Agitation

24

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Abstract

Agitation, a term that includes behaviour such as excessive motor activity, verbal and physical aggression, is common in people with dementia. The assessment and management of agitation in older people can be challenging in primary care. Agitation may be the initial presentation of an early dementia, with a differential diagnosis that includes delirium, agitated depression, late life psychoses and anxiety disorders. In persons with established dementia, factors that contribute to agitation include acute medical problems, physical discomfort, communication difficulties, misinterpretations, carer and environmental problems and psychiatric comorbidity. Prevention of agitation by appropriate training of carers to provide person-centred care and by adapting the physical environment to meet the needs of people with dementia is paramount. Interventions to manage agitation should focus on non-pharmacological strategies first including addressing physical needs (e.g. pain relief), providing individualized psychosocial activities (e.g. physical exercise, music therapy, aromatherapy) in a regular structured program, educating and supporting the carers and optimizing the environment. In general, pharmacotherapy with psychotropic medication should be reserved for the more severe forms of agitation not responding to non-pharmacological interventions or when safety is seriously compromised and initially be used in trials of up to three months duration.

Key Points

- Agitation in older adults is not normal ageing.
- Agitation can occur in a range of mental disorders including dementia, delirium, depression, anxiety and psychoses.
- Agitation in dementia is often multifactorial in aetiology including neurobiological substrates, premorbid personality, psychological reactions and social interactions with carers and the environment.
- Assessment of agitation needs to focus on establishing the likely causal factor(s) in each individual case.
- Acute agitation is usually due to a medical condition.
- Interventions for agitation should initially be non-pharmacological, based on identified causal factors and include strategies to minimise carer stress.
- Apart from emergencies, psychopharmacotherapy of agitation should usually

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only be considered after an adequate trial of psychosocial interventions.
- Adoption of person-centred care practices, staff and carer training and appropriate environmental design in facilities might prevent agitation.

Case Vignette
A couple in their late 70s visited their family doctor, and the wife reported that her husband had recently become increasingly agitated: 'doctor: please do something'.

As a primary care physician, how would I handle this?

24.1 Introduction

The term 'agitation' is used in this chapter to describe behaviour associated with dementia and other cognitive disorders. In this context, agitation has been provisionally defined by an 'Agitation Definition Working Group' of the International Psychogeriatric Association as behaviour that is consistent with emotional distress and is a change from the person's normal behaviour. It includes excessive motor activity, verbal or physical aggression and causes excess disability and is not solely attributable to another primary mental disorder such as depression, psychosis or stress disorder or due to a medical disorder causing delirium [1]. Indeed, these exclusions form important differential diagnoses that are addressed later in the chapter.

There are many other terms used in the literature instead of agitation, and these include 'behavioural and psychological symptoms of dementia (BPSD)', 'neuropsychiatric symptoms', 'challenging behaviour', 'behavioural problems' and 'behavioural disturbances'. There are concerns that some of these terms are pejorative and stigmatizing; hence they are now less frequently used.

Agitation featured in historical descriptions of the dementia syndrome. When Alois Alzheimer described his patient Auguste Deter in 1907, symptoms of psychosis and vocal disruption were present in addition to cognitive impairment. Despite this, for many years the focus of clinical dementia research was on the cognitive features, and it was only in the 1980s that an increase in research into the non-cognitive symptoms occurred [2].

Agitation in people with dementia and other cognitive disorders is often very challenging for family carers, as well as for nurses and other care providers in hospital and long-term institutional settings. Family carers can become very distressed in their efforts to cope with agitation, and for many it can be a major factor that contributes to placement decisions. Primary care physicians have the opportunity to intervene in managing the behaviour as well as to provide support for distressed carers.

This chapter will provide an overview of agitation from a primary care perspective including the epidemiology, relationship to the ageing process, aetiological factors, behavioural types, assessment and management issues. It will provide guidance on working with specialist and multidisciplinary teams involved with dementia care.

24.2 Epidemiology

Agitation is common in people with dementia. The types of behaviour covered by this term are listed in Table 24.1. In the community-based Cache County Study, there was 97% five-year prevalence of any type of behaviour as measured by the Neuropsychiatric Inventory (NPI) in people with dementia [3]. In population-based studies the prevalence of the NPI domain behaviours that are captured within the agitation definition includes agitation/aggression 20–35%, disinhibition 8–17%, irritability 20–31% and aberrant motor behaviour (commonly described as 'wandering') 10–32% [4]. Of course, in clinic populations the prevalence is higher with agitation/aggression 29–60%, disinhibition 10–36%, irritability 25–66% and aberrant motor behaviour 22–47% [4]. Many types of behaviour persist, for example, aberrant motor behaviour persisted for

Table 24.1 Types of agitated behaviour

These behaviours should be associated with emotional distress, e.g. irritability, emotional lability, mood changes, outbursts
Excessive motor activity
Pacing
Rocking
Restlessness
Gesturing
Pointing fingers
Repetitious mannerisms
Verbal aggression
Yelling
Speaking in very loud voice
Using profanity
Screaming
Shouting
Physical aggression
Grabbing
Shoving
Pushing
Resisting
Hitting others
Kicking objects or people
Scratching
Biting
Throwing objects
Hitting, cutting or otherwise physically injuring self
Slamming doors
Tearing things
Destroying property

Adapted from Ref. [1]

18 months in 56% of participants in the Cache County Study [5].

In individuals with mild cognitive disorders, the prevalence of agitation is higher than in the normal population but much lower than in people with dementia [6]. The presence of agitation in mild cognitive disorders is associated with an increased risk of subsequent cognitive decline and conversion to dementia [7, 8]. In general, the prevalence of agitation increases with severity of cognitive impairment and dementia [2]. This is one of the factors that contribute to agitation being common in long-term residential care, with the point prevalence ranging from 69 to 92% in studies from Australia, Norway, the Netherlands and the United States [2]. Other prominent factors in long-term care include the physical environment, with too few facilities designed appropriately for the care of people with dementia, and care practices, where too few organizations ensure their staff follow the principles of person-centred care [9]. There are likely to be cultural factors that impact upon the prevalence of agitation in dementia. For example, there is a large difference in the prevalence of agitation/aggression in studies from the United Kingdom (9%), Brazil (20%), Spain (28%), the United States (30%), Japan (35%) and Korea (41%) [10]. Gender issues are prominent in specific types of behaviour, with aggression being more prevalent in males and verbal agitation more prevalent in females [2].

There has been a paucity of research that has explored the relative prevalence of agitation in different types of dementia [11]. However, early behavioural disinhibition is a diagnostic criterion for frontotemporal dementia, which is distinguished from other types of dementia in most studies by the presence of disinhibition, apathy and aberrant motor behaviour. Comparisons of vascular dementia and Alzheimer's disease have had inconsistent findings [11].

24.3 Nature of Agitation Using a Life Course Approach

24.3.1 How It Differs from the Normal Ageing Process

Agitation is not part of the normal ageing process. However, across the life cycle, some people are more prone to become agitated when under life stress, often related to their personality, past life experiences, post-traumatic stress disorder (PTSD) or chronic anxiety disorders. This will tend to persist into late life, and the primary care physician will be aware that certain patients will be prone to become agitated when stressed.

The observation that an older adult is becoming agitated in situations that would not have resulted in such behaviour previously should alert the primary care physician to review the patient. Agitation that appears in late life for the

first time is usually associated with a psychiatric disorder (such as major depression, late life psychosis) or a cognitive disorder (such as delirium or dementia). Acute change over a few days, even in a person with dementia, suggests the possibility of delirium, particularly if accompanied by fluctuating level of attention, increased confusion and symptoms of an acute medical condition. In the early stages of mild cognitive disorders and dementia, neuroticism increases, and this may have accompanying agitated behaviour [12]. The assessment of the differential diagnosis of agitation is covered in more detail later.

Agitation in people with dementia tends to occur later in the course of the disorder when cognitive and functional decline has already become quite noticeable. However, agitated behaviour will accentuate the impairment through its effects on concentration, attention and memory. Sometimes the older adult can barely keep still long enough to focus on the task at hand. Psychosocial function tends to decline with the older adult feeling restless, less adept in social and interpersonal situations and less able to self-care. With mild agitation the effects are less pronounced, and it may be unclear whether impairment is due to the behaviour change itself or just from the underlying dementia.

There is potential to improve cognition and function by reducing agitation; hence it is imperative to identify the underlying cause(s) promptly so that effective interventions can be introduced. The aetiology of agitation is multifactorial and often involving an interaction of neurobiological substrates (such as genetic polymorphisms, neurotransmitter changes, neuropathology, medical comorbidity), premorbid personality, psychological reactions and social aspects including carer and environmental issues [13].

24.3.2 Aetiological Factors

Aetiological factors can vary with the different types of agitation. For example, physical aggression, which is more common in males, is often associated with other frontal symptoms such as disinhibition and may be a reflection of executive dysfunction. Other factors commonly associated with aggression include medical comorbidities, history of head injury, premorbid personality, alcohol/substance misuse and discomforts related to pain. Carer intrusion into physical space might provoke an aggressive response if the person with dementia perceives it as a threat or if they feel embarrassed. Neurobiological substrates of aggression in Alzheimer's disease are multiple and complex. Genetic factors include polymorphic variations in serotonergic and dopaminergic genes. Dopaminergic, cholinergic, serotonergic and noradrenergic neurotransmitter changes have been reported in the brain [13].

A second example, vocally disruptive agitated behaviour, is more common in females and may be secondary to pain, physical discomfort (e.g., constipation, thirst, overheating), depression, boredom, loneliness and other health issues. Neurotic features in the premorbid personality are not uncommon. These behaviours are often best interpreted as a form of communication of distress [13].

Three explanatory models of how carer interactions and the environment might contribute to agitation in dementia provide some insights into potential management strategies. People with dementia have a lower threshold to coping with stress. The 'stress threshold' model hypothesizes that agitation occurs when this threshold is exceeded. Hence strategies that optimize exposure to potential stressors (such as noise, large groups, physical discomforts, etc.), which are likely to vary with the individual, may reduce agitation [13].

In learning theory, the likelihood of a behaviour occurring is increased if it is reinforced by the provision of rewards. For a bored and lonely person with severe dementia, the realization that a staff member will provide attention to them (the 'reward') if they call out can reinforce the behaviour. The 'learning theory model' emphasizes the importance of inadvertent reinforcement of inappropriate behaviours. By providing quality time with the person when they are quiet, it is hypothesized that over time, they will learn that they will have the pleasurable experience of being with the carer at those times rather than when they call out [13].

The 'unmet needs model' recognizes that people with more severe dementia cannot always communicate their needs through comprehensible language [13]. Behaviour is a form of communication, and in much the way that mothers learn the meanings of their baby's different cries and behaviours, the challenge is for carers to learn what unmet needs are represented by different behaviours in the person with severe dementia. For some individuals, restlessness might be a sign of tiredness; in others it might indicate a toileting need or be an indication of boredom. Similarly, verbal abuse and irritability might suggest that the person is hungry, but physical aggression might only occur if they are in pain.

The models are not mutually exclusive. Each model offers insights into behaviour that might operate simultaneously, for example, behaviour might be a communication of unmet need that has been inappropriately reinforced by the way in which a carer responds. The individual circumstances of the person with dementia perhaps indicate which factors might be more relevant in their situation.

An approach to assess the possible cause(s) of agitation in the primary care setting is provided in Table 24.2.

24.3.3 Implication for the Individual's Autonomy, Independence and Human Rights

Moderate to severe agitated behaviour in a person with dementia can be difficult for family carers to manage at home. Acute agitation may require short-term hospitalization to control the behaviour and treat the underlying cause(s), while persistent chronic agitation often results in the need for placement into a residential care facility as carers become burnt-out with stress. In either circumstance, the behaviour can be so severe and the capacity of the person with dementia so impaired that it requires involuntary detention under a mental health or guardianship framework depending on the circumstances and jurisdiction.

Unfortunately many hospital and long-term residential care settings are less than ideal in their design and staff capacity to manage agitated behaviour. Worldwide there is overprescription of antipsychotic drugs to control behaviour, and these are associated with increased risk of morbidity and mortality [9]. Frequently they have been prescribed without appropriate consent [14]. Physical restraints are still used, usually

Table 24.2 Six steps for determining the aetiology of agitation in dementia

Step 1	Is the behaviour new?	Any new behaviour that develops over a few days is due to an acute medical problem until proven otherwise
Step 2	Is the person in pain or discomfort, e.g. constipation, cramps?	Most people get irritable if in pain or discomfort from a chronic disability
Step 3	Is the behaviour due to misidentification, misinterpretation or disorientation?	Behaviour often reflects the underlying cognitive changes from the dementia
Step 4	Does the behaviour represents a particular distress or is the person unable to otherwise verbally express their needs?	Behaviour is a form of communication in the person with dementia and may be a way of drawing attention to unmet need
Step 5	Would *you* be happy to live in this physical and care environment?	If you have reservations about the quality of the environment, then it is likely that the person with dementia does too, and the behaviour may represent a reaction to it
Step 6	Does the person with dementia have a comorbid mood disorder or primary psychiatric disorder such as schizophrenia?	Agitation may be due to a comorbid psychiatric disorder such as severe depression, psychosis or anxiety

inappropriately, to control behaviour in some facilities despite the lack of evidence of efficacy and the undoubted ill effects on the individual. Most agitated behaviour can be adequately managed by non-pharmacological strategies provided adequately trained staff adopt a person-centred approach to care, use a range of pleasurable diversional activities and are supported by management [15].

Our anecdotal observation of good quality special care dementia units, which specialize in the management of people with the most severe forms of agitation, indicates that the residents usually appear to be, superficially at least, happy older adults behaving normally. Their human rights are being respected by the way in which the trained staff and the environment strive to meet their needs. In contrast, facilities in which residents are frequently agitated and distressed are likely to have a systemic problem hindering the provision of the type of care required to address their long-term needs.

24.4 Management of Agitation Using a Stepped Care Framework

24.4.1 Diagnostic Criteria Including Assessment Tools

The term agitation is a phenomenological description and not a diagnosis in itself. It may be present in a wide range of medical and psychiatric conditions, necessitating consideration of a broad differential diagnosis. The main diagnostic clusters are cognitive disorders, psychiatric illness, organic illness and substance misuse. With each diagnostic possibility, a detailed history, including corroborative history, focused physical examination, screening tool and/or indicated investigations, is important (see Table 24.3).

Delirium must be excluded first when there is an acute change in cognition, behaviour or mental state in someone with dementia or indeed any older adult. It is characterized by fluctuation in level of consciousness and cognition and inattention. Motor subtypes of delirium have been described, namely, hyperactive (which may present with an excess of movement and speech and lack of sleep), hypoactive (where the person appears sleepy, withdrawn and there is a paucity of movement and speech) and the 'mixed' subtype [16]. Screening tools may assist in detecting delirium. Two brief screening tools suitable for primary care are the Confusion Assessment Method (CAM) and the 4A's test [17, 18]. The former requires some training and essentially operationalises the DSM III-R criteria for delirium. The 4A's test does not require any operator training, or require physical responses from the patient and may be used for someone with severe agitation or drowsiness. Any medical condition, surgery and numerous medications may precipitate a delirium, so thorough history (including medication review particularly focused on anticholinergic drugs, opiates and benzodiazepines) and physical examination are required. Screening investigations (such as urinalysis, blood tests of electrolytes, liver function and blood count) and specific tests (such as an electrocardiograph, chest X-ray or cerebral imaging) as indicated by the patient's comorbidities may further elucidate the underlying cause(s).

Table 24.3 Key investigations for agitation

Physical examination	Sensory impairment, pain, temperature, hypotension, hypoxia, dentition
Delirium	Urinalysis, electrolytes (including glucose, calcium, magnesium, phosphate), liver function tests, full blood count, B12, folate, thyroid function tests, C-reactive protein
Dementia	Cognitive testing (mini-mental status examination, General Practitioner Assessment of Cognition, clock-draw test)
Psychiatric illness	Rating scales: Geriatric Depression Scale, Cornell Scale for Depression in Dementia, Beck Depression Inventory, Depression Anxiety Stress Scale Exclude organic illness: as per delirium investigations, electroencephalogram, syphilis and viral serology and cerebral imaging
Substance misuse	Physical examination for signs of intoxication or withdrawal, urine drug screen

Various psychiatric illnesses may present with agitation, mood or behavioural changes. Grief may also be associated with confusion, guilt and anxiety [19]. Mood disorders to consider include agitated or psychotic depression, mania and anxiety disorders. Agitated depression is a form of melancholic major depression with features including pervasive low mood (often with diurnal variation), anhedonia, anxiety or irritability, changes in sleep, energy, concentration, appetite and weight, psychomotor signs and depressive cognitions such as helplessness, hopelessness, worthlessness and suicidal ideation. Psychotic depression may include (usually) mood-congruent delusions (of poverty, guilt and nihilism), hallucinations and thought disorder and may be associated with behavioural and functional change. Screening tools for depression include the Geriatric Depression Scale for people with only mild cognitive impairment and the Cornell Scale for Depression in Dementia, rated separately by a clinician and a carer [20, 21]. The Beck Depression Inventory is useful in people with major medical conditions such as post-stroke, as it relies less on somatic or memory symptoms [22]. Agitated depression might also be due to organic illnesses (e.g. cerebral tumours, anaemia, hypothyroidism) or medications. Mania may occur in a person with bipolar disorder or de novo secondary to certain medications (e.g. high-dose steroids) or physical illness. Common features are elevated, angry or irritable mood, lack of need for sleep, excessive energy and activity, grandiosity, pressured speech and thought disorder and behaviour which is disinhibited, impulsive or risky.

Anxiety disorders are common and may be associated with agitation, both physical and psychological. Anxiety is a common presentation of depression in older adults but may also be due to an underlying anxiety disorder (such as panic disorder, agoraphobia and generalized anxiety disorder), medical conditions (such as chronic obstructive pulmonary disease or thyroid disorders) and substance abuse (see later). Fear of falling is also common in older adults, who may become agitated and fearful when needing to mobilize. In making a diagnosis, it is important to determine the duration of symptoms and temporal relationship with other illnesses, the focus of anxiety (to classify the type of anxiety disorder), associated functional impairment (such as avoidance or constraints on activities of daily living) and contributory physical factors (e.g. hypoxia) and to review their medication. The Depression, Anxiety and Stress Scale (DASS-21) is a simple self-rated tool which may be used to screen for depression, anxiety and stress and is valid in people with comorbid physical illness [23].

Psychotic disorders such as schizophrenia or delusional disorder may also cause agitation and may be longstanding or have an onset in late life. Key features include delusions, hallucinations, disordered thoughts and disturbed behaviours, which have developed over several months.

Organic illnesses may also cause agitation, for example, secondary to physical symptoms such as pain, hypoxia and dyspnoea, or due to the underlying cause, for example, epilepsy (associated with psychosis), neurosyphilis, neuroendocrine and other carcinomas. Poor dental and general hygiene, sensory impairment (vision, hearing) and malnutrition may also cause agitation. Psychiatric illness secondary to medications for general medical conditions should also be considered, for example, steroid-induced mania, hormonal treatment of cancers (e.g. depression secondary to goserelin) or interferon-induced depression and anxiety. As the onset of psychiatric illness is most common in youth or early adulthood, patients who present with new onset of psychiatric symptoms in later life should be carefully investigated for an underlying organic illness. A systems review when taking the history and a physical examination should be conducted. Screening investigations should include a urinalysis, blood biochemistry (including electrolytes, glucose, calcium, magnesium and phosphate), liver function tests, full blood count, B12, folate, thyroid function and cerebral imaging. Additional tests may be guided by the history, for example, screening blood tests for autoimmune and vasculitic conditions (erythrocyte sedimentation rate, C-reactive protein, antinuclear antibody, antineutrophil cytoplasmic antibody), infectious diseases (e.g. syphilis and HIV serology, lumbar puncture)

and malignancy (endoscopy, faecal occult blood, computerized tomography). An electroencephalogram may be reserved for complex cases, e.g. when a seizure disorder or atypical delirium is considered.

Substance intoxication or withdrawal can also present with agitation. People intoxicated with substances such as amphetamines, cocaine, caffeine and cannabis may be agitated. Agitation may also be a feature of withdrawal from benzodiazepines, nicotine, opiates and alcohol. A thorough substance use history should be particularly evaluated whether the person is dependent and the route of administration, amount and last time of use. Physical examination for specific signs of intoxication or withdrawal, a corroborative history from family or carers and a urine drug screen may assist with diagnosis. Prescribed medicine should also be reviewed, for example, sudden cessation of antidepressant medication may cause discontinuation symptoms such as irritability, agitation, restlessness, anxiety and sleep disturbance [24], which may be mistaken for anxiety or relapse of depression [25].

24.4.2 Specific Issues for Primary Care Assessment

Longer consultations or a series of appointments may be required to enable adequate time for assessment of agitation and other BPSD. Although evaluation for the common differential diagnoses of agitation is important, the component causes of the behaviour may be complex and multiple. Therefore, understanding the person, interactional factors and environment are important—why this person, why this behaviour and why now? Individual factors include the person's cultural background, previous employment, personality traits, medical comorbidities and current physical concerns (e.g. thirst, hunger, constipation). Interactional factors may include whether communication is impaired secondary to dysarthria or difficulties using language with progression of dementia, changes to routines, activities not well matched to the person's interest or intellect, insufficient or excessive stimulation, and encroachment upon personal space. Environmental considerations include poor lighting, insufficient visual prompts, lack of personal belongings, lack of privacy, visual distraction (e.g. patterns on flooring) and clutter [19].

Following assessment of agitation, the primary care clinician should inform the patient and their family/carer of the diagnosis made, options for management and prognosis. Informed consent should be obtained before treatment is commenced. Referral for specialist assessment may be indicated if, after comprehensive assessment, the diagnosis or cause of agitation is still uncertain; the presentation is unusual; the patient is young or atypical; there are multiple complex comorbidities, there is severe behavioural disturbance or psychosis; the person has learning difficulties or intellectual disability; or medication is being considered [26].

24.4.3 Health Promotion

According to the World Alzheimer Report, the prevalence of dementia internationally is expected to rise dramatically with the ageing of the population [27]. Accordingly, rates of BPSD, including agitation, which are almost universal in dementia and may occur throughout the disease process, are also expected to rise [2]. The association between agitation and adverse outcomes such as increased financial costs, carer stress (family and residential care staff), excess disability, premature institutionalisation and reduced quality of life for the person with dementia and their carers [2] makes this a priority for healthcare services in general and especially dementia care.

Health promotion in dementia applies across the spectrum from primary to tertiary prevention [28], with public health opportunities for agitation falling predominantly in the secondary and tertiary levels. Dementia is under-recognized and under-disclosed in the community [29]. A variety of reasons have been proposed to explain this fact including patient and carer factors (lack of knowledge about dementia, stigma, fear, denial, attribution to normal ageing), disease

factors (slow progression), primary health care providers lack of knowledge or time to diagnose dementia and limited access to specialist confirmation of diagnosis, and systemic factors (e.g. no definitive diagnostic test or accurate biomarkers) [29]. Each of these factors represents an opportunity to intervene, particularly through educational interventions and public health campaigns.

People with dementia report significant delays in the diagnosis being made, with significant implications for exercising their autonomy and decision-making capacity and receiving timely support [30]. For example, most people identify memory loss as a symptom of dementia, but may not recognize BPSD symptoms such as agitation or apathy [31]. Conversely, memory loss may be viewed by families as a normal part of ageing, and so medical advice is not sought [31]. The impact on carers of undiagnosed dementia and agitation, in particular, is multifactorial and may include carer stress or mental illness and isolation, potential for abuse, misattribution of causes of agitation and premature placement of the person with dementia in care facilities [2]. To improve understanding about the early diagnosis of dementia, the Alzheimer's Association in the United States developed the "Know the 10 signs" campaign [32].

A recent report from the Alzheimer's Society, the United Kingdom, identified key areas of health promotion for people with dementia [30]. The areas included improving community awareness and understanding, the provision of information and support to people with dementia, ensuring that people with dementia are seen as active individuals who may have a good quality of life in the community and improving health and social care services and related research [30]. Stigma about dementia is a key public health issue. A World Health Organization dementia survey revealed that people with dementia may be hidden or isolated due to shame or the potential for agitation and other BPSD to be observed by others [31]. Improved health literacy regarding dementia and agitation may help reduce stigma through greater public awareness [31]. For people with dementia, this might result in more opportunities to socialize and engage in community activities, greater tolerance and patience from others and improved community spirit [30].

In general hospital settings, dementia and agitation are also under-recognized [33]. Hospital inpatients with dementia have longer lengths of stay and greater care costs [33]. The environment can be overstimulating, unfamiliar and distressing to the person with dementia, resulting in or exacerbating challenging behaviours [33]. Difficulties communicating and engaging in care may contribute to the adverse outcomes [34]. People with dementia are at greater risk of delirium, which in itself is often not detected, may be untreated and is associated with high morbidity and mortality [35]. Initiatives to improve the care of people with dementia in hospital include strategies to reduce admissions (e.g. hospital in the home, healthcare services delivered in residential aged care settings), rapid specialist assessments in the emergency department and general hospital liaison services, appropriate 'dementia-friendly' environments and better discharge planning and integration of care [33].

24.4.4 Self-Care

A number of strategies have been suggested to promote self-care in people with dementia. Research evidence indicates that cardiovascular disease predisposes to both Alzheimer's and vascular dementia [31]. Longitudinal population-based studies suggest the potential for risk reduction through regular exercise, more education and addressing cardiovascular risk factors (e.g. through healthy diet, smoking cessation, tight control of diabetes and hypertension and reducing obesity) [36]. Some of these general lifestyle interventions may be important in slowing progression of dementia, particularly exercise and preventing vascular events [36]. The primary care clinician is also well placed to conduct general health screening and preventative medicine (e.g. blood pressure, skin checks, weight).

Meaningful activities in line with the person's ability and interests provide an outlet for expres-

sion and stimulation and optimizing quality of life in people with dementia [31]. Having a daily routine for the person with dementia can also provide structure and reduce anxiety. The benefits of participating in creative arts, although modest, include improving self-esteem and social interaction [37]. Access to social networks and peer support are also important [30].

The functional decline which occurs in people with dementia may be addressed through carers and services providing support with activities of daily living and home modifications for people living in the community. This may enable the person to stay in their own residence longer and improve their quality of life [30]. Information should also be provided about respite (in home or a residential aged care facility), local services and facilities [30].

It is important for the person with dementia to plan ahead for the time when decision-making capacity may be impaired. Primary care clinicians may assist this process and enhance patient autonomy by discussing issues such as driving, options for care (medical, services and accommodation) as dementia progresses, decision-making (e.g. appointment of an Enduring Guardian and Enduring Power of Attorney) and financial issues (creation of a will) early and in an ongoing way [38]. Conversations about advanced care planning may also be initiated by the primary carer clinician and should detail the person's values, wishes and preferences for end of life or emergency care in the event that they cannot make a choice [26].

24.4.5 Biopsychosocial Interventions

The causes of agitation and other BPSD are varied and often multiple, necessitating multimodal interventions which take into account biological, social, psychological, environmental, cultural and interpersonal factors. The key psychosocial interventions for agitation are outlined in Table 24.4. As it may be difficult for the person with dementia to communicate their needs, a holistic and broad approach is needed. General principles of assessment include clearly describing the behaviour or symptom and deciding whether intervention is required. A person-centred approach is important to best understand the individual, their symptoms, behaviour and situation and in order to select the most appropriate interventions.

Table 24.4 Psychosocial interventions for agitation

Physical	– Correct sensory impairment – Address physical needs, e.g. thirst, hunger, temperature, physical inactivity, bowel movements – Treat underlying physical illnesses and delirium
Environmental	– Appropriate lighting and visual contrast – Use interpreters when required
Behavioural	– Structured routine – Aromatherapy – Individualized music – Daily physical exercise – One-to-one clinical contact – Pet therapy – Snoezelen rooms – Sleep hygiene strategies
Psychological	– Psychoeducation for carers – Train carers in behavioural management – Cognitive stimulation therapy – Cognitive behavioural therapy
Social	– Day-care programmes – Domiciliary care packages – In-home respite – Residential aged care facilities – Carer health and support

24.4.6 Pharmacological

Although non-pharmacological approaches are recommended as first line for managing agitation, medications may be used in certain circumstances [2]. For example, they may be used as an adjunct to non-pharmacological measures or when the latter has been unsuccessful and when the agitation poses risks to safety, is severe or adversely affects quality of life and function of the patient or carer [13]. However, there is only modest evidence for the use of medications to treat various forms of agitation but significant risk of serious side effects [39].

After careful assessment of need and indication, prescribing medications for people with agitation includes a number of important considerations. The adverse effects of the drug

must be weighed against potential benefits and individual circumstances (medical comorbidity, medications, supervision, cost) and informed consent obtained from the patient or substitute decision-maker. The duration of the medication trial and a plan for review should be determined. Doses should be titrated slowly and polypharmacy avoided. Prescriptions of antipsychotics to people with dementia with Lewy bodies or Parkinson's disease require particular caution due to neuroleptic sensitivity [13].

Various medications have been trialled for different types of agitation and are summarized in Table 24.5. For aggression, there is modest evidence for the antipsychotics haloperidol, risperidone or aripiprazole and the antidepressant citalopram [40]. Quetiapine may cause greater cognitive decline in Alzheimer dementia as well as being ineffective for agitation with Alzheimer or Lewy body dementia [39]. Risks of antipsychotics in people with dementia include extrapyramidal effects, falls, metabolic problems, stroke and neurological symptoms and greater mortality [13]. Some antipsychotics also have anticholinergic (which may precipitate delirium or worsen cognition) or cardiac effects. Although benzodiazepines are often used for agitation, there is no good evidence to support this, and adverse effects such as falls, sedation, delirium and ataxia are common. Effective use of analgesics for pain may reduce agitation in moderate to severely demented nursing home residents. There is modest evidence for carbamazepine for agitation in dementia.

Cholinesterase inhibitors may be useful when targeting specific symptoms such as motor behaviours, apathy, anxiety and depression, and hallucinations and delusions [41]. There is good evidence for rivastigmine for agitation and visual hallucinations in particular, in dementia with Lewy bodies. Side effects of cholinesterase inhibitors include anorexia, gastrointestinal upset, diarrhoea, bradycardia, dizziness and agitation. Additionally, agitation may worsen within six weeks of withdrawal of cholinesterase inhibitors. The glutamate receptor antagonist memantine may be useful for aggression and agitation, irritability and delusions and hallucinations. Adverse effects include drowsiness, constipation, dizziness, anorexia, headache, hypertension and anxiety. There is meta-analytic evidence for melatonin improving some types of agitation, but effect on mood requires more study, and it does not appear to improve impaired cognition [42].

Table 24.5 Pharmacological interventions for agitation

General principles	• Weigh up risks and benefits and seek informed consent • Low doses with gradual titration • Avoid polypharmacy • Determine the duration of the trial and schedule interim reviews
Aggression	Citalopram, memantine, risperidone, aripiprazole, haloperidol
Agitation	Analgesia, carbamazepine, melatonin, rivastigmine (dementia with Lewy bodies), memantine, citalopram
Motor behaviours, apathy, anxiety and depression, psychosis	Cholinesterase inhibitors, memantine
Insomnia	Cholinesterase inhibitors, ginkgo biloba, melatonin

24.4.7 Physical

The optimization of physical and sensory functioning is an important aspect of addressing agitation. Basic unmet physical needs such as thirst, hunger, comfortable temperature, physical activity and constipation may cause agitation and distress. Additionally, visual and hearing impairment may predispose to misinterpreting the environment and hallucinations and should be screened for and addressed. Attention to appropriate lighting and visual contrast is also helpful [13]. If the person with dementia does not speak the local language, inability to communicate may exacerbate agitation. Regular use of interpreters or placement in culturally appropriate facilities may be useful.

There are several non-pharmacological approaches to managing behavioural changes, especially agitation, in people with dementia. Those with some evidence include developing a structured routine, aromatherapy, music matched to individual preference, daily physical activity (minimum 30 minutes), one-to-one engagement

with a clinician, animal-assisted therapy (pets), Snoezelen rooms and therapeutic activities [13].

24.4.8 Physiological

Delirium is very common in people with dementia and may lead to agitation, aggression, mood changes and psychotic symptoms. Therefore, any acute change in behaviour or psychological symptoms in someone with dementia should be considered a delirium until proven otherwise. Delirium is characterized by sudden onset, fluctuations in cognition and level of consciousness and inattention. Surgical procedures, any medical condition and many medications may contribute to development of a delirium. Management requires a broad approach incorporating identification and treatment of acute medical illness, optimization of sensory function and physical health (e.g. hydration, nutrition, constipation) and mobility, medication review, environmental measures and staff interventions [43]. People with dementia may take longer to recover from a delirium, even once the contributory factors have been addressed.

24.4.9 Psychological

A few psychotherapeutic strategies have been evaluated for the management of agitated behaviour. Effective strategies for carers include psychoeducation and behavioural management approaches targeting challenging behaviours or carer responses [44]. The effect is greater for individual sessions than groups.

The evidence for psychotherapy in people with agitation in dementia is poor, and studies are generally of poor methodological quality [44]. One promising approach is cognitive stimulation therapy [45]. The purpose of this structured therapy is to improve cognition and social function through a variety of enjoyable activities, usually in a small group social setting, which stimulate memory, thinking and concentration [45]. Beneficial outcomes include better quality of life and less symptoms of depression. Cognitive behavioural therapeutic approaches may be useful for people with dementia and anxiety. For example, the small Peaceful Mind pilot study demonstrated less anxiety and improved quality of life in people with dementia and anxiety and reduced related carer distress [46]. However, positive effects were not maintained at six months. Other psychotherapeutic approaches for agitation have included reminiscence therapy, validation therapy and reality orientation therapy; however, evidence of effectiveness is limited [13].

24.4.10 Social (Housing Support)

Accommodation options depend upon the person's level of function, availability of carer support and supervision, preferences and particular needs. People with dementia may be able to live in their own home with formal community services or carers providing assistance with activities of daily living tailored to their cognitive or functional impairment. Occupational therapists may assess the home environment and suggest modifications to improve safety and meet the person's needs.

Residential aged care facilities are an option for people with dementia whose care needs cannot be met at home. Facilities may be chosen depending on need for low or high care, and there may be dementia-specific units available, with highly trained staff and lower staff-to-resident ratios. There is evidence for placement in a home-like environment reducing aggression [47], but as these units are usually small with highly skilled staff, familiar environments and particular models of care, it is difficult to know which specific elements confer benefit [47].

Looking after someone with dementia can be stressful and burdensome. Carers may neglect their own health and have poor mental and physical health. They face numerous challenges such as lack of time for themselves, guilt, grief for aspects of the person they have known, social isolation and may have difficulty coping with challenging behaviours and the demands of care [48]. A primary care physician is well placed to

enquire about how the carer is managing and to evaluate their health, the need for additional help or respite and supports available [48]. Their health and needs can be monitored along with the patient.

24.4.11 Day Care

Adult day centres offer a safe environment where the person with dementia can take part in activities and social contact. They vary in hours, services provided, support with personal care, cost and staffing skills and availability. Day centres may cater for specific cultural, language and religious groups. For the carer, a day centre provides an opportunity for respite. In-home or residential respite is another option, which provides care for the person with dementia in their own environment from a qualified person or relative/friend, thus giving the usual carer a break.

24.4.12 Night Support

Disturbances in circadian rhythm and sleep are common in dementia, especially dementia with Lewy bodies, and are associated with depressive symptoms, greater carer burden, poor quality of life and premature placement in residential aged care facilities [49]. While there are a variety of causes, it is important to exclude and address environmental (e.g. temperature, changes to routine, noise) and medical factors (e.g. pain, illness, delirium, depression or anxiety or medication effects). Carers may be taught sleep hygiene strategies such as limiting caffeine, adequate exercise, appropriate lighting, adequate hydration and keeping a regular night time routine [49]. Attention to safety is also important for wandering at night, for example, removing trip hazards and leaving a night light on. Studies of light stimulation have inconsistent results.

There is little evidence for pharmacological approaches and risks must be considered. Atypical antipsychotics have some evidence but are not recommended unless psychosis underlies the nocturnal disruption [49]. Cholinesterase inhibitors have some evidence in Alzheimer's disease. Ginkgo biloba and melatonin have limited evidence for improving sleep [49], and melatonin may worsen early morning waking [42].

24.4.13 Management of Frailty

Dementia, particularly vascular type, is strongly associated with frailty in people aged over 75 [50]. Dementia and frailty are both associated with greater risk of mortality, falls and fractures [50]. Population based initiatives in midlife to prevent disability, dementia and frailty target public policy, educational campaigns and legal regulatory frameworks. The key areas of intervention include smoking cessation, increasing physical activity/reducing sedentary behaviour, achieving a healthy weight and diet and reducing alcohol consumption [51]. The individual management of frailty includes exercise (resistance, aerobic, balance and dual tasking), high-protein diet, vitamin D and leucine-enriched essential amino acids supplements [52]. One example of an intervention which prevents frailty in older adults is resistance and balance training programmes combined with nutritional counselling [53]. However, specific programmes for people with dementia, agitation and frailty are lacking.

24.4.14 Spirituality

Spirituality may involve the search for meaning and purpose, connectivity with others, sense of an Other or organized religion. The ability to practice religion or faith is an important element of quality of life in people with dementia, even those with advanced disease in care facilities [54]. Religion may help the individual find purpose and meaning or assist with coping [55]. Given the potential value and diversity of ways in which spirituality may be experienced, people should be asked directly how they would like to stay connected with their faith [55].

24.4.15 Management of Emergencies

Primary care physicians will often be requested to urgently attend a residential aged care facility because one of the residents has become severely agitated. A behavioural emergency is any situation in which the safety of the person with dementia, their carers or other persons is potentially seriously compromised. The types of agitation include severe physical aggression and self-injurious behaviour. Usually by the time the primary care physician has been called the opportunity for an early intervention to de-escalate, the situation has either passed or has been attempted with varying degrees of success. An early intervention involves the carers (family or professional) being able to recognize the early warning signs that agitation is escalating. This should result in the prompt use of a de-escalation strategy involving protecting the person and others from coming to harm by using a calm, attentive approach, removing objects, such as knives, which could cause harm, manoeuvring the person into a safe quiet location with supervision, removing other persons who might be harmed and summoning assistance from others. Frequently this approach might suffice to settle the emergency.

The most important task for the primary care physician is to determine the possible cause(s) of the emergency, even before pharmacotherapy is used to control unresolved severe agitation, as the likely aetiology could influence the medication to be administered. In this regard, the possibility of the behaviour being symptomatic of delirium (as described in 4.1) is a priority consideration particularly when the behaviour has only emerged in the previous few days. The identification and treatment of the medical cause need to occur promptly and include a physical examination. Other possible causes, as previously described, include unmet need, the person being a 'victim' who has reacted to the behaviour of someone else and a chronic recurring pattern of behaviour that has not been adequately addressed before (as described in 3.2).

There is very little empirical evidence to guide choice of pharmacotherapy for treatment of behavioural emergencies. If possible, oral medication is preferred as first-line treatment. If the person has Lewy body dementia, antipsychotic drugs should be avoided. Caution is required if the patient is delirious, hypotensive or frail. Suggested pharmacotherapy options are in Table 24.6.

Consideration needs to be given regarding consent for medication. In most jurisdictions, emergency administration can occur without prior consent, but it is expected that the substitute decision-maker is informed, usually within 24 hours, and consent for subsequent pharmacotherapy obtained. This implies that a treatment plan is required that includes prevention of further episodes, treatment of new episodes and perhaps a short-term regular course for up to three months depending on the cause.

Safe administration of emergency sedation requires close monitoring afterwards as there is a high risk of adverse effects due to the likelihood that a higher than usual dose will be required to settle the behaviour, the presence of medical comorbidity and the possibility that the person is medication naïve. The main concerns are oversedation, hypotension, extrapyramidal side effects and falls.

Table 24.6 Emergency pharmacotherapy for severe agitation

Oral pharmacotherapy		
First line	Short-acting benzodiazepine	E.g. lorazepam 0.5–1.25 mg (maximum 7.5 mg in 24 h)
Second line	Atypical antipsychotic	E.g. risperidone 0.5–1 mg (maximum 4 mg per event) *or* Olanzapine 2.5–5 mg (maximum 10 mg in 24 h)
Third line	Traditional antipsychotic	E.g. haloperidol 0.5–1 mg (maximum 4 mg in 24 h)
Parenteral pharmacotherapy		
First line	Short-acting benzodiazepine	Lorazepam 1 mg IMI 2 hourly (maximum 3 mg in 24 h)
Second line	Atypical antipsychotic	Olanzapine 2.5 mg IMI 2 hourly (maximum 7.5 mg in 24 h)
Third line	Traditional antipsychotic	Haloperidol 1 mg IMI 2 hourly (maximum 3 mg in 24 h)

IMI intramuscular injection, *mg* milligrams
Table based on Refs. [39, 41]

24.4.16 Evaluation of Interventions Made

It is important to provide ongoing review and set a timeline for evaluating whether an intervention has been successful. This is especially true for any pharmacological interventions, where risks may outweigh benefits [39]. Any ineffective treatment should be withdrawn. Staff at residential care facilities may be asked to complete a behaviour diary, which records the nature, frequency and type of agitation, as well the intervention used and outcome. The Antecedent, Behaviour and Consequences (ABC) approach is commonly used to describe challenging behaviours and evaluate the effectiveness of management interventions. This approach involves the carer or staff documenting the antecedent, behaviour and consequences of the behaviour.

Formal assessment tools improve the differentiation of agitated behaviour which facilitates targeted treatment [56]. Rating scales are also useful in objectively quantifying change in symptoms and behaviours from pre-intervention levels. They are particularly helpful in residential aged care facilities. A variety of rating scales have been devised to evaluate specific (e.g. depressive symptoms, agitation, apathy) and general agitation and other BPSD [56]. For example, the Cohen-Mansfield Agitation Inventory [57], Behavioural Pathology in Alzheimer's Disease [58] and the NPI [59]. Tools may be scored by carers (family or professional), self-report by the person with dementia, or physicians' direct observations. However, to achieve consistency and reliability in ratings, staff must be trained in the use of the rating scale.

24.4.17 Specific Recommendations for Management in Primary Care

It is important to consider and screen for cognitive impairment in older adults. This should include taking a history from the person and their carer including regarding the onset, nature and progression of cognitive symptoms, functional impairment (i.e. activities of daily living), whether they are driving and other safety considerations (such as access to weapons, becoming lost, accidental injury or self-neglect) and mood [48]. Agitation can also be a potent cause of carer stress, which should be evaluated. Formal tools to assess and monitor cognition such as the mini-mental status examination [60], clock-draw test and the General Practitioner Assessment of Cognition (GP-Cog) should be conducted [61]. The GP-Cog is a valid, quick screening tool for dementia developed for primary care and consists of objective cognitive tests combined with historical reports from an informant [61].

The key issues in managing agitation and other BPSD in primary care are to elucidate the underlying causes and address them. Assessment may take time and is necessarily broad, including corroborative information from families, carers and residential care staff. Once an intervention has commenced, there should be a plan for regular review. It may be necessary to sequentially try different approaches to management before an effective intervention is found for the individual. While behavioural, environmental or psychological interventions may continue indefinitely, pharmacological strategies should have a time frame determined for use, relevant monitoring and be withdrawn if ineffective. Families and carers may benefit from additional information and support, for example, through the local Alzheimer's Association branch, carers organizations and Dementia Services.

24.5 Conclusion

Agitation is a common complication of dementia that will be frequently encountered by primary care physicians. It is often a manifestation of distress in the person with dementia, can be very stressful for their carers and results in premature institutionalization. Early assessment and appropriate interventions by primary care physicians can ameliorate the distress, assist carers in coping with the situation and delay placement into institutional care. For those persons already in residential care, well-trained staff using person-centred care practices in a well-designed facility can reduce the likelihood of agitation development.

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