

BPSD · Dementia Care And Behavioral Symptoms

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THE STORY IN ONE SENTENCE

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“BPSD means behavior and mood changes in dementia — agitation, aggression, hallucinations, wandering, sadness, apathy, sleep problems. Always look for a fixable trigger (pain, infection, constipation, full bladder, wrong place, scary moment) before using medicine. Non-drug fixes come first.”

Normal anatomy — the body's job

In a healthy brain, different regions talk to each other smoothly. The frontal lobes (the front parts that act as the boss) control impulses and plan behavior. The temporal lobes (on the sides) hold memory and recognize faces. The limbic system (deep inside, including the amygdala and hippocampus — the alarm center and the memory recorder) manages emotions and fear. Neurotransmitters (chemical messengers) carry signals between brain cells. Acetylcholine helps with memory and attention. Dopamine helps with movement and reward. Serotonin steadies mood and sleep. The normal job is to interpret the world accurately, control emotions, remember what is safe, and express needs in words.

BODY'S JOB

The brain's normal job is to take in what is happening around you — sights, sounds, feelings inside your body like hunger or pain. It makes sense of it, remembers what is safe or dangerous, controls your emotional reaction, and then lets you say in words what you need: 'I'm hungry,' 'that hurts,' 'I'm scared.' This keeps behavior calm, appropriate, and safe.

1. Your body sends signals to your brain: 'bladder is full,' 'stomach hurts,' 'room is too cold,' 'strange loud noise.'
2. The brain's sensory areas (in the back and sides) receive the signal and recognize what it means.
3. The limbic system (the emotion center deep inside, including the amygdala — the alarm that flags danger) checks: is this dangerous? Should I feel calm or afraid?
4. The frontal lobes (the control center at the front of the brain) decide the best response and pump the brakes on every impulse so you do not act without thinking.
5. You express the need clearly in words or calm action: 'I need the bathroom,' 'can you turn down the noise?' 'I am in pain, please help.'
6. The need gets met, the body calms, and behavior stays appropriate and safe.

What breaks

Dementia slowly destroys brain cells, especially the ones that manage memory, language, emotion control, and making sense of the world. The brain loses the map — it cannot tell what is real, what is safe, or how to say 'I hurt' in words. On top of that damage, something new and fixable often triggers the behavior change. Pain (from arthritis, a fall, constipation) is common. Infection (urinary tract infection is the most common) scrambles thinking even more. Constipation or urinary retention (full bowel or bladder the person cannot express) causes discomfort they cannot name. A new medicine or wrong dose (especially sedatives, anticholinergics like diphenhydramine, or opioids) clouds the mind further. A scary or confusing environment (hospital room, new caregiver, loud noise, too bright or too dark) overwhelms the damaged brain. Fear, loneliness, hunger, thirst, being too hot or cold, or sundowning (confusion that gets worse in late afternoon and evening, likely from fatigue and low light) all add fuel. The dementia brain cannot process or express these problems in words, so they leak out as agitation, aggression, hallucinations, wandering, depression, apathy, or sleep problems.

CLINICAL TERM

Behavioral and psychological symptoms of dementia (BPSD) arise from progressive neurodegenerative loss — especially cholinergic (acetylcholine-producing cells in the basal forebrain), dopaminergic (dopamine pathways from the substantia nigra and ventral tegmental area), and serotonergic (serotonin pathways from the raphe nuclei) systems — combined with acute precipitants. Common triggers include uncontrolled pain, urinary tract infection, constipation, urinary retention, polypharmacy (especially anticholinergics, benzodiazepines, opioids), environmental overstimulation or understimulation, unmet physiologic needs (hunger, thirst, temperature dysregulation), and circadian dysregulation (sundowning). The damaged brain cannot integrate sensory input, regulate affect via intact prefrontal-limbic circuits, or verbalize distress, so neuropsychiatric symptoms emerge as the final common pathway.

How the body compensates

The dementia brain has no reserve left to compensate — there is no 'trying harder' when neurons are dead. Instead, caregivers and the environment must become the external brain. They provide structure, calm, routine, and detective work to find and fix triggers. The body will show distress as behavior long before vital signs change. The dangerous middle is when behaviors seem 'manageable' but the real cause (infection, pain, constipation) is silently getting worse. The crash point is antipsychotic use (raises stroke and death risk per FDA black-box warning), fall with fracture, severe agitation leading to caregiver injury or nursing-home placement, or oversedation causing aspiration pneumonia or pressure ulcers.

1. The dementia brain cannot compensate or 'try harder' — dead neurons do not come back. Caregivers must become the external frontal lobe. They provide calm, structure, routine, and decode behavior as communication.
2. Check for fixable triggers first, always, before labeling it 'just dementia.' Use the ABC approach. A = assessment for pain (look for grimacing, guarding, moaning, refusal to move — use a dementia pain scale like PAINAD), infection (urinary tract infection is the top cause — check urinalysis for white blood cells and bacteria, look for new confusion, fever, or foul-smelling urine; also check lungs with chest X-ray if cough or fast breathing, and skin for redness or warmth), constipation (when was the last bowel movement? Feel the belly gently for hardness or tenderness), urinary retention (use a bladder scanner if available or try scheduled toileting every 2 hours). B = behavior log (when does it happen? What happened right before? Is there a pattern by time of day or activity?). C = environment and medications (is the room too loud, too bright, too cold? Is there a new medicine or wrong dose? Check the medication list for anticholinergics like diphenhydramine or oxybutynin, benzodiazepines like lorazepam, or opioids — all cloud the mind further).

3. Try non-drug interventions first — these work better and are safer than antipsychotics per current American Psychiatric Association and American Geriatrics Society guidelines. Calm environment: low noise, soft light, familiar objects like photos or a favorite blanket, routine schedule that is the same every day. Redirect attention gently instead of arguing or correcting ('I see you want to go home — let's have a snack first'). Validate feelings: 'I see you are upset, let's figure out what you need.' Offer comfort: warm blanket, favorite music, gentle touch on the shoulder or hand, snack, bathroom trip, short walk. Simplify tasks and give one-step instructions ('put on your shirt' not 'get dressed').
4. If agitation continues despite fixing triggers and environment, consider very-low-dose psychotropic medication only if safety is at immediate risk (harm to self or others) and document clearly why non-drug methods failed. Prefer SSRIs like citalopram (starting 10 mg daily) or sertraline (starting 25 mg daily) for depression and anxiety-driven agitation — these are safer than antipsychotics. Avoid antipsychotics if possible — risperidone, quetiapine, olanzapine, and haloperidol all carry an FDA black-box warning for increased stroke and death in dementia patients. If you must use an antipsychotic for severe psychosis or aggression that endangers safety, use the lowest dose for the shortest time (risperidone 0.25–0.5 mg or quetiapine 12.5–25 mg, not haloperidol which has higher side effects), monitor closely for falls and confusion, and taper off as soon as symptoms improve.
5. Watch for the crash point: fall with hip fracture (from antipsychotic side effects, oversedation, or nighttime wandering), aspiration pneumonia (from sedation reducing the cough reflex so food or liquid goes into the lungs), pressure ulcers (from lying still too long because of sedation), stroke (antipsychotic risk increases stroke 1.5–2 times in dementia), caregiver burnout or injury leading to emergency nursing-home placement, or death (antipsychotics raise mortality 1.6–1.7 times in dementia per meta-analyses).
6. Monitor trends, not just one moment. A 'stable' patient whose agitation is slowly escalating each day, who is eating less at each meal, or who is sleeping more and engaging less is on a downhill slope — intervene early before the crash by revisiting triggers and environment.
7. The goal is not to eliminate all behavior (that often means oversedation and harm), but to keep the person safe, comfortable, and connected to caregivers and family for as long as possible. Comfort and connection matter more than silence.

Domino effect

1. Dementia kills brain cells and depletes acetylcholine (the messenger for memory and attention, made by cells in the basal forebrain), dopamine (the messenger for movement and reward, made by the substantia nigra and ventral tegmental area), and serotonin (the messenger that steadies mood and sleep, made by the raphe nuclei in the brainstem). The brain loses its map of reality, its impulse control, and its ability to turn feelings into words. — Without these messengers, the frontal lobes (the brakes at the front of the brain) and the limbic system (the emotion center deep inside, including the amygdala — the alarm — and hippocampus — the memory recorder) fail. The brain can no longer interpret what is real, what is safe, or how to say 'I hurt' or 'I'm scared' in language. Every uncomfortable feeling — pain, fear, loneliness, hunger — has no outlet except behavior.
2. Something physical breaks on top of the dementia: pain (arthritis, constipation, pressure ulcer), infection (urinary tract infection is the most common — bacteria in the bladder send inflammatory signals that scramble the brain; also pneumonia or skin infection), constipation (hard stool stuck in the colon pressing on nerves), urinary retention (bladder stretched painfully full), dehydration, new medicine (anticholinergics like diphenhydramine block acetylcholine further; benzodiazepines like lorazepam sedate and confuse; opioids cloud thinking), or wrong environment (loud, bright, unfamiliar, scary). — The dementia brain cannot interpret or express the new problem in words. Pain is felt but cannot be named, so it leaks out as agitation, pacing, yelling, or hitting. Infection scrambles an already-damaged brain further by releasing inflammatory chemicals (cytokines) that disrupt neurotransmitter balance, causing hallucinations and delirium. Constipation or a full bladder creates physical discomfort the person cannot locate or describe, so they wander, resist care, or lash out. The body is screaming but has no voice.

3. The body sounds the only alarm it has left: agitation (pacing, restlessness, cannot sit still), aggression (hitting, yelling, resisting care), hallucinations (seeing or hearing things that are not there, often due to Lewy body dementia or infection), delusions (false beliefs like 'someone is stealing from me' or 'this is not my home'), wandering (walking aimlessly or trying to leave, searching for something safe or familiar), sundowning (worse confusion and agitation in late afternoon and evening when light fades and fatigue peaks), depression (sadness, crying, withdrawal), apathy (no interest, no movement, no eating, staring blankly), sleep problems (up all night, asleep all day because the suprachiasmatic nucleus — the brain's clock in the hypothalamus — cannot keep time without strong light cues). — These behaviors are not random and not 'just the dementia getting worse.' They are the brain's emergency signal that something fixable is wrong. Agitation means 'I am in pain or scared or confused and I cannot tell you in words.' Wandering means 'I am looking for something safe or familiar because this place feels dangerous.' Hallucinations mean 'my brain cannot tell real from unreal anymore, and infection or a new drug is making it worse by disrupting the little acetylcholine or dopamine I have left.' Apathy means 'I am so overwhelmed or depressed or in pain that I have shut down completely because engaging with the world takes more brain power than I have.'
4. If the trigger is not found and fixed, the behavior escalates. The person refuses all care, stops eating and drinking, becomes combative (hitting caregivers or pulling out IV lines), falls and breaks a hip, or the caregiver gets hurt or burned out and the person is sent to the emergency room or nursing home in crisis. — Uncontrolled agitation leads to physical restraint (being tied down, which causes more fear and delirium) or antipsychotic drugs (risperidone, quetiapine, haloperidol), both of which raise the risk of falls (from sedation and muscle stiffness), aspiration pneumonia (from sedation reducing the cough reflex so food or liquid goes into the lungs), stroke (antipsychotics raise stroke risk 1.5–2 times in dementia per FDA black-box warning), and death (antipsychotics raise mortality 1.6–1.7 times). The person spirals deeper into confusion, loses more function, and the window to bring them back closes.

5. If the trigger IS found and fixed — treat the urinary tract infection with antibiotics (trimethoprim-sulfamethoxazole or nitrofurantoin per IDSA guidelines), give scheduled acetaminophen (650–1000 mg every 6–8 hours) for arthritis pain or pressure ulcer pain, help the person use the toilet every 2 hours to empty the bladder and prevent retention, stop the new sedating medicine or anticholinergic, move them to a quieter room with softer light and familiar faces and objects, offer a snack and water because hunger and thirst feel like anxiety in a dementia brain — the behavior often calms down within hours to days, without any psychiatric drug. — The brain was sounding an alarm because something was broken. Fix the break and the alarm stops. The agitation was not the disease — it was the body's last way to say 'help.' Non-drug interventions (comfort, routine, calm environment, treating pain and infection per current guidelines) work better and are safer than antipsychotics, which carry a black-box warning for stroke and death in dementia. Most BPSD episodes resolve with trigger management alone.
6. If non-drug methods fail after systematic trial and safety is at immediate risk (person is hitting others, trying to jump out of a window, pulling out critical tubes), very low-dose psychotropic medication may be needed — but always as a last resort, at the lowest dose, for the shortest time, with close monitoring and a plan to taper off as soon as safe. Prefer SSRIs (citalopram 10 mg or sertraline 25 mg daily) for anxiety-driven agitation or depression. Use antipsychotics (risperidone 0.25–0.5 mg or quetiapine 12.5–25 mg) only for severe psychosis or aggression, and document clearly why all other options failed. — Antipsychotics (risperidone, quetiapine, olanzapine, haloperidol) raise stroke risk and death risk in dementia patients per FDA black-box warning and multiple large trials. They should only be used when the person is in immediate danger of harming themselves or others, and only after every other option has been tried and documented as failing. The American Geriatrics Society Beers Criteria list antipsychotics as potentially inappropriate in dementia unless severe psychosis or aggression with harm risk.
7. The crash points to watch for and prevent: fall with hip fracture (from antipsychotic-induced sedation, muscle stiffness, or postural drop in blood pressure), aspiration pneumonia (from oversedation reducing the ability to cough and protect the airway so food or saliva goes into the lungs and causes infection), pressure ulcers (from lying still too long because of sedation — the skin over the tailbone, heels, or hips breaks down from lack of blood flow), stroke or sudden death (from antipsychotic disrupting heart rhythm or raising clot risk), or caregiver injury or burnout forcing emergency placement in a nursing home. — Once any of these happens, the person loses more function, independence, and comfort. A hip fracture often means never walking again. Aspiration pneumonia can be fatal. Pressure ulcers are painful and hard to heal. Stroke steals more brain cells. Caregiver burnout breaks the last safe anchor. The goal is to catch the spiral early — find and fix triggers, support caregivers with respite and education, keep the person safe and engaged — so they can stay comfortable and connected to family for as long as possible, without the harms that come from drugs or restraints.

8. The final teaching: behavior IS communication. Every agitation, hallucination, refusal, or shutdown is the dementia brain trying to say something it can no longer put into words. Your job is to listen with your eyes, your hands, and your detective skills — not with a prescription pad. Ask: Is this person in pain? Do they have an infection? Are they constipated? Do they need the bathroom? Are they hungry, thirsty, too hot, too cold? Is the room too loud or too bright? Is there a new medicine confusing them? Is it late afternoon and they are exhausted (sundowning)? Fix the trigger and the behavior usually calms. — The safest and most effective treatment for BPSD is often the simplest: a calm voice, a warm room, a familiar face, fixing pain with scheduled acetaminophen, treating infection with antibiotics, helping someone to the bathroom every 2 hours, offering a snack and water, reducing noise and harsh light, and giving caregivers the support and education they need to stay steady. Medicine is the last step, not the first. Current guidelines (APA, AGS, Cochrane reviews) all emphasize non-pharmacologic interventions as first-line because they work as well as or better than drugs, with none of the risks.

Symptoms · what the patient feels, and why

- Agitation or aggression (hitting, yelling, pacing): The damaged hippocampus and frontal cortex (the memory and planning centers) cannot process what is happening around the person or inside their body—like pain, hunger, or needing the bathroom—so the amygdala (the brain's alarm center) takes over and the person reacts with anger, shouting, or restless movements instead of words.
- Repeated questions or actions: The hippocampus (the brain's recording center for new memories) is dying, so the person forgets they already asked or did something seconds or minutes ago and feels the need to ask or do it again.
- Wandering or trying to leave: Damage to the parietal lobe (the part that builds a map of where you are) and the hippocampus makes the person feel lost or confused about where they are, or they may be searching for someone or a place familiar from long ago that feels more real than the present.
- Resisting care (pushing away help with bathing, dressing, or eating): The person may not recognize the caregiver because the fusiform gyrus (the brain's face-recognition area) is damaged, or the prefrontal cortex (the part that makes sense of social situations) cannot understand that the touch is help rather than threat, so the person feels scared, embarrassed, or attacked.
- Sundowning (confusion and restlessness that gets worse in late afternoon or evening): Dementia destroys cells in the suprachiasmatic nucleus (the brain's master clock in the hypothalamus), and fatigue plus fading daylight make it even harder for the damaged brain to process sights and sounds, so confusion and fear spike as evening arrives.

- Hallucinations or delusions (seeing things that are not there, or believing something false): Dying neurons in the visual cortex (the seeing center) and the temporal lobe (the meaning center) send scrambled signals, so the person sees, hears, or believes things that do not match reality—common in Lewy body dementia and late-stage Alzheimer disease.
- Apathy or withdrawal (no interest in activities, eating, or talking): The anterior cingulate cortex and frontal lobes (the parts that spark motivation, pleasure, and social connection) are dying, so the person loses the drive to do things and the ability to feel joy or care about what is happening around them.
- Sleep disturbances (awake at night, sleeping during the day): Dementia kills neurons in the suprachiasmatic nucleus and disrupts melatonin (the sleep hormone) release from the pineal gland, so the person's internal clock no longer matches day and night and sleep becomes scattered across twenty-four hours.
- Screaming or vocal outbursts: The person has lost language ability (Broca's area in the frontal lobe is damaged) and cannot put needs or distress into words, so they express unmet needs—pain, fear, loneliness, boredom—by shouting, moaning, or repeating sounds.
- Inappropriate sexual behavior (undressing in public, touching others): The orbitofrontal cortex (the brain's social-rule keeper) is damaged, so the person loses the filter that stops impulsive or socially unacceptable actions and may act on urges without understanding why it is wrong or embarrassing.

Focused exam

- Ask the caregiver: What was this person like last week? What changed today or yesterday?: Dementia gets worse slowly over months. If someone who was calm yesterday is now agitated or hitting today, something new just broke—pain, infection, constipation, or a medication change. You have to know their normal first so you can spot the break.
- Look for pain: Does the person grimace, guard a body part, refuse to move, or get aggressive when you touch them? Check old joints (hips, knees, back), pressure sores, and any recent falls.: Pain is the number one hidden cause of behavior problems in dementia. The person cannot say 'my hip hurts,' so instead they shout, hit, or wander trying to escape the pain. Fixing the pain often stops the behavior completely.
- Check bladder and bowels: When did they last urinate? Last bowel movement? Is the belly hard or bloated? Is the urine dark or cloudy?: A full bladder that will not empty or days without a bowel movement cause confusion and agitation in people with dementia. The discomfort and waste products in the blood make the brain more confused, and the person acts out because they feel terrible but cannot explain it.

- Take the temperature and look for signs of infection: new cough, confusion that got worse fast, or a mix of sleepiness and agitation.: Infection—especially urinary tract infection (bladder infection)—is a top cause of sudden behavior change in dementia, even without fever. The person cannot say 'I feel sick,' so instead they become aggressive, wander, or stop eating.
- Review all medications: new ones, dose changes, and drugs that can confuse the brain—anticholinergics like diphenhydramine (blocks the brain messenger acetylcholine, which scrambles memory and thinking), sleeping pills, opioids.: Brains with dementia are extremely sensitive to medications. One extra pill, a higher dose, or a drug interaction can flip someone from calm to confused and agitated. Too many medications together is a common, fixable cause of behavior problems.
- Check the environment and timing: Is the room too loud, too dark, too crowded, or unfamiliar? What time of day does the agitation happen? Who is present?: A brain with dementia cannot filter noise, darkness, or chaos the way a healthy brain can. Sundowning—agitation in late afternoon or evening—happens because fading light and fatigue overwhelm the brain circuits that are still working. A calm, familiar, well-lit space can stop the behavior without medication.

Diagnostics · every test answers a question

- Urinalysis (UA) with culture and sensitivity if positive → Is there a urinary tract infection causing the confusion and agitation?
- Bladder ultrasound (bladder scan) for post-void residual volume → Is the bladder holding urine because it is not emptying (urinary retention)?
- Abdominal X-ray (KUB: kidneys, ureters, bladder) → Is there stool backed up in the colon—fecal impaction or severe constipation?
- Complete blood count (CBC) → Is there infection (elevated white blood cells) or anemia (low red blood cells) that could worsen confusion?
- Basic metabolic panel (BMP: sodium, potassium, creatinine, glucose) → Are electrolytes out of balance or is the kidney failing, either of which can worsen confusion?
- Medication reconciliation (review of all current medications and recent changes) → Did a new medication, dose change, or drug interaction trigger the behavior change?
- Chest X-ray (if new cough, abnormal lung sounds, or low oxygen saturation) → Is there pneumonia (lung infection) causing the sudden confusion and agitation?

Treatment logic

- Identify and treat the medical cause: assess and treat pain (acetaminophen, gentle repositioning), treat urinary tract infection (antibiotics guided by culture), relieve constipation or urinary retention (bowel regimen, catheter if needed), stop or reduce harmful medications. → Fixing the upstream problem—pain, infection, full bladder or bowel, medication toxicity—removes the reason the body is sending distress signals. Once the actual problem is gone, agitation and aggression often disappear because the person feels better and the brain is no longer overwhelmed.
- Non-drug strategies first: validation (acknowledge feelings, do not argue or correct), redirection (gently change the topic or activity), music therapy, light exercise, familiar objects (photos, favorite blanket), consistent daily routine, calm caregiver presence, bright light during the day, quiet and dim light at night. → These strategies work with the parts of the dementia brain that still process comfort, safety, and familiarity. They lower the sense of threat and confusion, so agitation and wandering decrease without adding medications. Guidelines (AGS, APA) recommend non-drug approaches as first-line for behavioral and psychological symptoms of dementia.
- SSRI antidepressant—sertraline 25–50 mg daily, or citalopram 10–20 mg daily—if depression or anxiety is present alongside the behavior problems. → Depression is common in dementia and makes behavior worse. SSRIs increase serotonin (a brain messenger that steadies mood and sleep) in brain circuits that control emotion, which reduces sadness, anxiety, and the emotional outbursts that come from feeling hopeless or frightened. Studies show modest benefit for agitation when depression coexists (Cochrane, APA guidelines).
- Continue or start cholinesterase inhibitor (donepezil 5–10 mg daily) or memantine (10 mg twice daily) if not already prescribed, for the underlying dementia. → These medications slow the loss of thinking and memory pathways in Alzheimer dementia. Cholinesterase inhibitors (donepezil) boost acetylcholine (a brain messenger that helps memory and attention). Memantine blocks excess glutamate (a brain signal that, when too strong, damages nerve cells). A brain that is slightly less confused is less frightened and overwhelmed, so behavior problems may improve modestly. Evidence is mixed for behavioral symptoms specifically, but they treat the dementia itself (AAN, AGS guidelines).
- Low-dose antipsychotic—risperidone 0.25–1 mg daily, or aripiprazole 2–5 mg daily—ONLY if the person is in immediate danger (severe aggression, hitting, risk of harm) and ONLY after trying everything else and ONLY for the shortest time possible. Discuss the FDA black-box warning (increased stroke and death risk in elderly with dementia) with the family first. → Antipsychotics block dopamine (a brain messenger that drives movement and emotion) in brain areas that drive aggression and hallucinations, which can stop dangerous behavior quickly. They are a last resort when safety is at immediate risk (APA, AGS guidelines).

- Caregiver education and support: teach caregivers how to recognize triggers (pain signs, full bladder, noisy environment), how to speak calmly and simply, when to step back instead of confronting, and when to call for help. Connect them to support groups and respite care.
→ A caregiver who understands why the behavior is happening stays calm and responds correctly, which prevents small problems from spiraling into crises. Caregiver burnout is common and worsens outcomes; support and training improve both patient and caregiver well-being (AGS, Alzheimer's Association guidelines).

Medications

Citalopram (Celexa) or Sertraline (Zoloft) · Selective Serotonin Reuptake Inhibitor (SSRI)

These medicines help the brain keep more serotonin (a chemical messenger that lifts mood and calms anxiety) in the space between nerve cells. When serotonin stays around longer, it can reduce crying, anxious pacing, and low mood that sometimes show up in dementia.

1. The nerve cell releases serotonin into the gap between cells.
2. Normally, a pump on the sending cell pulls serotonin back in, ending the signal.
3. The SSRI blocks that pump, so serotonin stays in the gap longer.
4. With more serotonin available, the signal for calm and well-being gets stronger.
5. Over several weeks, the brain adjusts and mood and anxiety symptoms often improve.

SAFETY WATCH

May cause nausea, loose stools, or loss of appetite in the first few days. · Can increase fall risk in older adults, especially early in treatment. · Very rarely can cause too much serotonin (serotonin syndrome) if combined with certain other medicines—watch for confusion, fast heart rate, muscle twitching, or fever. · Citalopram dose must stay at or below 20 mg per day in adults over 60 because higher doses can disturb the heart's rhythm (long QT interval). · Never stop suddenly; taper slowly over weeks to avoid withdrawal symptoms like dizziness, headache, and flu-like feelings. · May worsen restlessness or agitation in the first week or two before benefit appears.

Donepezil (Aricept), Rivastigmine (Exelon), or Galantamine (Razadyne) · Cholinesterase Inhibitor

In dementia, brain cells that use acetylcholine (a messenger chemical important for memory, attention, and awareness) die off. These medicines slow the breakdown of acetylcholine so the

chemical that is left can work longer. This can help with thinking and sometimes reduce agitation, wandering, and hallucinations.

1. A nerve cell releases acetylcholine into the gap between cells.
2. The acetylcholine binds to the next cell and sends a signal for memory or attention.
3. An enzyme called acetylcholinesterase normally breaks down acetylcholine quickly.
4. The cholinesterase inhibitor blocks that enzyme, so acetylcholine lasts longer in the gap.
5. With more acetylcholine available, the brain can send stronger signals, which may slow the decline of thinking and reduce some behaviors.

SAFETY WATCH

Common side effects include nausea, diarrhea, vomiting, and loss of appetite; start at a low dose and increase slowly over weeks. · Can slow the heart rate (bradycardia)—use carefully in people with heart rhythm problems or who take beta-blockers. · May worsen asthma or chronic lung disease by increasing mucus and tightening airways. · Rivastigmine patch may cause skin redness or itching; rotate the patch site every day and avoid the same spot for two weeks. · If doses are missed for several days, restart at the lowest dose to avoid severe nausea and vomiting. · Can worsen stomach ulcers or cause new ones—use cautiously with NSAIDs. · May increase urination or make it harder to hold urine. · Vivid dreams or nightmares are common, especially if the dose is given at bedtime.

Memantine (Namenda) · NMDA Receptor Antagonist

In dementia, too much glutamate (an excitatory brain chemical that turns cells on) can overstimulate nerve cells and damage them further. Memantine partially blocks the NMDA receptor (the docking site for glutamate) to prevent that overexcitement, which may protect the cells that are left and improve thinking, function, and behavior.

1. Glutamate is released and binds to NMDA receptors on nerve cells.
2. Too much glutamate causes the receptor to stay open too long, flooding the cell with calcium.
3. That flood can damage or kill the cell over time.
4. Memantine sits in the receptor channel and blocks some of the glutamate signal, letting only the right amount through.
5. Cells are protected from overexcitement, which may slow decline and reduce confusion or agitation.

SAFETY WATCH

Common side effects include dizziness, headache, confusion, and constipation. · May worsen confusion or hallucinations in some people, especially at higher doses. · Use a lower dose in people with kidney disease because the drug is cleared by the kidneys. · Can be combined safely with a cholinesterase inhibitor; they work by different pathways. · No withdrawal syndrome—tapering is not needed if the medicine is stopped. · Rarely causes high blood pressure—monitor blood pressure during the first weeks.

Risperidone (Risperdal) or Quetiapine (Seroquel) · Atypical Antipsychotic

These medicines block dopamine (a brain chemical that can cause hallucinations, delusions, and severe agitation when out of balance) and some serotonin receptors. They are used only for severe aggression, psychosis, or danger to self or others when all non-drug approaches have failed, and only for the shortest time possible.

1. In dementia with psychosis or severe agitation, dopamine and serotonin pathways become overactive or unbalanced.
2. The antipsychotic blocks dopamine D2 receptors, which reduces hallucinations, delusions, and calms severe agitation.
3. It also blocks serotonin 5-HT_{2A} receptors, which can help stabilize mood and reduce impulsive aggression.
4. The combined effect may reduce dangerous behaviors like hitting, kicking, or severe paranoia.
5. However, blocking dopamine elsewhere in the brain causes side effects, especially in older adults with dementia.

SAFETY WATCH

BLACK BOX WARNING: Antipsychotics increase the risk of death in older adults with dementia by 1.6 to 1.7 times, mainly from stroke, heart failure, sudden cardiac death, and pneumonia. Use only when non-drug strategies have failed and the person is at serious risk of harm to self or others. · Increase risk of stroke and blood clots, especially in people with vascular dementia or risk factors like atrial fibrillation (an irregular, quivering heartbeat). · Can cause severe drowsiness, falls, and hip fractures—risk is highest in the first weeks. · May cause parkinsonism (stiffness, shuffling walk, tremor, mask-like face) because dopamine is also needed for movement. Risperidone has higher risk than quetiapine. · Risk of metabolic side effects: weight gain, high blood sugar (even new diabetes), and high cholesterol. Quetiapine and olanzapine carry higher metabolic risk than risperidone. · Can cause orthostatic low blood pressure (hypotension) (blood pressure drops when standing), leading to dizziness and falls. · Rarely causes neuroleptic malignant syndrome (a life-threatening reaction with high fever, muscle rigidity, confusion, and unstable vital signs)—stop the drug immediately if suspected. · Use the lowest effective dose and reassess weekly; stop as soon as the crisis resolves, usually within a few weeks. · Never use as a first-line treatment, for mild symptoms, or for staff convenience. · Taper slowly when stopping to avoid withdrawal symptoms like nausea, insomnia, and return of agitation.

Acetaminophen (Tylenol) · Analgesic (pain reliever)

Pain is one of the most common—and most overlooked—triggers of agitation, yelling, hitting, and refusal of care in people with dementia who cannot tell you they hurt. Acetaminophen blocks the production of prostaglandins (chemicals that send pain signals) in the brain and body, reducing pain without the risks of opioids or NSAIDs like ibuprofen.

1. An injury, arthritis, or other condition causes cells to release prostaglandins, which signal pain.
2. Acetaminophen blocks cyclooxygenase (COX) enzymes that make prostaglandins, mainly in the brain.
3. With fewer pain signals reaching the brain, the person feels less discomfort.
4. When pain is reduced, agitation, restlessness, grimacing, and refusal of care often improve dramatically within an hour.
5. The effect begins in thirty to sixty minutes and lasts four to six hours.

SAFETY WATCH

Safe for daily use in older adults when dosed correctly. · Maximum dose is 3,000 mg per day in older adults (lower than the 4,000 mg limit in younger people) to protect the liver from harm. · Check all other medicines—including over-the-counter cold, sinus, sleep, and headache pills—for hidden acetaminophen to avoid accidental overdose. · Avoid or use very cautiously in people with liver disease or a history of heavy alcohol use. · Overdose can cause fatal liver failure, but there are no warning symptoms until liver damage is severe. If overdose is suspected, get emergency help immediately—an antidote (N-acetylcysteine) can save the liver if given within hours. · Does not increase fall risk, cause drowsiness, or worsen thinking—making it safer than opioids or sedatives in older adults. · Scheduled dosing (around the clock) works better than as-needed dosing for chronic pain like arthritis.

Dextromethorphan-Quinidine (Nuedexta) · NMDA Receptor Antagonist and Sigma-1 Receptor Agonist (combination)

This combination is approved for pseudobulbar affect (sudden, uncontrollable laughing or crying that does not match how the person feels inside), which can happen in some types of dementia. Dextromethorphan works on NMDA receptors and sigma-1 receptors in the brain to calm emotional outbursts. Quinidine is added only to keep dextromethorphan in the body longer so it can work.

1. In pseudobulbar affect, pathways that control emotional expression become damaged and overactive.
2. Dextromethorphan blocks NMDA receptors and activates sigma-1 receptors, which helps regulate those pathways.
3. Quinidine prevents the liver from breaking down dextromethorphan too quickly, so the medicine stays active longer.
4. Emotional outbursts become less frequent and less intense, usually within a few weeks.
5. The medicine does not change the person's actual feelings—it only stops the uncontrolled physical expression.

SAFETY WATCH

Common side effects include diarrhea, dizziness, cough, and swelling in the legs. · Quinidine can prolong the QT interval (disturb the heart's rhythm), especially in people who take other medicines that affect the heart. Get an EKG before starting and avoid in people with heart rhythm problems. · Do not use with other medicines that are broken down by CYP2D6 (like some antidepressants, codeine, or tamoxifen) because quinidine will raise their levels and cause toxicity. · Use cautiously in people with kidney or liver disease—dose adjustment may be needed. · Not recommended in people with a history of heart block, heart failure, or low potassium or magnesium. · Falls and confusion are possible, especially in frail older adults. · This medicine is costly and often not covered by insurance for off-label use in dementia.

Red flags

- Sudden violent behavior that puts the person or others at immediate risk of serious harm (choking, using weapons, severe hitting)
- Refusal to eat or drink for more than twenty-four hours, which can quickly lead to dangerous dehydration, electrolyte imbalance, or malnutrition
- New confusion or behavior change that happens very quickly (within hours to one day)—may signal delirium from infection (urinary tract infection, pneumonia), stroke, medication toxicity, or metabolic crisis rather than dementia progression alone
- Wandering outside in extreme weather, into traffic, or into unsafe areas, risking hypothermia, heat stroke, injury, or death
- Complete refusal of all medications, including those for heart disease, diabetes, or seizures, creating immediate medical danger

Nursing priorities

1. Ensure immediate safety by removing objects that could be used as weapons, staying within arm's reach if the person is agitated, and calling for help if violence escalates. — The first priority is preventing physical harm to the patient and staff; dementia impairs judgment and impulse control, so the person may not recognize danger or consequences, and injury can happen in seconds.

2. Assess for and treat pain using a pain scale for people who cannot speak (PAINAD tool: watch for facial grimacing, guarding, resisting movement, breathing changes, and consolability) and give acetaminophen as ordered. — Pain is the most common reversible cause of agitation and aggression in dementia; untreated pain raises stress hormones like cortisol and activates the fight-or-flight response, making behavior worse until the pain is controlled.
3. Check for full bladder by palpating (gently pressing) the lower abdomen for a firm round mass above the pubic bone, and measure urine output; if retention is found, notify the provider for catheter order. — A bladder stretched beyond five hundred milliliters sends pain signals to the brain and triggers the sympathetic nervous system (stress response), causing extreme discomfort and combative behavior that resolves within minutes once the bladder is emptied.
4. Review the last bowel movement and check for abdominal distension (swollen belly), firmness, and bowel sounds; administer stool softeners or suppositories per protocol if constipation is likely. — Fecal impaction and severe constipation stretch the colon and rectum, causing deep visceral pain (pain from internal organs) and vagal nerve stimulation that triggers nausea, confusion, and agitation; relieving the blockage often stops the behavioral symptoms immediately.
5. Use validation and redirection instead of arguing: acknowledge the person's feelings with phrases like 'I see you are upset' or 'That must be hard,' then gently guide attention to a familiar comforting activity like folding towels or looking at photos. — The damaged brain cannot process logic or remember corrections; arguing raises cortisol and adrenaline (stress hormones), escalating agitation, while validation calms the limbic system (emotional brain) and redirection uses preserved procedural memory (automatic habits) to shift focus.
6. Identify and hold or reduce anticholinergic medications (diphenhydramine, oxybutynin, amitriptyline) and benzodiazepines (lorazepam, diazepam) by reviewing the medication list with the provider. — Anticholinergics block acetylcholine, a neurotransmitter (brain chemical messenger) already low in dementia, worsening memory and causing delirium; benzodiazepines suppress GABA receptors unevenly in older brains, paradoxically increasing confusion and disinhibition (loss of impulse control).
7. Screen for infection by checking temperature, oxygen saturation, lung sounds, skin for redness or wounds, and sending urinalysis if urinary symptoms are present; report fever above one hundred point four degrees or oxygen below ninety-two percent immediately. — Infection triggers systemic inflammation (body-wide immune response) that releases cytokines (immune messenger proteins) crossing the blood-brain barrier and disrupting neurotransmitters, causing delirium; older adults often show confusion or behavior change before fever appears.

8. Optimize the environment by increasing light in the late afternoon, reducing noise and clutter, keeping familiar objects visible, and maintaining a predictable routine for meals, toileting, and sleep. — The dementia brain has trouble filtering sensory input and adapting to change; bright light suppresses melatonin rise that causes early evening drowsiness, while routine reduces the cognitive load (mental effort) needed to predict what happens next, lowering anxiety and cortisol.

Sources

- American Geriatrics Society (AGS) Expert Panel on BPSD
- Alzheimer's Association
- American Psychiatric Association Practice Guideline for Alzheimer's Disease and Other Dementias
- Cochrane Dementia and Cognitive Improvement Group

Last reviewed: 2026-07-07