

Problem Adaptation Therapy In Elderly With Depression And Cognitive Impairment

Windy Tiandini^a, Erikavitri Yulianti^b

^a windytiandini@gmail.com

^aDepartment of Psychiatry Faculty of Medicine Airlangga University / Dr. Soetomo General Hospital, Surabaya, Indonesia

^bDepartment of Psychiatry Faculty of Medicine Airlangga University / Dr. Soetomo General Hospital, Surabaya, Indonesia

Abstract

Late-onset depression is common in elderly patients with cognitive impairment and reaches a prevalence of up to 40%. Depression in the elderly is often accompanied by cognitive deficits and executive dysfunction, especially in processing speed, attention, and executive functions, such as planning, setting goals, initiating, continuing, and completing actions, as well as declines in the ability to learn and remember things. In the last 10 years, Problem Adaptation Therapy (PATH) has become one of the interventions developed to treat elderly cases with depression and cognitive impairment with the aim of reducing depression and disability in the elderly with depression and cognitive impairment, ranging from mild cognitive deficits to moderate dementia, by improving emotional regulation skills and using a problem-solving approach, applying environmental adaptation and compensatory strategies to bypass the patient's cognitive, behavioral and functional boundaries, and selectively involving caregivers to participate in treatment.

Keywords: Late-onset depression; Cognitive Impairment; Problem Adaptation Therapy; Dementia

1. The Concept of Aging

Aging is a physiological process characterized by many changes that affect several aspects of a person's life (Fernández-Fernández *et al.*, 2020). The impact of the aging process is quite large, especially in the health sector, with increasing age, the desire to get better health and quality of life will increase, indicating the importance of developing public policies that encourage independence and a healthy lifestyle for the elderly. The aging process does not begin as an adult, but it is a lifelong process, although the characteristics of the process will only be seen when a person reaches the age of about 60 years. (Mari *et al.*, 2016).

1.2 The Relationship of Successful Aging with the Environment

Several clinicians in the gerontological literature suggest that personal and environmental resources contribute to aging. The contribution of the key elements in question is the immediate environment, including the home environment, the public, and the community which are still largely neglected. Lawton and

Nahemow, 1973 conceptualized that aging also involves Person (P) and Environment (E) as dynamic interactions, involving the role of the physical, spatial, and technical environment in the final phase of the human life span.(Wahl, Iwarsson and Oswald, 2012). Conformity or balance between a person's functional competence and the surrounding environment (P-E) is an important component of aging, because the environment accommodates and supports decreased functional capacity and helps maintain overall health, independence, and well-being in old age. The environment plays a large role in supporting independence in the face of declining abilities and is a good target for intervention. Environmental support in the home is an important aspect of the ability of the elderly to live independently and be able to age properly and face limitations in health(Lien, Steggell and Iwarsson, 2015).behavior is a function of the characteristics of people and the environment ($B = f[P,E]$) people-environment transactions are very complex and interrelated throughout life and difficult to separate(Wahl, 2015).

A. Linking Environment with Models of Aging Well: Potential and Limits of Traditional Ecology of Aging Perspectives

The ecological perspective of aging places old age as a critical phase in the life journey which is strongly influenced by the physical environment. According to Lawton, 1982, the interaction of the Person with the Environment, i.e., $B = f(P, E, P \times E)$, the basis of this theory argues that human behavior (B) is a function (f) of the person (P) and the environment (E). The environment has the power to influence a person's behavior as long as the individual is physically, mentally and emotionally able to inhabit the environment. Theories of place attachment and place identity show the entire process by which individuals form affective, cognitive, behavioral, and social bonds with the environment (Wahl, Iwarsson and Oswald, 2012; Lien, 2013; Wahl, 2015)

B. Toward an Integrative Framework of Aging Well as Person-Environment Interchange

An important perspective in the field of the ecology of aging and its relationship to the development of aging is described as the assumption that two processes, experience-driven connectedness and self-maturation behavior driven will help to better understand and integrate P-E interactions. Connectedness reflects a positive sense of connection with other people and the environment, whereas self-maturation refers to the process of becoming an agent of change in one's life by means of intentional and proactive behavior. These behaviors include both reactive and proactive aspects of using, compensating, adapting, reinforcing, creating, and preserving space, which are especially important in old age because of the decline in functional and cognitive capacities (Wahl, Iwarsson and Oswald, 2012; Lien, 2013; Wahl, 2015)

C. Environment-Related Processes of Belonging and Agency

The process of ownership or belonging is key in the ecological concept of aging and its relationship to the home or residential environment. The transformation of space into a place, describes how individuals form affective, cognitive, behavioral, and social bonds with the environment, so that the meaning of the house has an attachment to the individual. With the increasing vulnerability of the elderly, the elderly will constantly react to the environment in order to remain independent and able to meet their own needs. So the concept of P-E which refers to the terms human resources and environmental resources represents a direct interaction between people and their environment. In terms of self-maturation, the home environment may not match the functional capacity of the elderly who has decreased; therefore, it is important to adapt the home environment

to maintain autonomy. In addition, personal resources can encourage or hinder environmental adaptation, for example: elderly people with visual and mobility impairments will tend to lose control over their environment and may become dependent on other family members (Wahl, Iwarsson and Oswald, 2012; Wahl, 2015).

D. Interchange with Environments in a Life Course Perspective

As individuals enter old age they will have a tendency to make repeated relocations, want a high regularity in activities outside the home, and more respect for the environment and home they are familiar with even if the environment has risks. According to Carstensen, 2006, curiosity and exploratory behavior will decrease with age. On the other hand, the environment can stimulate cognitive and emotional systems in the elderly (Wahl, Iwarsson and Oswald, 2012).

E. Implications for Models of Aging Well

Successful aging or aging well is described as a concept of maintaining the highest autonomy, well-being and self-preservation to an individual's identity even as the individual ages and loses self-competence (Wahl, Iwarsson and Oswald, 2012).

2. Depression in the Elderly

Major depressive disorder in the elderly or depression in the elderly is common in elderly patients with cognitive impairment and reaches a prevalence of up to 40% and is a major problem in the aging population. Cognitive impairment and disability will contribute to impaired social and interpersonal functioning and will increase the risk of the elderly being placed in nursing homes and increasing mortality rates. Depression in the elderly is often accompanied by cognitive deficits and executive dysfunction, especially in processing speed, attention, and executive functions, such as planning, setting goals, initiating, continuing, and completing actions, as well as a decrease in the ability to learn and remember things (Kiosses, Ravdin, *et al.*, 2015; Simon, Cordás and Bottino, 2015; Rajtar-Zembaty *et al.*, 2017).

2.1 Dynamics of Depression in the Elderly

In late-onset depression, dysfunction of the cognitive control network will determine the intensity of symptoms related to mood, cognition, and/or motor behavior. Genetic factors, aging, and disease-associated processes can serve as etiologic factors either directly or exert effects on the cognitive control network or the frontolimbic network. Life stressors can cause an inflammatory response, increased reactive oxygenation, suppressed neurogenesis, and increased atypical dendritic atrophy in the medial prefrontal cortex, and altered functional connectivity (Kiosses, Ravdin, *et al.*, 2015; Simon, Cordás and Bottino, 2015; Rajtar-Zembaty *et al.*, 2017).

2.2 Cognitive Disorders in Elderly with Depression

Approximately 60% of patients with advanced depression meet the criteria for mild cognitive impairment, this can be due to major depressive disorder in the elderly, often accompanied by structural and functional abnormalities in the frontal lobe and associated with the limbic and striatal systems. Disruption of the cognitive control network is prominent; this network includes the dorsolateral prefrontal cortex, dorsal and rostral of the anterior cingulate, and parietal association areas. Clinically, impaired cognitive control networks result in symptoms of executive dysfunction, including a tendency to pay attention to irrelevant information,

impaired concentration, disorganization, difficulty shifting attention, and persistence, or an inability to disengage from previously intact behavioral responses.(Morimoto *et al.*, 2015; Simon, Cordás and Bottino, 2015).

2.3 Depression with Reversible Dementia Syndrome

Some elderly people with depression may develop dementia syndrome (formerly known as pseudodementia), which is a cognitive impairment that reaches the severity of dementia but subsides after a remission phase of depression. These patients usually present with severe depression, late onset, and mild dementia syndrome. Most patients with depression with reversible dementia develop irreversible dementia within 2-3 years and have a poor response to antidepressants.(Morimoto *et al.*, 2016; Alexopoulos, 2019).

3. Problem Adaptation Therapy (PATH)

Major depressive disorder is common in patients with cognitive impairment with a prevalence rate of up to 40%. Major depression in the elderly, cognitive impairment, and disability contribute to impaired social and interpersonal functioning. The combined effect of depression with disability leads to a decrease in the quality of life of the elderly with dementia and in their caregivers, increasing the deterioration of cognitive and functional impairment and increasing mortality.Limited treatment options for elderly patients with depression and cognitive impairment or dementia are one of the biggest challenges in handling this case, so alternative therapies are needed other than drugs.(Kiosses, Ravdin, *et al.*, 2015; McCombie *et al.*, 2020) (Kiosses, Rosenberg, *et al.*, 2015).To meet the needs of patients with moderate cognitive impairment and disabilities, Problem Adaptation Therapy (PATH), a home psychosocial intervention designed to reduce depression and disability in the elderly, was developed.(Dimitris N. Kiosses *et al.*, 2011; Kiosses, Ceide and Korenblatt, 2018)

PATH focuses on ecosystems based on Lawton's 1973 theory that includes patients, caregivers, and the patient's home environment. PATH instills problem solving skills in patients by utilizing Problem Solving Therapy (PST) as a basic therapeutic framework and integrating environmental adaptation tools, avoiding functional and behavioral limitations of patients thereby creating an easier environment for patients. PATH invites the participation of caregivers in the problem-solving process, the use of environmental adaptation tools and the involvement of patients in fun activities, especially the elderly with cognitive impairment. PATH is administered in a patient-resident setting where elderly people with cognitive impairments and disabilities face most of their difficulties. Carer participation is determined by the patient with the collaboration and assistance of caregivers and therapists with the following considerations; the patient's cognitive and physical limitations, the nature of the problem, the patient's cognitive function and efforts to be independent, the caregiver's ability and willingness to participate and minimize the sequelae of the patient's behavioral or cognitive deficits(Kiosses *et al.*, 2010; Dimitris N. Kiosses *et al.*, 2011).

PATH was designed with the principles of problem-solving therapy in mind and coupled with an emotion regulation model. PATH itself considers the impact of cognitive impairment on function and engagement with therapy, and allows caregivers to support the application of therapeutic techniques(McCombie *et al.*, 2020).

PATH aims to improve emotion regulation and reduce the negative impact of behavioral and functional limitations. The PATH strategy is consistent with the emotion regulation model that highlights 5

ways of regulating emotion: situation selection, situation modification, attention dissemination, cognitive change, and response modulation. To achieve emotion regulation, PATH integrates problem solving by approaching strategy, compensation, environmental adaptation, and caregiver participation. This is what distinguishes PATH from other interventions for depression with cognitive impairment in the elderly (Kiosses, Ravdin, *et al.*, 2015; Kiosses, Rosenberg, *et al.*, 2015; Kanellopoulos *et al.*, 2020). Caregivers can help regulate the patient's emotions by a) helping the patient avoid negative situations; b) participate in problem solving processes, use of environmental adaptation tools and compensation strategies; and c) facilitate patient involvement in pleasurable activities. The involvement of caregivers will be more needed in patients with cognitive, functional, and physical limitations of the therapist (Kiosses, Rosenberg, *et al.*, 2015).

3.2 PATH Strategy

The PATH strategy is consistent with the emotion regulation model which highlights 5 ways to regulate emotions: situation selection, situation modification, attention dissemination, cognitive change, and response modulation. To achieve emotion regulation, PATH integrates problem solving with a compensatory strategy approach, environmental adaptation, and caregiver participation (Suri and Gross, 2012; Kiosses *et al.*, 2016, 2017).

3.3 PATH Structure

1. Initial Assessment

PATH is a 12-session intervention conducted weekly and consists of an initial assessment (first two sessions), a problem-solving and adaptation phase (sessions 3-10), and a conclusion phase (sessions 11-12). The preliminary evaluation could be very critical due to the fact the therapist gathers all applicable medical and behavioral facts to create the best remedy plan for the affected person. At the end of the second phase, the affected person and the therapist (with the assist of a caregiver if needed) will make lists that listing the affected person's issues that make contributions to despair and cause impaired functioning, in addition to a listing of sports which can be enjoyable for the affected person, both while the affected person is in a depressed kingdom or no (Kiosses *et al.*, 2011, 2016).

2. Problem Solving and Adaptation Phase

The treatment implementation in this session consisted of 8 sessions, each session lasting 50 minutes and focusing on:

- a. Solve patient problems
- b. Identify and use PATH tools
- c. Combining help from caregiver
- d. Encourage patient participation in pleasurable activities

3. Conclusion Phase

In the last two sessions, the therapist will review the solution of the targeted problem and summarize the most important aspects of the treatment. Resolved problems are discussed, barriers to finding solutions are identified, and strategies to overcome these barriers should be explored. Next, the therapist will create a booklet or notes about the patient and caregiver that explains the patient's problem and the proposed solution and presents a list of PATH tools that were used during treatment and can be used in the future. The most frequently reported problems are memory deficits, functional limitations, interpersonal tension, social isolation, and anhedonia (Kiosses *et al.*, 2011, 2016).

3.4 PATH-PAIN

Negative emotions such as sadness, fear, helplessness, and hopelessness are associated with chronic pain and contribute to poor quality of life, impaired interpersonal and social functioning, and increased disability. Pain contributes to an increase in negative emotions and a decrease in positive emotions, leading to disability. Elderly people with chronic pain experience cognitive impairment, poor adherence to treatment, disability, and poor quality of life that can adversely affect the care process (Kiosses *et al.*, 2017). PATH can also be used for the elderly with complaints of chronic pain that can interfere with emotions, limit activity, social isolation, increase the risk of falling, and cause sleep disturbances. PATH-Pain is an extension of PATH that targets the elderly with comorbid pain, negative emotions, and various cognitive functions ranging from mild to severe cognitive impairment (Kiosses *et al.*, 2017).

3.4.1 PATH-PAIN Principle

PATH-pain is given to the elderly with chronic pain, negative emotions, with various cognitive functions, including mild to severe cognitive impairment. PATH-Pain aims to:

- a.Reduce negative emotions
- b.Promotes positive feelings
- c.Breaking the vicious cycle of inactivity caused by pain, physical limitations and negative emotions
- d.Improve communication between patients and primary care physicians, and overcome barriers to pain and psychological care

PATH-Pain uses several tools to achieve its therapeutic goals:

- 1.Patient knowledge about pain, its treatment, and the effects of emotions on pain and the disability that may result from pain
- 2.Identify triggers for negative emotions and pain
- 3.Emotion regulation techniques to reduce negative emotions and increase positive emotions associated with pain and disability associated with pain.

PATH-Pain is expected to reduce daily stress, empower patients, instill hope, reduce helplessness, and reduce the perception of pain and disability related to pain. PATH-Pain is administered in primary care and can be used easily because it adapts to the environment and includes caregiver participation in therapy(Kiosses *et al.*, 2017). By using the help of these tools, PATH-Pain is expected to reduce daily stress, empower patients, instill hope, reduce helplessness, and reduce the perception of pain and disability associated with pain. PATH-Pain is administered in primary care and can be used easily because it adapts to the environment and includes caregiver participation in therapy(Kiosses *et al.*, 2017).

PATH-Pain is the same as PATH which has 4 phases of therapy given every week but carried out for the first 8 weeks and then every month for 4 months. In the implementation of PATH-Pain, the therapist as much as possible has flexible time and is responsive to patient requests to schedule therapy and/or reschedule therapy requests that may be caused by concomitant medical disorders, such as walking and vision problems, appointments with doctors or other physical therapist(Kiosses *et al.*, 2017).

3.5 PATH Efficacy in Elderly with Depression and Cognitive Disorders

The main innovations of PATH are the systematic integration of environmental adaptation into problem solving frameworks and the involvement of caregivers in helping depressed elderly people with

problems they cannot deal with on their own. This method is needed to enable depressed elderly patients with cognitive impairment to moderate dementia to use and benefit from the problem-solving skills provided by PATH. By inviting caregiver participation and incorporating environmental adaptation, PATH is designed to reduce environmental stress, improve patient's coping skills, help to cross the patient's behavioral and functional boundaries, increase the patient's feelings of self-efficacy, and improve the adaptability and functioning of the elderly. Environmental adaptation has also been used successfully in cognitively impaired populations. Environmental compensation and adaptation strategies have improved adaptive function in the elderly with dementia, so PATH is very effective in reducing disability by 4.3 times. PATH is effective in depressed patients with varying degrees of disability and cognitive impairment, including executive dysfunction. PATH can improve cognitive function through stress reduction thereby reducing risk factors for dementia. PATH itself can strengthen the patient's ability to cope with stress and thereby improve cognition by increasing affective regulation (reducing negative emotions and increasing positive emotions), reducing affective reactions to stress, and enabling patients to better utilize existing cognitive resources. Potential psychological mechanisms consist of; reduce emotional reactivity through regulation of negative emotions; instill hope by increasing positive emotions; reduce susceptibility to environmental stressors by helping patients cross behavioral and functional boundaries; and reduce interpersonal stress between the patient and significant others by improving communication and enabling increased self-efficacy. These mechanisms are the targets of PATH to improve cognition and reduce interpersonal stress between the patient and significant others by improving communication and enabling increased self-efficacy. These mechanisms are the targets of PATH to improve cognition and reduce interpersonal stress between the patient and significant others by improving communication and enabling increased self-efficacy. These mechanisms are the targets of PATH in order to improve cognition (Kiosses *et al.*, 2010; Kiosses, Ravdin, *et al.*, 2015; Kanellopoulos *et al.*, 2020).

Research conducted by Kiosses in 2010 and 2015 on the elderly with depression, cognitive impairment to moderate degrees of dementia on the efficacy of PATH compared with other psychosocial interventions, such as Supportive Therapy for Cognitive Impaired Patients (ST-CI) gave significant results. The efficacy of PATH in 74 elderly patients suffering from depression had a 43% greater reduction than patients receiving ST-CI therapy over a 12-week period, patients treated with PATH had a significantly lower Montgomery-Asberg Depression Rating Scale score at week 4, 8 and 12 weeks. Like the decline for disability, patients who received PATH therapy experienced a decrease in the Total World Health Organization Disability Assessment Schedule II Score which was much greater than the elderly who received ST-CI over a 12-week period, which was 93%. Thus, PATH has the potential as a promising psychosocial intervention option for elderly patients with depression and cognitive impairment with a 3.6 times better remission rate over a 12-week treatment period. (Kiosses, Ravdin, *et al.*, 2015).

Summary

PATH focuses on an ecosystem that includes the patient, caregiver, and the patient's home environment. In particular, PATH is a problem-solving skill in patients by utilizing Problem Solving Therapy (PST) as a basic therapeutic framework and integrating environmental adaptation tools, avoiding functional and behavioral limitations of patients thereby creating an easier environment for patients. PATH invites the participation of caregivers in the problem-solving process, the use of environmental adaptation tools and the involvement of patients in fun activities, especially the elderly with cognitive impairment. The main innovations of PATH are the systematic integration of environmental adaptation into problem solving

frameworks and the involvement of caregivers in helping depressed elderly with problems they cannot cope alone. This method is needed to enable depressed elderly patients with cognitive impairment to moderate dementia to use and benefit from the problem-solving skills provided by PATH. By inviting caregiver participation and incorporating environmental adaptation, PATH is designed to reduce environmental stress, improve patient's coping skills, help to cross the patient's behavioral and functional boundaries, increase the patient's feelings of self-efficacy, and improve the adaptability and functioning of the elderly. Environmental compensation and adaptation strategies have improved adaptive function in the elderly with dementia, so PATH is very effective in reducing disability by 4.3 times. Studies on PATH are still being developed to date, including efficacy in randomized clinical trials, cost-effectiveness, and dissemination of PATH within the community. However, it cannot be denied that PATH is one of the beneficial and promising psychosocial interventions in the future.

Acknowledgements

The authors would like to thank the Department of Psychiatry, Faculty of Medicine, Airlangga University/ Dr. Soetomo General Hospital who supported this working group. No financial support was available for this study.

References

- Alexopoulos, G. S. (2019) 'Mechanisms and treatment of late-life depression', *Translational Psychiatry*, 9(1). doi: 10.1038/s41398-019-0514-6.
- Dimitris N. Kiosses, P. . *et al.* (2011) 'A Home-Delivered Intervention for Depressed, Cognitively Impaired, Disabled Elders', *NIH Public Access*, 26, pp. 1–10. doi: 10.1002/gps.2521.
- Fernández-Fernández, V. *et al.* (2020) 'Emotion regulation processes as mediators of the impact of past life events on older adults' psychological distress', *International Psychogeriatrics*, 32(2), pp. 199–209. doi: 10.1017/S1041610219002084.
- Kanellopoulos, D. *et al.* (2020) 'Depression, cognitive, and functional outcomes of Problem Adaptation Therapy (PATH) in older adults with major depression and mild cognitive deficits', *International Psychogeriatrics*, 32(4), pp. 485–493. doi: 10.1017/S1041610219001716.
- Kiosses, D., Ceide, M. E. and Korenblatt, J. (2018) 'A Path Forward: A Culturally Relevant Psychosocial Intervention for Depression in Cognitive Impaired Older Adults', *The American Journal of Geriatric Psychiatry*, 26(3), pp. S3–S4. doi: 10.1016/j.jagp.2018.01.008.
- Kiosses, D. N. *et al.* (2010) 'Home-delivered problem adaptation therapy (PATH) for depressed, cognitively impaired, disabled elders: A preliminary study', *American Journal of Geriatric Psychiatry*, 18(11), pp. 988–998. doi: 10.1097/JGP.0b013e3181d6947d.
- Kiosses, D. N. *et al.* (2011) 'A home-delivered intervention for depressed, cognitively impaired, disabled elders', *International Journal of Geriatric Psychiatry*, 26(3), pp. 256–262. doi: 10.1002/gps.2521.
- Kiosses, D. N., Rosenberg, P. B., *et al.* (2015) 'Depression and Suicidal Ideation During Two Psychosocial Treatments in Older Adults with Major Depression and Dementia', *Journal of Alzheimer's Disease*, 48(2), pp. 453–462. doi: 10.3233/JAD-150200.
- Kiosses, D. N., Ravdin, L. D., *et al.* (2015) 'Problem adaptation therapy for older adults with major depression and cognitive impairment: A randomized clinical trial', *JAMA Psychiatry*, 72(1), pp. 22–30. doi: 10.1001/jamapsychiatry.2014.1305.
- Kiosses, D. N. *et al.* (2016) 'Problem Adaptation Therapy (PATH) for Older Adults with Major Depression and Cognitive Impairment: A Randomized Clinical Trial', 72(1), pp. 22–30. doi: 10.1001/jamapsychiatry.2014.1305.Problem.
- Kiosses, D. N. *et al.* (2017) 'Problem adaptation therapy for pain (PATH-Pain): A psychosocial intervention for older adults with chronic pain and negative emotions in primary care', *Geriatrics (Switzerland)*, 2(1). doi: 10.3390/geriatrics2010005.

- Lien, L. L. (2013) 'Person-Environment Fit and Adaptation: Exploring the Interaction between Person and Environment in Older Age'.
- Lien, L. L., Steggell, C. D. and Iwarsson, S. (2015) 'Adaptive Strategies and Person-Environment Fit among Functionally Limited Older Adults Aging in Place : A Mixed Methods Approach', pp. 11954–11974. doi: 10.3390/ijerph120911954.
- Mari, F. R. *et al.* (2016) 'The aging process and health: what middle-aged people think of the issue', *Revista Brasileira de Geriatria e Gerontologia*, 19(1), pp. 35–44. doi: 10.1590/1809-9823.2016.14122.
- McCombie, C. *et al.* (2020) 'Adapting and Optimizing Problem Adaptation Therapy (PATH) for People With Mild-Moderate Dementia and Depression', *American Journal of Geriatric Psychiatry*. doi: 10.1016/j.jagp.2020.05.025.
- Morimoto, S. S. *et al.* (2015) 'Diagnosis and treatment of depression and cognitive impairment in late life', *Annals of the New York Academy of Sciences*, 1345(1), pp. 36–46. doi: 10.1111/nyas.12669.
- Morimoto, S. S. *et al.* (2016) 'Executive Dysfunction Predicts Treatment Response to Neuroplasticity-Based Computerized Cognitive Remediation (nCCR-GD) in Elderly Patients with Major Depression', *American Journal of Geriatric Psychiatry*, 24(10), pp. 816–820. doi: 10.1016/j.jagp.2016.06.010.
- Rajtar-Zembaty, A. *et al.* (2017) 'Executive dysfunction in late-life depression', *Psychiatria Polska*, 51(4), pp. 705–718. doi: 10.12740/PP/OnlineFirst/63765.
- Simon, S. S., Cordás, T. A. and Bottino, C. M. C. (2015) 'Cognitive behavioral therapies in older adults with depression and cognitive deficits: A systematic review', *International Journal of Geriatric Psychiatry*, 30(3), pp. 223–233. doi: 10.1002/gps.4239.
- Suri, G. and Gross, J. J. (2012) 'Emotion regulation and successful aging', *Trends in Cognitive Sciences*, 16(8), pp. 409–410. doi: 10.1016/j.tics.2012.06.007.
- Wahl, H. (2015) 'Theories of Environmental Influences on Aging and Behavior A Case History : When Aging in Place Fails Fundamental Principles of Psychological Aging and the Environment', pp. 1–8. doi: 10.1007/978-981-287-080-3.
- Wahl, H. W., Iwarsson, S. and Oswald, F. (2012) 'Aging well and the environment: Toward an integrative model and research agenda for the future', *Gerontologist*, 52(3), pp. 306–316. doi: 10.1093/geront/gnr154.