoms and agitation	Nurses frequently described agitation and behavioural disturbances as the main sources of complexity in the management of patients with Alzheimer's disease, often affecting the safety of care and increasing workload.	"Patients often become agitated during routine care activities, making it difficult to manage the situation safely."
Communication difficulties	Participants highlighted the challenge of understanding patients' needs when verbal communication is impaired, especially in more advanced stages of the disease.	"The biggest difficulty is understanding what the patient needs when they can no longer express themselves clearly."
Aggressive behaviour	Aggression was described as an occasional but significant challenge, often associated with confusion, fear, or environmental stressors.	"Sometimes patients suddenly become aggressive, especially when they feel disoriented."
Communication-based strategies	Nurses reported using calm verbal interaction, reassurance, and simplified language as primary approaches to reduce agitation and improve patient cooperation.	"Speaking calmly and using simple words often helps to calm the patient."
Family involvement	Family members were considered an important resource for understanding patients' habits, preferences, and behavioural triggers.	"Family members help us understand the patient's routines and what usually calms them."
Environmental adaptations	Adjustments to the environment, such as reducing noise or maintaining a familiar routine, were reported as helpful strategies for preventing agitation.	"Creating a calm and familiar environment helps reduce agitation."

Previous studies indeed underscore how the adoption of personalised communication strategies and a person-centred relational approach can support more appropriate nonpharmacological interventions and favour a better understanding of care needs (Ganzer, 2007; Gauthier et al., 2021; Gitlin et al., 2012).

Regarding the strategies adopted, the results indicate a prevalence of nonpharmacological interventions, particularly communication techniques and family involvement, while pharmacotherapy is reported as a complementary option, used mainly in cases of greater complexity. This orientation appears in line with the recommendations of international guidelines, which suggest a gradual and person-centred approach in the management of behavioural symptoms (Gitlin et al., 2012). The qualitative analysis seems to reinforce this interpretation, highlighting how nurses recognise the value of relational strategies and family support in the continuity of care, while emphasising the need for adequate professional support to prevent excessive care burden (Gauthier et al., 2021).

The analysis of the DAS shows a nuanced profile of nursing attitudes. The relatively high levels of Social Comfort could indicate good relational availability towards people with dementia; however, lower scores in the Knowledge area, especially among professionals with less experience or lacking specific training, suggest possible margins for improvement on the educational level. In the Italian context, dementia-related education for nurses is mainly provided through undergraduate programmes, continuing professional development, and local or regional initiatives rather than through a fully standardised national framework specifically dedicated to dementia care. This organisational variability may partly explain the differences observed in knowledge levels and care practices. In this context, emotional involvement, while representing a relevant component of care, may not automatically translate into optimal management of complex situations in the absence of structured preparation, as highlighted by studies emphasising the role of training in mitigating stress and professional burnout (Fang et al., 2025; Ganzer, 2007).

The differences observed in relation to professional experience deserve specific attention. Nurses with less than one year of experience reported greater relational comfort but markedly lower dementia knowledge, whereas knowledge scores were higher among nurses with longer experience and among those who had cared for people across all stages of the disease. A possible explanation is that disease-specific knowledge accumulates mainly through repeated and prolonged clinical exposure, whereas the higher relational comfort of newly qualified nurses may reflect the growing emphasis on person-centred and communication-oriented approaches in current nursing curricula, together with a shorter cumulative exposure to the most demanding behavioural manifestations of the disease. The polarised composition of the sample, in which nurses with less than one year of experience formed the largest group, should also be considered when interpreting these findings. Given the cross-sectional design, these interpretations remain hypotheses to be tested in future studies, together with the differences observed across geographical areas, which could reflect heterogeneity in training pathways and organisational contexts.

A further element of interest of this study is represented by the adoption of an integrated methodological approach, which combines the quantitative analysis of nursing attitudes with a qualitative exploration of care practices and professional experiences. In line with the literature on mixed-methods in healthcare, this integration can contribute to strengthening the interpretation of results, offering a more contextualised reading of clinical-care practices and the factors that influence them (Politi and Beck, 2021).

5.1. Study strengths

This study presents several strengths. First, the mixed-methods design allowed the integration of quantitative data on nursing attitudes with qualitative insights into everyday care challenges and management strategies. Second, the inclusion of nurses from different care settings provided a broader overview of dementia care practices across hospital, residential, and community contexts. Finally, the use of the validated DAS ensured methodological robustness in the assessment of professional attitudes toward dementia.

5.2. Study limitations

Some limitations must be considered in the interpretation of the results. The cross-sectional design does not allow for the inference of causal relationships between variables. The convenience sampling and data collection via online questionnaire may have influenced the representativeness of the sample. Furthermore, the presence of a high proportion of professionals with limited experience may have affected the perception of care difficulties. Moreover, the qualitative component was based on brief written responses rather than in-depth interviews; while this allowed the perspectives of a large number of nurses to be captured, it limited the depth of the qualitative exploration. Finally, although the qualitative analysis enriched the interpretation of the results, further studies with longitudinal or in-depth qualitative designs could contribute to exploring in greater

detail the organisational and educational dynamics underlying nursing practice in dementia.

6. Conclusions

This study offers an integrated, mixed-methods perspective on the nursing management of people with AD. Behavioural symptoms, particularly agitation and aggression, together with communication difficulties, emerged as the main sources of care complexity, and nurses responded to them mainly through nonpharmacological strategies such as communication techniques, family involvement and environmental adaptations, in line with the recommendations of international guidelines. At the same time, despite a good level of relational comfort, relevant gaps in dementia-specific knowledge persist, particularly among nurses with less experience or without dedicated training.

These findings indicate that emotional involvement and relational availability, although central components of care, need to be supported by structured competencies and adequate organisational resources in order to translate into effective and appropriate interventions. The variability observed in the use of personalised care plans and the high proportion of nurses without specific training point to clear educational and organisational priorities: structured dementia-specific education, shared operational guidance and systematic support for nurses caring for people with AD.

Within the limits of a cross-sectional observational design, this study broadens the understanding of the nursing role in AD care and offers useful indications for targeted educational and organisational interventions. Future studies, with longitudinal or interventional designs, could assess the impact of structured programmes on the quality of care, care outcomes and nurses' well-being.

Authorship contribution statement

Ivan Rubbi: Conceptualization, Methodology, Software. **Pierluigi Lezzi:** Conceptualization, Methodology, Software. **Roberto Lupo:** Data curation, Writing – original draft. **Rebecca Coluccia**: Visualization, Investigation. **Federico Cucci:** Writing – reviewing & editing. **Donato Cascio:** Supervision, Validation. **Giorgio De Nunzio:** Supervision, Validation. **Valeria Cremonini**: Software, Validation. **Luana Conte:** Writing – reviewing & editing, Data curation, Software.

Ethical statement

The research was approved by the Bioethics Committee of the University of Bologna (protocol no. 0032008, 06/02/2024).

Conflict of interest

The article is the authors' original work; the article has not received prior publication and is not under consideration for publication elsewhere; all authors have seen and approved the manuscript being submitted; the authors abide by the copyright terms and conditions of Elsevier and the Australian College of Nursing.

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