Dementia, comorbidity and multimorbidity

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The ageing population continues to increase, with the UK having higher than the global average of older people (Worlds Health Organization (WHO), 2022). In 2017, approximately 18% of the UK population was aged 65 years or over and projections suggest that in 50 years' time, there will be an additional 8.6 million people over 65 years old in the UK (Office for National Statistics (ONS), 2018). The ageing population presents health and social care services with many challenges as this group of people are more likely to experience multiple health conditions, including dementia, and have associated complex care needs (Bao et al, 2019). This means that they will experience higher numbers of hospital admissions, increased length of stay, more complications and higher readmission rates, leading to cost burdens for the healthcare system (Glynn et al, 2011; Palladino, 2016). Similarly, individuals may be impacted by reduced quality of life, increased dependency, polypharmacy (Delgado et al, 2021) and mortality (Marengoni et al, 2011; Salive, 2013). In people living with dementia, these may be felt more acutely, as their other comorbid conditions can be poorly recognised, assessed and subsequently, poorly managed compared to those without the condition (Knight and Dening, 2017; Aldridge and Dening, 2019).

Comorbidity and multimorbidity

Research has shown that, in addition to their dementia diagnosis, 61% of people living with dementia have at least three other comorbid conditions (Timmons et al, 2016). The terms comorbidity and multimorbidity have been used interchangeably by many authors (Diederichs et al, 2011). For the purposes of this paper, the term multimorbidity, as espoused by Yarnall et al (2017) will be the preferred reference. Therefore, multimorbidity is the presence of two or more comorbid long-term conditions (LTCs), which currently cannot be cured, but can be controlled through medications or other treatment. Multimorbidity can embrace both physical and/or psychiatric conditions experienced by an individual, which may or may not directly interact with each other (Barnett et al, 2012). However, it is also important to give consideration to where there are additional acute, intercurrent conditions that are superimposed on a person's multimorbidity (Sampson and Dening, 2021). One of the main concerns for practice where multimorbidity exist is that they are often expressed in many varied combinations, which can lead to under-recognition, under-diagnosis and under treatment of some or all conditions (Jakovljević and Ostojić, 2013). Of equal importance, Jakovljević and Ostojić have argued that the presence and impact of multimorbidity is often under-estimated and can in of itself present as an additional condition.

Multimorbidity: primary or index condition

Where multimorbidity exists, one of the comorbid conditions can often be referred to as the primary or index condition (Bunn et al, 2015). For example, an oncologist may be concerned with the effect of other comorbid conditions on their management of prostate cancer, whereas multimorbidity as a focus captures the overall complexity of patients without focusing on any single disease. The overall burden and impact of such levels of multimorbidity is greater than if each were counted individually and the physical and emotional demands are often felt by their family carers as well (Bao et al, 2019). Furthermore, it is suggested that there is a propensity within our healthcare systems to consider singular disease processes and attribute any changes to the primary condition as opposed to considering the interaction of one condition upon another (Aldridge and Dening, 2019). When symptoms are attributed to one condition as opposed to being seen as an interaction with another comorbid condition(s), this is referred to as diagnostic overshadowing (Aldridge and Dening, 2019). First described in individuals with mental illnesses, diagnostic overshadowing can lead to

Abstract

Many people living with dementia will also have multimorbidity comprising several other intercurrent, long-term and comorbid conditions. This article examines the relationship between such conditions in the context of dementia, giving an overview of the literature, including prevalence and some of the common conditions that can coexist with dementia. The theory and evidence-base will be tied together using a case study approach, to illustrate the complexity of managing comorbid conditions and multimorbidity alongside dementia, and explore some of the approaches that can be used by community nurses to support the overall health of people living with dementia that they work with.

Keywords: Comorbidity • dementia • multimorbidity

compromised patient care and likely contributes to increased mortality (Hallyburton, 2022). Diagnostic overshadowing can be experienced in many ways in dementia; an example may be when a person with dementia exhibits changes in their behaviour, which is seen as a consequence of a progression in their condition, as opposed to considering other possible causes such as pain, delirium or depression (Aldridge and Dening, 2019).

Management of other comorbid conditions

Multimorbidity is more prevalent in older populations, especially those aged 85 years and over and is set to rise (Kingston et al, 2018). Dementia and comorbidities can interact with one another, causing an acceleration or exacerbation of one or more of the individual diseases or complication with treatment regimens (Fox et al, 2014; Bunn et al, 2016; Page et al, 2018; Aldridge and Dening 2019). However, the true extent of comorbidities faced by people living with dementia may be as a consequence of the difficulties experienced in their increasingly compromised ability to notice symptoms and communicate them to those around them (Fox et al, 2014; Page et al, 2018).

Conditions most common in addition to dementia

There are several comorbid conditions that have a greater frequency in older people living with dementia. Browne et al (2017) undertook a retrospective cohort study based on health data from the Clinical Practice Research Datalink and found that the 10 most frequent comorbidities in people living with dementia included six cardiovascular-related conditions, chronic pain, depression, hearing loss and constipation. In a cross-sectional study in primary care, Poblador-Plou et al (2014) found that the comorbidities significantly associated with dementia included Parkinson's disease, congestive heart failure, cerebrovascular disease, anaemia, cardiac arrhythmia, chronic skin ulcers, osteoporosis, thyroid disease, retinal disorders, prostatic hypertrophy, insomnia and anxiety.

However, what these studies did not report on is the co-existence of frailty and dementia. In examining frailty and cognitive impairment, Borges et al (2019) suggested that the two conditions interact and coexist in a two-way relationship. Frailty is defined as a state of physiological vulnerability associated with the ageing process, resulting in a reduction of homeostatic reserve and difficulty responding adequately to stressful events (Hoogendijk et al, 2019). It is not unusual for people who have a diagnosis of dementia or cognitive impairment to also be frail, particularly in those aged over 76 years (Kulmala et al, 2014). There is some evidence that frail older adults are at higher risk of cognitive decline; yet, there is still little known about how these conditions are interrelated (Fabrício et al, 2020). However, what both dementia and frailty do have in common is their increased prevalence in older age, which may offer some explanation to the fact that people living with dementia may also be frail and vice versa. As with dementia, there is a high incidence of frailty in care home settings. Physical frailty, perhaps resulting in the need for increased support, is offered in a residential setting (Buckinx et al, 2015). As with dementia, the presence of frailty can be associated with poor health outcomes, often as a result of adverse events such as falls or infections (Montero-Odasso and Speechley, 2018).

Intercurrent acute conditions

An additional comorbid condition to consider is one that is intercurrent. An intercurrent condition is one that occurs during the course of another disease, modifying it, and often has no connection with it. Conditions such as constipation, pneumonia and other infections (such as those of the urinary tract) are common in advanced dementia (Sampson and Dening, 2021), but can also have a negative impact on people in the earlier stages of dementia. It is essential for community and primary care nurses to have a heightened awareness of the risk of a superimposed infection for anyone diagnosed with dementia; if left undetected, it can lead to worsening of symptoms. It is also important to distinguish between dementia, delirium and depression (Dening and Aldridge, 2021) as these are also serious conditions that are common in older people and have similar presentations (Polson and Croy, 2015).

The most frequent outcome of an undetected, intercurrent infection may be delirium. Delirium is a syndrome that involves the sudden deterioration of mental functioning, which can exacerbate the situation in a person with a diagnosis of dementia (Dening and Aldridge, 2021). It is a common and serious medical emergency (National Institute for Health and Care Excellence (NICE), 2010), and people living with dementia are at high risk of developing delirium superimposed onto their dementia (Maclullich et al, 2013). Signs and symptoms of delirium may seem to mimic or be similar to those of dementia, such as impaired attention, memory disturbances, disorientation, altered perceptions (visual hallucinations, illusions and delusions), and emotional disturbances (Bugiani, 2023). Delirium can cause significant distress and is associated with suboptimal outcomes, such as the increased risk of an avoidable hospital admission (van Roessel et al, 2019).

Non-compliance to treatments or poor management of comorbid conditions

In the presence of dementia and comorbid conditions, it is vital to consider their impact upon one another not just in terms of the interplay of symptoms but how treatments for each condition may be affected (Bao et al, 2019; Bugiani, 2023). There is some evidence to suggest that comorbid conditions that are poorly managed, such as type 2 diabetes, may accelerate the progression of dementia (Bunn et al, 2016). Older people living with dementia are at risk of not complying with treatment and medication regimes as complex cognitive processes are needed to manage medications (Smith et al, 2017). The problem becomes exacerbated as many people living with dementia are often subject to polypharmacy because of their multimorbidity and thus, managing multiple medications

can become increasingly problematic. People living with dementia can experience several problems when trying to manage medications, for example, they may forget to take medications or fail to remember they have already taken it and take an extra dose (Scrutton and Brancati, 2016).

Taking multiple medications increases the risk of negative interactions. Needless to say, as the numbers of medications increase, so does the risk of potential side effects (Balli et al, 2021). This is of particular importance in the case of anticholinergic drugs, which are often prescribed in the treatment of conditions such as chronic obstructive pulmonary disease, overactive bladder and incontinence, gastrointestinal disorders, Parkinson's disease, asthma and vertigo. As previously noted, these are all common conditions comorbid in dementia (Fox et al, 2014). Anticholinergic medications are known to cause confusion, memory loss and worsening mental function in people who are aged 65 years and older, with some evidence to suggest that use of anticholinergics increases the risk of dementia (Zheng et al, 2021). Not all individual drugs with anticholinergic properties increase the risk of adverse effects; however, when used in combination, the effects can be accumulative. Therefore, reducing anticholinergic burden may result in improvements in short-term memory, confusion, behaviours and delirium (Zheng et al, 2021). There are several scales and tools that can calculate the overall cumulative anticholinergic score for a patient's prescribed medication, one of which is the International Anticholinergic Burden scale: (https://iact-app.herokuapp.com/).

In addition, it is important to consider medication management in the context of dementia as a progressive neurological condition, which will lead to the person experiencing increasing difficulty in their continued ability to self-manage medications for their various conditions. This will require healthcare professionals to be vigilant and periodically review their function and any needs that arise, and to step up support as and when appropriate.

Through the use of a fictional case study, some common issues that arise when supporting a person living with dementia who also experiences other comorbid conditions, will be considered. Case studies can be both educational and informative and offer a simulation of practice examples where clinicians can identify themselves in or recall similar scenarios that they have witnessed or experienced (Seshan et al, 2021). Reviewing case studies offer ideas on how to improve clinical practice and patient outcomes. It can also generate deeper and multi-faceted understanding of complexities encountered in real-life clinical contexts.

Case study: Shirley

Shirley is 82 years old and lives alone. She was diagnosed with a mixed dementia of Alzheimer's disease and vascular dementia 8 years ago and was prescribed donepezil to slow its progression. Shirley also has type 2 diabetes, diagnosed at the age of 55 years, and managed it well with diet and metformin slow release due to experiencing initial side effects of nausea. She did not require any help with her medications until about 3 years ago. During one of her weekly visits, her daughter noticed that her mother appeared more confused and had an unsteady gait. She sat her mother down and made her a cup of tea and a sandwich, though Shirley seemed reluctant to eat or drink, claiming she had a poor appetite. It transpired, after a visit from her GP, that Shirley was experiencing a hypoglycaemic episode due to mismanaging her metformin tablets, having taken too many over a possible couple of days, forgetting that she had already taken them.

Case study: reflective questions

- How many long-term conditions does Shirley experience?
- Can you detect any intercurrent conditions?
- In total, how many conditions does Shirley have?

Shirly's GP decided to bring her over-75 health check forward and reviewed her existing conditions and medications. Shirley also has osteoarthritis and a recent history of falls, and as a result of one fall last year in the local shopping centre, sustained a colles fracture of her right wrist. After this fall, a DEXA scan was undertaken where low bone density was detected, consistent with her gender and age; bisphosphonate treatment was started to prevent further bone loss. In addition to this, Shirley has very prominent bunions of many years resulting on standing on both feet that affect both her walking and balance. She experiences a lot of pain, so she takes paracetamol regularly. She also insists on wearing loose-fitting sandals to try and manage this, which are also thought to have contributed to her propensity to fall.

Shirley had good sight until her early 60s when, still working as a secretary, she started to have problems with blurred vision and seeing rainbows around bright lights, which impacted on her ability to do screen work. After tests, it was revealed that she had glaucoma and was prescribed eyedrops.

While this case study is fictional, it is based upon cases that are typical in the day-to-day practice of an admiral nurse – a specialist in care-management in dementia (Harrison Dening et al, 2017). Admiral nurses see a person with dementia who is experiencing several conditions concurrently and as such, multimorbidity (Yarnall et al, 2017). As seen in Shirley's case, she is 8 years into her diagnosis of Alzheimer's and is showing clear signs of cognitive decline, which is manifesting itself currently as now losing her ability to self-manage the treatments and medications needed to maintain a healthy stasis in relation to her other comorbid conditions.

It is important to not only consider the cause of Shirley's hypoglycaemic attack but how she can be supported where-ever possible, to improve her self-management of medications and treatments for all her conditions. There is evidence to suggest that people living with cognitive impairment who live alone are more likely to have adherence issues than those who live with a carer (Smith et al, 2017).

Because of the progression of her dementia, she is no longer able to recognise her symptoms of ill-being, due to her poorly managed type-2 diabetes and is unable to self-report these. There comes a stage where the person living

with dementia will have difficulties to independently adhere to complex treatment regimens (Aldridge and Dening, 2019). This means that professionals need to be particularly vigilant to any changes to a person's usual presentation and, be mindful not to fall into the trap of diagnostic overshadowing. Always investigate new symptoms fully rather than putting them down to a progression in the dementia. It may be useful and important to gain information from family carers in such cases, for example Shirley's daughter, who knows her mother well and was able to pick up on changes to her usual presentation.

In Shirley's case, using a medication compliance aid in the form of a box that has days of the week and compartments for each time of the day, may enable her to maintain her independence for longer. However, caution should still be exercised in their use and promotion as there is little empirical evidence to support their use or consider them the most appropriate solution in cases of non-adherence (Stewart et al, 2018; Shenoy et al, 2020). The appropriate support needed across the disease course of dementia to utilise these products have not been determined (Elliott et al, 2015).

Shirley had managed her type 2 diabetes for many years but now, due to her cognitive and functional impairment or a lack of understanding of the rationale for the treatment and lifestyle advice (diet), was no longer able to do so safely (Aldridge and Dening, 2019). This may mark a time to now consider external support to either prompt or enable dietary controls, in conjunction with medication management to help Shirley continue to live well with this comorbid condition.

A holistic person-centred assessment can facilitate opportunities to understand a one's needs and facilitate solutions that go beyond medical interventions (Molony et al, 2018). While initial efforts will be to support the continued independence and autonomy of a person living with dementia in self-managing their own medications, as dementia progresses there may be a need for more input to administer medication from district nurses and family carers.

Of vital importance is the ongoing need to balance the benefits of treatments and interventions to modify comorbid disease progression against the burden of treatment. As dementia progresses, adherence to treatment may reduce further or becomes less efficacious. There may be a need to discuss the goals of care with a view to move from a stance of trying to prevent disease progression to one of managing symptoms. In Shirley's case, widening the parameters of optimal blood glucose levels to allow for any deficits in her ability to manage her diet and medication management of her diabetes are some considerations to be made. Where possible, the person living with dementia or their family should be consulted to ensure that any decisions made are the least restrictive and in the person's best interests, as detailed in the Mental Capacity Act 2005 (Department of Health, 2015).

Conclusion

An increased awareness of the prevalence of dementia, common comorbid conditions and the effects of multimorbidity is essential for primary care and practice nurses as they come into contact with people diagnosed with dementia on their caseloads. Similarly, an understanding of some of the possible implications of supporting and managing safe treatment regimens are also important as the person's abilities to self-manage are challenged. A proactive approach to their management can minimise any negative effects that may arise where multimorbidity exists in people living with dementia. Facilitating holistic assessments and ongoing monitoring can inform better communication and decision-making for this group of people and avoid compartmentalisation into singular disease monitoring and treatment plans. It is important to recognise that people living with dementia can still be involved in the management of their long-term conditions, enabling them and their family carers to be informed and active partners in care. **BJCN**

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Key points

- People with dementia often have other comorbid conditions that comprise multimorbidity
- People with dementia can often experience diagnostic overshadowing where other comorbid conditions are under detected and poorly managed
- People with dementia and their families may need support to manage treatment regimens to enable independence for as long as possible.

CPD reflective questions

- Think about your current caseload and any who have a diagnosis of dementia; how many other comorbid conditions do they experience?
- What is meant by the term 'diagnostic overshadowing'? Can you reflect on a time from your practice where you have witnessed this in practice? What were the implications and outcomes?
- Using your favoured reflective framework write a reflective piece on what you have learnt from reading this article and how you will apply it to your practice.

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