

Chapter 4

Supporting the Well-being of an Aging Global Population: Associations between Well-being and Dementia

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A photograph of an older woman with short grey hair and glasses, wearing a dark polo shirt with 'volunte' on it and an NHS lanyard. She is pushing a metal cart in a hospital hallway. The image has a teal-to-yellow gradient overlay. A large white number '4' is on the left side.

4

More than a decade of research demonstrates that people with higher well-being are less likely to develop dementia.

Key Insights

As the global population of older adults increases, the number of worldwide dementia cases is also expected to increase.

Dementia is associated with reduced quality of life and lower well-being, and thus dementia prevention is critical to maintain the well-being of an aging global population.

Higher levels of well-being have been robustly associated with lower risk for future dementia, suggesting that increasing well-being maybe a promising non-pharmacological approach to dementia prevention.

Among individuals living with dementia, environmental changes and activities that enhance autonomy, competence, and relatedness have been shown to improve well-being.

By the year 2050, the World Health Organization estimates that the global population of people 65 and older will double¹ (see Figure 4.1 for historic population growth of older adults by world region). As the global population of older adults continues to rise, the number of people living with dementia is also expected to grow, reaching approximately 139 million dementia cases by the year 2050.² Dementia is an age-related clinical syndrome that results in progressive or persistent loss of memory and thinking abilities,³ which in turn can negatively impact well-being.⁴ Given that there is currently no cure for dementia and biomedical treatments remain limited, it is vital to evaluate and implement non-pharmacological dementia prevention strategies. A growing body of evidence suggests that well-being may be a promising target for dementia prevention efforts, given its associations with better cognitive health

and lower dementia risk.⁵ However, dementia prevention science is still a long way away from preventing all dementia cases.⁶ Thus, it is also crucial to evaluate and implement strategies to support the well-being of people living with dementia and their care partners.

In this chapter, we begin by reviewing evidence for well-being as a potential prevention target that may reduce the risk for dementia, in turn promoting continued well-being in later life. Then, we review evidence for strategies to increase the well-being of people living with dementia. Throughout the chapter, we consider evidence from international data sources and describe innovative dementia care models from around the world. We conclude by discussing how these research findings can inform policy to support the well-being of an aging global population.

Fig. 4.1: Population of Adults Age 65 and Older

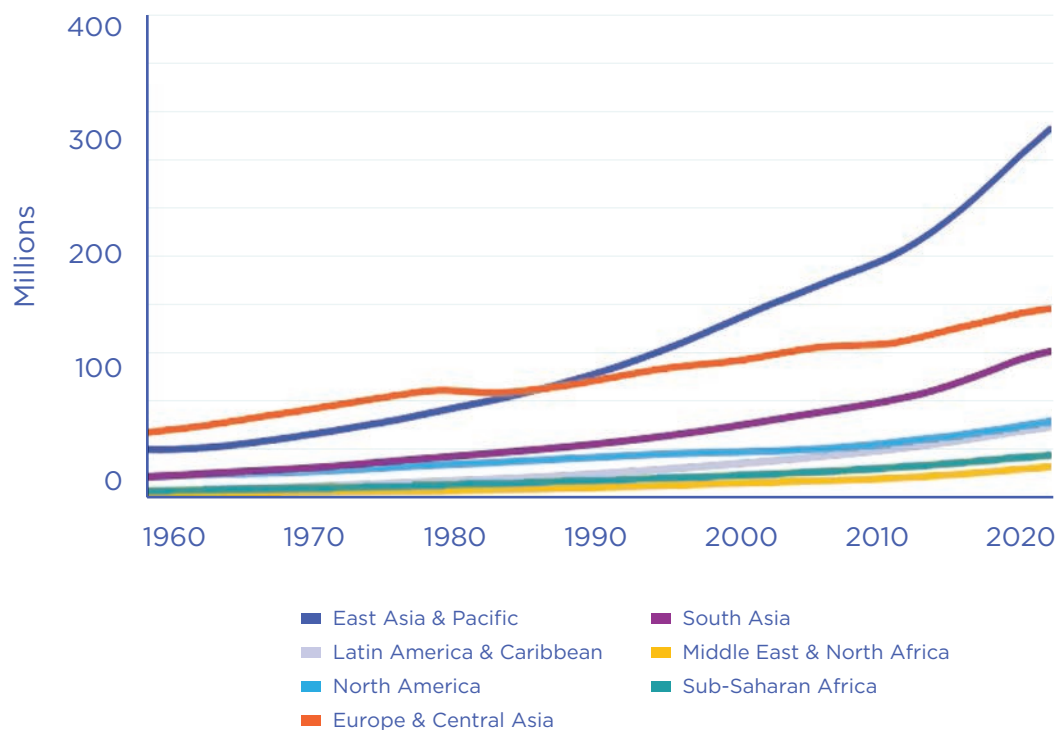


Figure 4.1. Data were retrieved from <https://data.worldbank.org/indicator/SP.POP.65UP.TO>. The World Bank (2022). Population ages 65 and above, total.

Fig. 4.2: Higher well-being may support memory and thinking abilities and lower risk for later dementia.

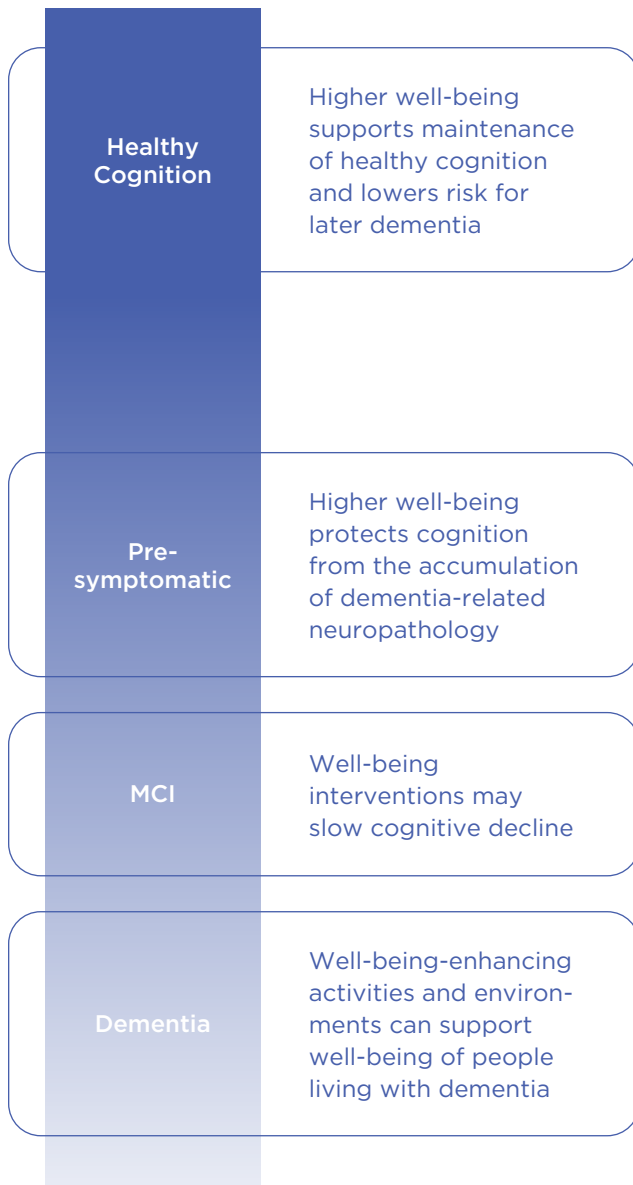


Figure 4.2. In individuals with healthy cognition, research suggests that higher well-being may support memory and thinking abilities and lower risk for later dementia. After dementia-related neuropathology accumulates but while individuals remain pre-symptomatic, evidence suggests that well-being protects memory and thinking abilities from the accumulating neuropathology. In the early stages of cognitive impairment (e.g., mild cognitive impairment; MCI), well-being interventions are a promising but largely untested strategy to slow declines in memory and thinking abilities. Finally, well-being-enhancing activities and environments are crucial for supporting the well-being of people living with dementia and their care partners.

Well-being as a Protective Factor against Dementia

More than a decade of research demonstrates that people with higher well-being are less likely to develop dementia.⁷ These studies have defined well-being in many different ways, including positive emotional experiences, cognitive evaluations of one's satisfaction with their life, and one's sense that their life has purpose or meaning. However, a recent meta-analysis suggests that the association between well-being and dementia may be more consistent for some types of well-being, such as sense of purpose, than for others, such as positive affect.⁸ Prior research suggests that well-being may protect health through social, behavioral, and biological pathways,⁹ and similar mechanisms may link well-being to lower dementia risk. For example, research suggests that well-being promotes social engagement, which is critical for supporting cognitive functioning and preventing dementia.¹⁰ Higher well-being also supports positive health behaviors that are beneficial for cognitive and brain health, such as greater physical activity and abstinence from smoking.¹¹ Finally, research suggests that higher well-being is associated with better cardiovascular functioning,¹² which in turn reduces dementia risk.¹³

To test the possibility that well-being may protect against dementia, dozens of research studies have followed people across middle and older adulthood in numerous countries and world regions, including Australia, China, Europe, Israel, Korea, Singapore, and the United States.¹⁴ These studies have found that people with higher well-being have better memory and thinking abilities,¹⁵ experience less declines in memory and thinking abilities,¹⁶ and are less likely to develop dementia.¹⁷ For example, a research study conducted at the Rush Alzheimer's Disease Center in Chicago, United States, found that people with higher well-being appear resilient to the brain diseases that cause dementia.¹⁸ Well-being was assessed at the beginning of the study period, and memory and thinking abilities were assessed yearly for the rest of the participants' lives. After participants died, the researchers conducted autopsies to quantify the amount of

dementia-related neuropathology that was present in participants' brains. People with higher levels of well-being experienced better-than-expected memory and thinking abilities and less-than-expected declines in memory and thinking abilities in their final years of life relative to the amount of dementia-related neuropathology that researchers discovered in their brains during autopsy (see Figure 4.3.). The association was

present above and beyond other known resilience factors (i.e., socioeconomic status, education, cognitive activity, personality, low depression) and known dementia risk factors (i.e., genetic risk for dementia, medical comorbidities). This suggests that well-being may protect memory and thinking abilities from the brain diseases that cause dementia.

Fig. 4.3: Resilience to Dementia-Related Neuropathology

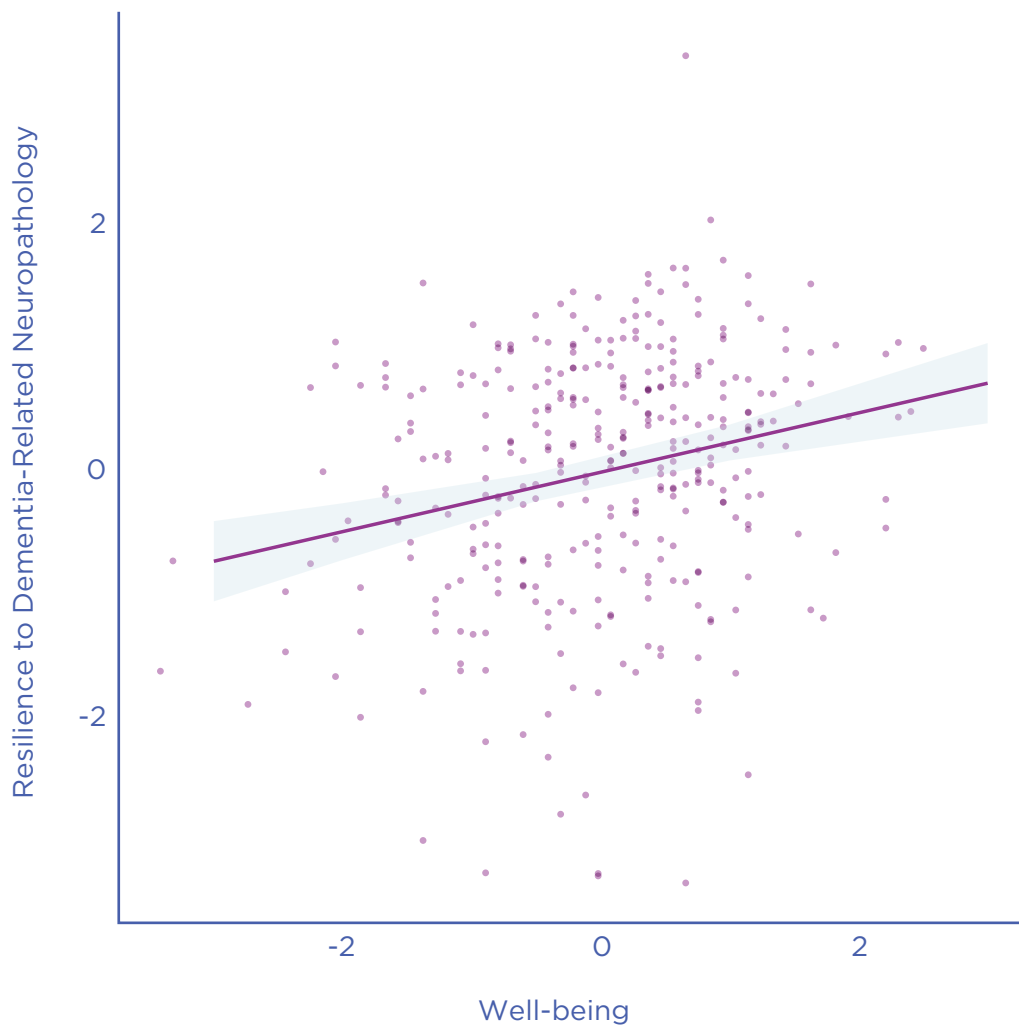


Figure 4.3. People with higher well-being at the study baseline demonstrated better-than-expected memory and thinking abilities relative to the amount of dementia-related neuropathology present in their brains (i.e., cognitive resilience). Both well-being and cognitive resilience are shown in units of standard deviations. Willroth, E. C., James, B. D., Graham, E. K., Kapasi, A., Bennett, D. A., & Mroczek, D. K. (2023). Well-being and cognitive resilience to dementia-related neuropathology. *Psychological Science*, 34(3), 283-297. Copyright © 2022 (the authors).



Overview of Causal Evidence

Taken together, high-quality international data sources provide strong evidence that higher well-being is associated with lower dementia risk (see Table 4.1). However, this does not necessarily mean that well-being causes lower dementia risk. Establishing a causal effect of well-being on dementia is challenging because well-being and dementia share many common causes, including lifestyle, medical, and socioeconomic factors. For example, social isolation, low educational attainment, or poor physical and mental health may simultaneously reduce well-being and increase dementia risk. Reverse causality is also possible. For example, lower levels of well-being may be an early indicator of underlying brain changes that occur prior to the development of dementia. In this case, intervening to improve well-being may not necessarily change the course of underlying brain changes or future dementia. Therefore, it is crucial to establish whether the

effects of well-being on dementia are causal because this determines whether interventions and policies that increase well-being would also reduce dementia incidence. A strong causal path from well-being to dementia would increase the likelihood of positive feedback to well-being attributable to the lower incidence of dementia.

Randomized controlled trials are one of the most common methods researchers use to investigate causality. In randomized controlled trials, researchers randomly assign participants to either an experimental condition in which the theorized causal variable is manipulated or to a control condition. This random assignment reduces the risk of confounding or reverse causality. Randomized controlled trials of well-being interventions have been shown to effectively increase well-being.¹⁹ However, further research is needed to test the effects of those interventions on cognitive health and dementia incidence.

Table 4.1: Selection of research findings regarding the association between well-being and dementia risk.

Authors	Country of Data Collection	Well-being Measurement	Cognitive Measurement	Key Findings
Sutin et al. 2020	Austria, Belgium, Czech Republic, Denmark, France, Germany, Greece, Israel, Italy, the Netherlands, Poland, Spain, Sweden, Switzerland	“How often do you feel that your life has meaning?”	Incident cognitive impairment based on scores on memory and verbal fluency tasks	People who experienced more meaning in life were less likely to develop cognitive impairment across a nine-year period. Findings were consistent in four regions of Europe and Israel.
Willroth et al., 2022	United States	Satisfaction with Life Scale; Ryff Psychological Well-being Scale	Functioning on 19 cognitive tests relative to the amount of neuropathology present in participants’ brains at autopsy	People with higher well-being had better-than-expected memory and thinking abilities and less-than-expected declines in memory and thinking abilities relative to the dementia-related neuropathology present in their brains and discovered at autopsy.
Ma et al. 2021	Europe, United States	Genetic variants associated with overall life satisfaction and positive affect based on the largest meta-analysis of genome-wide association studies	Alzheimer’s disease diagnosis according to the National Institute on Aging Alzheimer’s Association (NIA/AA), the NINCDS-ADRDA criteria, DSM-IV criteria, or the ICD-10 criteria, or autopsy-confirmed	Higher genetically-predicted well-being was associated with a lower risk for dementia. The effect was considered “causally suggestive.”
Bell et al., 2022	Austria, Belgium, China, Czech Republic, Denmark, England, France, Germany, Greece, Ireland, Israel, Italy, the Netherlands, Poland, Singapore, Sweden, Switzerland, Spain, United States,	Purpose and meaning in life, positive affect, life satisfaction, optimism	Incident cognitive impairment or dementia based on clinical diagnoses, cognitive status assessments, task-based cognitive functioning, and/or neuropsychiatric interview	Meta-analytic findings suggest that purpose and meaning in life are associated with lower incident cognitive impairment and dementia. Results were mixed for life satisfaction and optimism, and positive affect was not significantly associated with incident cognitive impairment or dementia.

Table 4.1. Selection of research findings regarding the association between well-being and dementia risk.

An alternative to experimental randomization is Mendelian randomization, a technique that leverages the random allocation of genetic variants to test for causal effects. In a recent Mendelian randomization study, researchers examined associations between genetic variants associated with well-being (i.e., life satisfaction and positive affect) and incidence of dementia.²⁰ The researchers found that genetically predicted well-being was associated with a lower risk for dementia. The strength of the evidence was “suggestive” of a causal effect, which means that more research is needed to investigate this possibility further.

Future Directions for Research on Well-being and Dementia Risk

As the evidence for a potentially causal effect of well-being on lower dementia risk grows, a critical next step is to test well-being-enhancing interventions to prevent or delay dementia. The field may benefit from testing the effects of existing well-being interventions on changes in memory and thinking abilities and, ultimately, dementia diagnosis. This will require longer-term follow-ups than most previous randomized controlled trials of well-being interventions. Researchers may also consider pairing well-being

interventions with existing lifestyle interventions designed to lower dementia risk, such as those targeting health behaviors and other lifestyle factors. Given the pressing need to lower dementia risk worldwide, it is important to test well-being-enhancing interventions that are highly scalable and are accessible and effective in racially, ethnically, and geographically diverse samples.²¹

To increase the likelihood of successful intervention, researchers should investigate several other basic science questions about the association between well-being and dementia. First, it is not clear when in the lifespan well-being may reduce dementia risk. On the one hand, increasing well-being as early in the lifespan as possible may enable individuals to experience life-long benefits of higher well-being, and these benefits may accumulate to lower dementia risk in late life. On the other hand, increasing well-being in midlife and older adulthood when individuals are at greatest risk for developing dementia may be an effective strategy. Relatedly, we don't yet know on what timescale well-being may impact cognitive functioning or dementia risk. Studies have observed associations between well-being and later cognitive functioning or dementia risk across one- to 20-year intervals, but the impact of these different timescales on the strength of associations has not been tested. In addition to questions about timing, more research is needed to test the associations between well-being and dementia in socioculturally diverse samples. One of the strengths of existing research on well-being and dementia is the use of samples from many different countries and world regions. However, more research is needed on the groups at greatest risk for developing dementia, including people living in low- and middle-income countries, racial and ethnic minority groups, and people of lower socioeconomic status.

Given the complexity of research on well-being and dementia risk, future research on this topic will benefit from the continuation and adoption of open science practices. For example, many existing studies of well-being and dementia have made their data publicly available. This allows the research community to reproduce scientific findings and test new research questions,

More research is needed on the groups at greatest risk for developing dementia, including people living in low- and middle-income countries, racial and ethnic minority groups, and people of lower socioeconomic status.

accelerating scientific progress. Multi-site and multi-study collaborations are also useful, as they allow researchers to test their questions in large samples and to evaluate the generalizability of findings across diverse populations. Moving forward, the field would also benefit from more widespread adoption of preregistration. Preregistration involves specifying research questions, hypotheses, methods, and/or analytic approaches prior to collecting or analyzing data. This enables researchers to distinguish predicted findings from unexpected or exploratory findings, which in turn can help readers calibrate confidence in researchers' findings. Finally, research findings should be made widely accessible to the research community, healthcare providers, policymakers, and the general public.

Well-being in People Living with Dementia

In the previous section, we considered well-being across the lifespan as a potential resource to lower dementia risk, in turn further supporting well-being in older adulthood. However, dementia prevention science is still a long way away from preventing all dementia cases, with 10 million new diagnoses each year.²² As the global population of people living with dementia grows, it is crucially important to evaluate strategies to increase the well-being of people living with dementia.

People living with dementia or exhibiting cognitive decline often experience decreased well-being.²³ Yet, it is still possible to live well with dementia. Well-being and quality of life are widely studied

and often used interchangeably in research examining the lived experiences of people with dementia.²⁴ Quality of life is a multidimensional concept that can include individuals' physical condition, mood, relationships, financial situation, and engagement in activities.²⁵ Some researchers suggest that well-being is a component of quality of life, whereas others define well-being as an outcome of quality of life. Similar to well-being, studies have found declines in quality of life for people living with cognitive impairment and dementia.²⁶ Awareness of one's diagnosis and prognosis also play a role, such that individuals with cognitive impairment and dementia report lower quality of life when they are aware of their diagnosis and when they expect their condition to worsen over time.²⁷

Despite these findings, research also shows that people living with dementia retain personal strengths and positive lived experiences.²⁸ A recent study using a nationally representative sample of community-dwelling older adults found that life satisfaction did not differ for people living with and without dementia.²⁹ However, this study also found that dementia status was modestly associated with lower life satisfaction via greater limitations in activities of daily living. Qualitative research from the perspective of people living with dementia highlights the importance of living with and adapting to change while also striving for continuity.³⁰ Additionally, people living with dementia report that the sociocultural and physical environment can be both helpful and harmful for the quality of life and well-being.³¹

Well-being Measurement in People Living with Dementia

Researchers have developed several tools to test how different factors impact the quality of life and well-being of people living with dementia. These tools include self-report measures that people living with dementia complete directly, as well as proxy ratings from nurses, clinicians, and family members. Some researchers have debated the self-report abilities of people living with dementia. On the one hand, researchers have argued that declines in cognitive functioning can distort self-reports of well-being.³² On the other

hand, self-reports by people living with mild and moderate-to-severe dementia have been found to be reliable across several studies.³³ Proxy ratings by relatives and staff are often lower than self-ratings of well-being and are therefore not interchangeable.³⁴ Researchers generally agree that self-ratings by people living with dementia should be used whenever possible, as they better capture individuals' subjective perceptions of well-being.³⁵ Methods also exist that enable researchers to observe people living with dementia and rate the extent to which they engage in behaviors typically associated with well-being.

A systematic review examining quality of life and well-being in people living with dementia found that the Quality of Life in Alzheimer's Disease scale³⁶ was the most commonly used measure of quality of life and the Psychological Well-Being in Cognitively Impaired Persons scale³⁷ was the most commonly used measure of well-being.³⁸ A conceptual scoping review identified 35 self-report instruments that have been used to assess well-being in people living with dementia, but only six of those measures were specifically designed for people living with dementia.³⁹ There is a lack of consensus on optimal measurement instruments and a need for more rigorously tested measures of well-being and quality of life in people living with dementia.⁴⁰ Further, research is needed that assesses specific aspects of well-being in people living with dementia rather than quality of life more generally. As well-being and quality of life are not clearly distinguished in the literature, the remainder of this section will use well-being as an umbrella term that includes quality of life.

Individual Interventions and Strategies

Using the tools described above, researchers have identified several factors that contribute to the well-being of people living with dementia (see Table 4.2, Table 4.3 and Figure 4.4). Social Determination Theory posits that the basic psychological needs of autonomy, competence, and relatedness are essential for psychological well-being.⁴¹ According to Social Determination Theory, autonomy refers to a feeling of choice and ownership over one's actions, competence

refers to a sense of mastery, and relatedness refers to a sense of mutual belonging and support.⁴² Qualitative research suggests that these basic psychological needs are often negatively impacted by dementia.⁴³ As such, interventions targeting autonomy, competence, and relatedness may help to enhance well-being among people living with dementia.

Qualitative studies highlight the importance of activity engagement to promote well-being in people living with dementia.⁴⁴ An integrative review of 45 studies found that engagement in activities is related to positive affect and well-being among nursing home residents both

with and without cognitive impairment.⁴⁵ This review examined a wide range of activities and interventions, such as animal-facilitated activities, cultural arts interventions, exercise programs, massage, life review/reminiscence, and outdoor activities such as gardening. Results suggested that activities are most effective when tailored to the individual. Research emphasizes the importance of activities that are not only pleasant but also personally meaningful to the individual.⁴⁶ Consistent with Social Determination Theory, engagement in meaningful activity is thought to promote well-being in people living with dementia by addressing fundamental psychological needs.⁴⁷

Fig. 4.4: Several activities and interventions have been shown to support the well-being of people living with dementia.

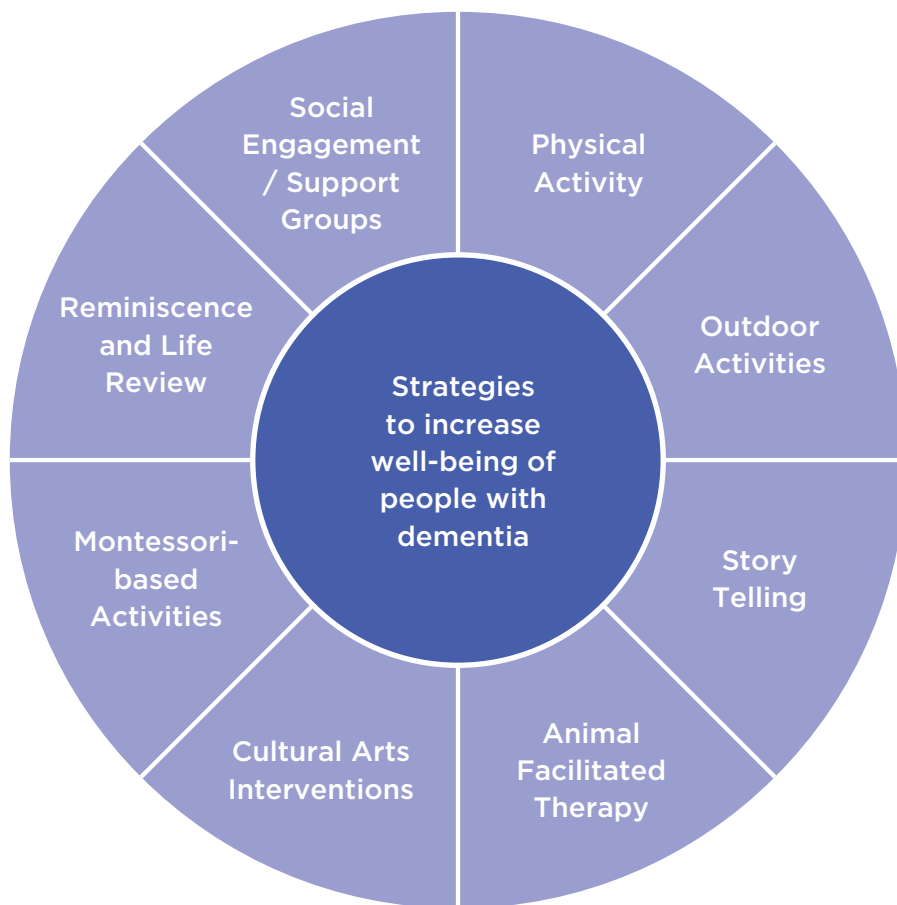


Figure 4.4. Several activities and interventions have been shown to support the well-being of people living with dementia.

Table 4.2: Strategies and activities for increasing well-being for people living with dementia.

Individual Interventions and Strategies		
Strategy or Activity	Benefits	Evidentiary Support
Animal facilitated therapy	Improved mood; Improved verbalizations	Consistent evidence supporting benefits
Behavioral activation	Improved health-related quality of life; Improved everyday function; Increased participation in meaningful activities	Consistent evidence supporting benefits, but evidence is limited to few studies
Cultural arts interventions (e.g., music, dance, and visual arts interventions)	Improved mood; Increased quality of life, meaning, and engagement; Decreased agitation and aggressive behaviors; Enhanced communication; Positive impacts on cognitive processes; Decreased anxiety	Consistent evidence supporting benefits; Methodology has been criticized
Literature / storytelling	Increased positive affect and life satisfaction; Increased meaning, engagement, and pleasure; Improved communication	Mixed evidence
Montessori-based activities	Increased engagement and positive affect; Improved eating behaviors; Benefits for memory and attention	Mixed evidence
Outdoor activities (e.g., gardening)	Increased life satisfaction, engagement, and enjoyment; Decreased agitation	Mixed evidence
Physical exercise	Improved mood, sleep, and cognition; Decreased agitation; Increased mobility and functional ability	Consistent evidence supporting benefits for people living with dementia in nursing homes; Mixed evidence for individuals not living in nursing homes
Reminiscence and life review	Improved mood and well-being; Improved autobiographical memory	Consistent evidence supporting benefits
Robotic animal companions	Increased social engagement	Consistent evidence supporting benefits of reduced agitation and depression; Mixed evidence for benefits on QoL
Social engagement / support groups	Increased well-being; Foster a sense of belonging; Provide coping strategies; Improved self-esteem	Consistent evidence supporting benefits

Table 4.2 Strategies and activities for increasing well-being for people living with dementia.

Engagement in social and leisure activities can enhance well-being in people living with dementia by increasing feelings of agency, autonomy, and purpose while also providing opportunities for social connection.⁴⁸ Engaging in hobbies and maintaining an active social life have been found to be more strongly related to well-being in people living with dementia compared to other everyday activities.⁴⁹ Systematic reviews of the literature consistently find that social interaction is important to the well-being of people living with dementia,⁵⁰ and for people in general (see Chapter 2). Although additional research is needed in this area, studies have shown that social support groups for people living with dementia may have benefits for self-esteem and well-being.⁵¹ Support groups can offer a sense of

belonging, increase social interaction, and provide strategies for coping, each of which is related to reductions in depressive symptoms and improvements in well-being among people living with dementia.⁵² Social and leisure activities therefore have the potential to increase autonomy, competence, and relatedness among people living with dementia, leading to improvements in well-being.

Cultural arts interventions have gained attention as one potential way to increase engagement in meaningful activity and improve well-being among people living with dementia. Research on cultural arts interventions has found music therapy, visual arts interventions, and dance/movement therapy to increase well-being in people living with dementia.⁵³ Despite these positive outcomes, researchers have cited a



need for greater methodological rigor and theoretical underpinnings in research on cultural arts interventions. Across cultural arts interventions, research provides the strongest support for music therapy, and systematic reviews have shown significant effects of music therapy on lowering anxiety in people living with dementia.⁵⁴ Although the mechanisms underlying the effects of music therapy are not well understood, it is likely that cultural arts interventions play a role in supporting the basic psychological needs of people living with dementia. Using a Social Determination Theory framework, a cultural arts intervention was recently developed with a focus on promoting autonomy, competence, and relatedness among older adults with mild cognitive impairment.⁵⁵

There is also a growing body of research supporting the benefits of reminiscence interventions for people living with dementia. Reminiscence interventions are widely used in dementia care but have also shown psychological benefits for cognitively unimpaired older adults.⁵⁶ Reminiscence interventions for people living with dementia have used several different structures and approaches. Broadly, reminiscence involves the discussion of past experiences with another person or group, often using prompts such as photographs, music, or personal possessions.⁵⁷

Some reminiscence interventions take a narrative approach based on sharing stories and memories. Others take an integrative approach to help individuals make sense of their life stories.⁵⁸ One particular integrative intervention called life review involves the creation of a life storybook containing photographs and written accounts.⁵⁹ Studies suggest that structured life review interventions, including the use of life story books, may have greater benefits for mood and well-being in people living with dementia relative to other reminiscence approaches.⁶⁰ Reminiscence and life review interventions are typically led by trained professionals (e.g., psychologists, social workers, nurses) and can be conducted in individual or group formats. However, there is a growing interest in intergenerational reminiscence interventions using trained young adult volunteers, such as college students.⁶¹

Intergenerational programs are a promising way to enhance well-being among people living with dementia while also promoting social connection and relatedness. Intergenerational programs bring together different generations by involving them in combined activities. Examples include intergenerational classrooms, where students complete their curriculum alongside older adult volunteers or senior care residents,⁶² or arts programs such as intergenerational choirs.⁶³ Intergenerational programs have also been developed specifically for people living with dementia, with the most common being music, art, and narrative/reminiscence programs.⁶⁴ These programs are mutually beneficial for younger and older generations and have been associated with increased activity engagement, reduced social isolation, and enhanced well-being among people living with dementia.⁶⁵

Intergenerational programs are a promising way to enhance well-being among people living with dementia while also promoting social connection and relatedness.

Advances in technology have also been used to enhance individual and group interventions promoting well-being in people living with dementia. For example, one study found that participants showed greater improvements in well-being when virtual reality was used to project realistic memories during reminiscence therapy.⁶⁶ Digital storytelling, which uses

technology to create audio-visual story clips, has also been incorporated into reminiscence interventions. Given increased interest in digital storytelling, more rigorous research is needed to determine the effectiveness and mechanism of these methods.⁶⁷ Robotic animal companions, which can replace more traditional animal-assisted therapies, represent another unique use of

Table 4.3: Environmental factors supporting well-being for people living with dementia.

Environmental factors		
Strategy or Activity	Benefits	Evidentiary Support
Aging in place	Maintenance of autonomy and independence; Comfort and security of a familiar environment; Reduced financial burden; Increased social engagement; Engagement with natural environments and access to public space; Improved well-being	Consistent evidence supporting benefits
Dementia Villages	Improved well-being; Increased social engagement; Maintenance of physical health; Engagement with everyday activities	Consistent evidence supporting benefits, but evidence is limited to few studies
Long-term care facilities	Increased social engagement; Improved mood	Mixed evidence; Benefits may vary based on well-being initiatives in place
Assistive Technology (e.g., sensors, location monitoring, cognitive stimulation, medication dispensers)	Improved mood, coping, stress, autonomy, activities of daily living, overall health and well-being; Reduced wandering; Fall prevention; Independence	Mixed evidence
Snoezelen Rooms	Improved well-being via sensory stimulation; Reduced agitation; Improved mood	Consistent evidence supporting benefits, but evidence is limited to few studies

Table 4.3 Environmental factors supporting well-being for people living with dementia.

technology in the care of people living with dementia.⁶⁸ Technology has also been incorporated into cultural arts interventions, with one study utilizing a touchscreen-based art intervention where people living with dementia viewed art on a tablet computer.⁶⁹ In fact, one systematic review found that a diverse range of touchscreen-based interventions have been used with people living with dementia.⁷⁰ The authors noted that, while more research is needed in this area, there is some evidence that these interventions may be beneficial for well-being.

Environmental Factors

In addition to individual activities and interventions, several environmental factors can support the well-being of people living with dementia (see Table 4.3). Community-dwelling older adults prefer remaining in their own homes within the community instead of moving to a long-term care facility.⁷¹ This is known as “aging in place,” and research suggests that people living with dementia can experience well-being benefits from aging in place.⁷² This is especially true for people living with dementia since their risk of death increases after being placed in long-term care facilities.⁷³ People living with dementia who continue to live in their homes benefit from the comfort and security of a familiar space, the opportunity to maintain healthy social relationships with friends and family, continued participation in activities with others in their community, engagement with natural environments, and reduced financial burden.⁷⁴ In alignment with Social Determination Theory, the ability to maintain one’s autonomy and independence by continuing to live at home is one way to improve the well-being of people living with dementia.

While many older adults and people living with dementia prefer aging in place, researchers emphasize the importance of safety while doing so. As people living with dementia progress to later stages, they typically lose the ability to complete activities of daily living.⁷⁵ To address safety concerns, researchers have sought to make adaptations to homes through simple, low-cost changes and through the assistance of technology. These methods have been used to enhance the

People living with dementia who continue to live in their homes benefit from the comfort and security of a familiar space, the opportunity to maintain healthy social relationships with friends and family, continued participation in activities with others in their community, engagement with natural environments, and reduced financial burden.

independence of people aging in place and to divert the need for transfer to long-term care. The use of a screener to identify the specific abilities and limitations of an individual living with dementia may be an important first step in understanding the adjustments to the home that should be made. For individuals in the earlier stages of dementia, small changes in the home can have a positive impact on well-being. The National Institute on Aging in the United States suggests making changes to reduce fall risk, including removing area rugs, installing grab bars around the home, and placing light switches at the bottom and top of stairs for easy access.⁷⁶ In addition to these recommendations, the National Health System in the United Kingdom suggests incorporating contrasting colors to help individuals with dementia differentiate between objects, removing mirrors to avoid confusion, adding visual cues such as clear labels around the home, replacing analog clocks with digital clocks, and adding easy-to-read calendars to assist with orientation to time.⁷⁷

People living with dementia can also use technological aids in their homes to support aging in place and maintenance of autonomy. Literature suggests that assistive technology is both feasible and acceptable for people living with dementia and their caregivers, although people in the later stages of dementia may experience challenges using technologies.⁷⁸ Importantly, studies have



Photo Center for Ageing Better

reported improved mood, coping, stress, autonomy, activities of daily living, and overall health in response to the adoption of assistive technology, all culminating in better overall well-being.⁷⁹ Assistive technology in the home can include sensors, location monitoring, cognitive stimulation mechanisms, and medication dispensing devices.⁸⁰ Both sensors and GPS can be useful for people living with dementia who engage in wandering, or getting lost or confused about their location.⁸¹ Sensors can be installed on doors to detect wandering and forced entry and can alert caregivers in case of emergency.⁸² GPS is also useful for detecting night wandering and wandering during the winter. GPS can be used to promote autonomy and encourage outdoor activities, which are especially important for overall health in this population.⁸³ Importantly, people living with dementia have reported that using GPS has provided them with a sense of freedom, further

promoting their well-being. However, challenges using GPS should be considered and can include forgetting to take the device when leaving the home or low battery of the device. Wearable sensors have also been successfully used for fall detection, and installation of light pathways on the ground and brightly lit handrails are utilized for fall prevention.⁸⁴ These mechanisms promote safety and independence, putting less strain on both the person living with dementia and their caregiver. Item locators and reminder systems can be used to further enhance independence. Item locators can be placed on objects such as phones or television remote controls and can reduce search time, whereas reminder systems can improve medication compliance and reduce hospitalization.⁸⁵

A recent systematic review highlights the use of mobile applications to support activities of daily

living, including maintaining hygiene, cooking, remembering appointments, and even setting a dinner table.⁸⁶ This type of support may bolster a fundamental psychological need of Social Determination Theory, a sense of mastery and competence, that can be reduced in people living with dementia. This is accomplished with applications that support various types of cognition, including memory, by providing prompts and reminders. For example, calendar applications are used to remind people living with dementia of their daily schedule, while visual or vocal prompts help remind people to complete tasks. In sum, aging in place can enhance the well-being of people living with dementia, and aging in place can be supported with inexpensive home modifications and technological aids. However, additional research and innovation on technological systems are still needed to maximize their efficacy and address ethical considerations.⁸⁷

While aging in place is an option for people living with mild to moderate dementia, it may not be an option for everyone due to advanced disease stage or lack of access to at-home caregivers. An alternative option for people living with advanced dementia is an innovative residential care model known as dementia villages, which are communities that encourage a supportive, homelike environment that is conducive to well-being.⁸⁸ The overarching goal of dementia villages is to deinstitutionalize dementia through a patient-centered approach. Several countries have built or are building dementia villages to promote the well-being of people living with advanced dementia, including Amsterdam, Australia, Denmark, France, Germany, Ireland, Italy, Japan, New Zealand, Norway, Scotland, Switzerland. The first dementia village, De Hogeweyk, was conceived in the Netherlands and aimed to provide individuals with an engaging life using meaningful activities. The Hogeweyk Care Concept includes six pillars of a dementia village: 1) favorable surroundings (e.g., a familiar home space, outdoor space), 2) life's pleasure and meaning, 3) health, 4) lifestyle (e.g., acknowledging that the person living with dementia is the same person they were before their diagnosis), 5) staff and volunteers trained in dementia care, and 6) the organization (e.g., policies and staff facilitate

a “normal” life for the residents).⁸⁹ Well-being is supported through social relationships and opportunities to engage in activities of interest, including eating at restaurants, attending concerts, and maintaining physical health through walking in the outdoor spaces within the village. Like the use of assistive technology in one's own home within the community, dementia villages utilize sensors to aid in the maintenance of the autonomy of their residents. An alternative to dementia villages in the United States is the Green House Project, which is comprised of individual residences that focus on viewing individuals with dementia as people outside of their medical label.

Consistent with Social Determination Theory, dementia villages promote both autonomy and relatedness, supporting the well-being of people living with dementia. Of note, while dementia villages were designed to promote well-being, little research has been conducted to assess if there are meaningful differences in the well-being of dementia village residents compared to individuals living in more traditional dementia care environments.⁹⁰ More research is needed to better understand the impacts of dementia villages in comparison to traditional long-term care facilities. Further, countries should continue to develop and assess care models that are designed with the goal of enhancing the well-being of people living with dementia.

If aging in place or residing in a dementia village is not an option, long-term care facilities like nursing homes may be an alternative. One way that well-being is encouraged in this setting is through the use of multisensory environments. Research exploring two types of multisensory environments including Snoezelen rooms and landscaped gardens suggests that they both aid in the well-being of people living with dementia.⁹¹ Snoezelen rooms were developed in the Netherlands and are used to stimulate the senses via light, smell, sound, and taste.⁹² Like the dementia villages, Snoezelen rooms utilize a patient-centered approach. This mode of multisensory stimulation is effective for people living with dementia at various stages of the disease and increases well-being by reducing agitation and improving mood symptoms including depression and anxiety.⁹³

Together, long-term care facilities can enhance the well-being of people living with dementia by implementing various interventions and activities including multisensory environments, animal-facilitated activities, cultural arts interventions, exercise programs, massage, life review/reminiscence, and outdoor activities such as gardening.

Despite the challenges that can accompany a diagnosis of dementia, people living with dementia can live well. This is evidenced through both individual and group activities that promote well-being via engagement in interventions and hobbies that facilitate a sense of purpose and improve mood. Importantly, each of these methods can be applied to people living with dementia both in the community and in care facilities like dementia villages or nursing homes, aiming to promote well-being. The global population of people living with dementia continues to grow, invoking a pressing need for researchers and policymakers to place well-being at the forefront of approaches to care.

Moreover, research is needed to extend well-being interventions developed for broader older adult populations to people living with dementia. For example, positive psychological interventions using practices such as gratitude and savoring have been shown to increase well-being among older adults. In a sample of healthy, community-living adults aged 60+, a ‘three good things in life’ gratitude intervention was found to increase well-being from baseline to day 45.⁹⁴ In a pilot study examining a savoring intervention, older adults who completed the intervention with high fidelity reported increased happiness over time.⁹⁵ Another study found that older adults who engaged in a positive psychological intervention showed increases in life satisfaction and subjective happiness compared to the control group.⁹⁶ However, prior studies testing positive psychological interventions typically exclude people experiencing cognitive impairment or living with dementia. Future research is needed to determine whether these well-being interventions are effective for people living with dementia and to determine best practices for adapting these interventions for this population.

Policy Implications

The research reviewed in this chapter suggests that policies designed to increase well-being may lower dementia risk, which in turn would result in a happier and healthier older adult population. Policies that enable equitable access to well-being- and health-enhancing activities may be especially beneficial, such as those that increase equitable access to education, safe public spaces for physical and social activity, health screenings, and affordable and effective health care. Such policies would provide individuals with the resources needed to maintain their well-being and health, resulting in widespread benefits for dementia prevention.

In addition, resources should be invested to test the long-term effects of well-being-enhancing interventions on cognitive health and dementia. Because targeting well-being as a dementia prevention strategy requires large-scale dissemination in the general population, resources should be invested into potentially scalable interventions such as those that can be delivered digitally, single-session interventions, and micro-interventions.⁹⁷

Policies that enable equitable access to well-being- and health-enhancing activities may be especially beneficial, such as those that increase equitable access to education, safe public spaces for physical and social activity, health screenings, and affordable and effective health care. Such policies would provide individuals with the resources needed to maintain their well-being and health, resulting in widespread benefits for dementia prevention.



In addition to policies designed to decrease dementia prevalence, policies are needed to enhance the well-being of people living with dementia. A critical first step is to invest resources into collecting more high-quality data on the well-being of individuals living with dementia, ideally using self-report instruments that enable individuals living with dementia to report their own well-being. Such data are invaluable to better understand the lived experiences of individuals living with dementia, and to enable evaluations of the impact of different environments on the well-being of people living with dementia.

Given existing research suggesting individuals living with dementia benefit from continuing to live at home or in the community, policies should aim to increase access to and the affordability of assistive technology and paid care partners to enable more individuals living with dementia to remain at home. For individuals who can no longer safely live at home, assisted living facilities should aim to create more home-like environments and to implement activities and interventions shown to enhance well-being. Critically, the development and evaluation of the policies described here will require a shift away from a deficit-focused medical model and toward a strengths-based model that recognizes and preserves the personhood of people living with dementia.

Conclusion

All over the world, people are living longer than ever. In most countries, the average person can expect to live to age 65 or older. As the global population ages, it is crucial to develop and implement dementia prevention strategies and to help individuals live well with dementia. This chapter reviewed evidence from multiple scientific disciplines and world regions showing that investing in well-being across the lifespan is essential to achieve these goals. In early and midlife, higher well-being may serve as a protective factor that prevents or delays dementia onset, which in turn further supports late-life well-being. In older adulthood, interventions and policies that facilitate continued engagement in social, physical, and intellectual activities are critical for the maintenance of both well-being and cognitive health. Among older adults living with dementia, interventions, environments, and policies that support the basic needs of autonomy, competence, and relatedness may help promote well-being.

Endnotes

- 1 World Health Organization (2020)
- 2 Alzheimer's Association (2020)
- 3 Alzheimer's Association (2023)
- 4 Meléndez et al. (2018); Wilson et al. (2013)
- 5 See Willroth et al. (2023) for review
- 6 Alzheimer's Disease International (2023)
- 7 Willroth (2023)
- 8 Bell et al. (2022); Sutin et al. (2018); Willroth et al., (2023). Beck et al. (2023). Results of one meta-analysis found that purpose in life was significantly associated with a reduced risk of dementia; however, results for positive affect were non-significant (Bell et al., 2022). There were not enough studies on life satisfaction to conduct a meta-analysis, however, individual study results were mixed. Consistent with these meta-analytic findings, another paper by Sutin and colleagues (2018) examined associations between several well-being constructs (life satisfaction, optimism, mastery, purpose in life, and positive affect) and incident dementia, and found that only purpose in life was significantly associated with dementia after adjusting for covariates (psychological distress, other clinical and behavioral risk factors, income/wealth, and genetic risk). Similarly, Willroth and colleagues (2023) found that both life satisfaction and eudaimonic well-being were associated with greater cognitive resilience to dementia-related neuropathology, but only the association of eudaimonic well-being remained when adjusting for covariates (socioeconomic status, education, cognitive activity, low neuroticism, low depression, ApoE genotype, medical comorbidities). Finally, a recent individual participant data meta-analysis found that positive affect, but not life satisfaction, was significantly associated with lower incident dementia (Beck et al., 2023). These findings highlight the complex associations between particular facets of well-being and dementia risk.
- 9 Cross & Grimm (2018)
- 10 Middleton & Yaffe (2009); Livingston et al. (2020); Marioni et al. (2015)
- 11 Grant et al. (2009)
- 12 Sin (2016)
- 13 Livingston et al. (2020)
- 14 Wilroth et al. (2023)
- 15 Dewitte et al. (2021); Lee (2016); Wagner et al. (2022)
- 16 Hittner et al. (2020); Gerstorf et al. (2007); Zainal & Newman (2022); Boyle et al. (2010); Kim et al. (2019)
- 17 Bell et al. (2022); Sutin et al. (2018); Boyle et al. (2010); Peitsch et al. (2016); Rawtaer et al. (2017); Zhu et al. (2022); Sutin et al. (2020)
- 18 Boyle et al. (2012); Willroth et al. (2022)
- 19 Carr et al. (2023). A meg-analysis of 198 meta-analyses of 4,065 primary studies found that interventions designed to enhance well-being through pathways consistent with positive psychological theory had small to medium positive effects on well-being, and these well-being increases were partially maintained at 7.5 months post-intervention.
- 20 Ma et al. (2021)
- 21 Kubzansky et al. (2023). Time-intensive, multi-component, face-to-face interventions often show the largest effect sizes. However, light-touch interventions delivered in digital formats are likely to be more scalable for delivery to the general population. Thus, more work is needed to enhance and test the effectiveness of these more scalable alternatives.
- 22 Alzheimer's Disease International (2023)
- 23 Meléndez et al. (2018); Wilson et al. (2013). Memory and thinking changes can impact well-being directly by causing frustration or embarrassment, or indirectly by impacting one's ability to participate in necessary or valued activities. In addition, the brain changes that cause dementia can directly impact mood.
- 24 Clarke et al. (2020); Kaufmann et al. (2016)
- 25 Logsdon et al. (1999)
- 26 Missotten et al. (2008); van de Beek et al. (2019)
- 27 Sites et al. (2017)
- 28 Wolverson et al. (2016)
- 29 Gotanda et al. (2023)
- 30 Górska et al. (2018)
- 31 Górska et al. (2018)
- 32 Katschnig (1997)
- 33 Brod et al. (1999); Hoe et al. (2005); Thorgrimsen et al. (2003)
- 34 Griffiths et al. (2020); Ready et al (2004); Römhild et al. (2018)
- 35 Brod et al. (1999); Thorgrimsen et al. (2003)
- 36 Logsdon et al. (1999)
- 37 Burgener et al. (2005)
- 38 Martyr et al. (2018)
- 39 Clarke et al. (2020)
- 40 Bowling et al. (2015)
- 41 Deci & Ryan (2011)
- 42 Ryan & Deci (2017)
- 43 Górska et al. (2018)
- 44 Górska et al. (2018)
- 45 Shyrock & Meeks (2022)
- 46 Dewitte et al. (2022); Nyman & Szymczynska (2016)
- 47 Nyman & Szymczynska (2016)
- 48 Orgeta et al. (2019)
- 49 Giebel & Sutcliffe (2018)
- 50 Shropshire (2020)
- 51 Leung (2015)
- 52 Leung et al. (2015); Logsdon et al. (2007)

- 53 de Medeiros & Basting (2014)
- 54 Shryock & Meeks (2022); Ueda et al. (2013)
- 55 Huang et al. (2023)
- 56 Tam et al. (2021)
- 57 Woods et al. (2018)
- 58 Subramaniam & Woods (2012)
- 59 Haight et al. (2006); Haight et al. (1992)
- 60 Shryock & Meeks (2022); Subramaniam & Woods (2012)
- 61 Xu et al. (2023)
- 62 Proulx et al. (2023)
- 63 Harris & Caporella (2019)
- 64 Galbraith et al. (2015)
- 65 Gerritzen et al. (2020)
- 66 Tominari et al. (2021)
- 67 Rios Rincon et al. (2022)
- 68 Tummers et al. (2020)
- 69 Tyack et al. (2017)
- 70 Tyack & Camic (2017)
- 71 Ratnayake et al. (2022); Wiles et al. (2012)
- 72 Ratnayake et al. (2022)
- 73 McClendon et al. (2006)
- 74 Ratnayake et al. (2022); Wiles et al. (2012)
- 75 Circo et al. (2015)
- 76 National Institute on Aging (2023)
- 77 Soilemezi et al. (2019)
- 78 Farina et al. (2019); Malmgren et al. (2020); Astell et al. (2019); Kruse et al. (2020)
- 79 Kruse et al. (2020)
- 80 Soilemezi et al. (2019); Kruse et al. (2020); Daly et al. (2019); Behera et al. (2021); Gettel et al. (2021); Pappadà et al. (2021)
- 81 Behera et al. (2021)
- 82 Pappadà et al. (2021)
- 83 Behera et al. (2021); Liu et al. (2017)
- 84 Pappadà et al. (2021)
- 85 Behera et al. (2021)
- 86 Pappadà et al. (2021)
- 87 Astell et al. (2019); Kruse et al. (2020)
- 88 Harris et al. (2017)
- 89 Harris et al. (2017)
- 90 Hestevik et al. (2022); Krier et al. (2023)
- 91 Cox et al. (2004)
- 92 Van Weert et al. (2005)
- 93 Cox et al. (2004); Van Weert et al. (2005); Solé et al. (2022); Berkheimer et al. (2017)
- 94 Killen & Macaskill (2015)
- 95 Smith & Hanni (2019)
- 96 Ramírez et al. (2014)
- 97 Kubzansky et al. (2023)

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