The Five-Dimensional Approach to the Elderly Patient: A Holistic Framework for Clinicians in the Buddhist Context

Nahathai Wongpakaran, MD, FRCPsychT Tinakon Wongpakaran, MD, FRCPsychT Geriatric Psychiatry Unit, Department of Psychiatry, Faculty of Medicine, Chiang Mai University, Thailand

Introduction

As the world's population ages, clinicians face increasingly complex challenges in caring for older adults. This complexity is especially pronounced in Asia, where cultural traditions, family dynamics, and deeply held spiritual worldviews shape individuals' experiences of illness, aging, and the end of life. In Thailand and across Southeast Asia, Buddhism exerts a profound influence—shaping not only how older adults perceive and cope with suffering, but also how families and communities make critical decisions at life's transitions.

To meet the actual needs of elderly patients, it is essential to move beyond the conventional "bio-psycho-social" model. Two often overlooked but vitally important dimensions, spiritual and existential, deserve equal attention. The five-dimensional approach (biological, psychological, social, spiritual, and existential) provides a comprehensive, practical framework for understanding each person's unique suffering and strengths.

This model invites clinicians to integrate key Buddhist principles within the spiritual and existential domains, grounding medical and psychiatric care in a deep appreciation for personhood, dignity, and meaning. By doing so, clinicians not only enhance medical efficacy but also honor the identity, values, and life journeys of those they serve.

Neglecting the spiritual and existential aspects of care leaves patients vulnerable to deeper, unaddressed suffering—pain that medicine alone cannot heal. To truly care for older adults means to care for the whole person: body, mind, community, and spirit. This holistic stance is not just compassionate; it is evidence-based and professionally indispensable.

Recognizing these five dimensions is not merely an academic exercise, it has direct and profound implications for everyday clinical practice. Many clinicians may wonder why it is necessary to consistently address the spiritual and existential domains alongside the biological, psychological, and social. In fact, the importance of these often-overlooked dimensions is supported by research and real-world experience, especially among elderly patients in Buddhist cultural contexts.

Below are several key reasons why integrating the spiritual and existential dimensions is essential in the care of older adults:

First draft: 20 August 2025 Wengpakaran $\mathcal{N}_{\mathscr{E}}\mathcal{T}$

1. Aging Intensifies Questions of Meaning and Mortality

- Older adults often face transitions: retirement, illness, loss of loved ones, and decline in physical function.
- These changes naturally prompt reflection on life's meaning, purpose, and mortality—questions that are at the heart of the spiritual and existential dimensions.
- Addressing these questions can be as important as treating physical symptoms, especially at the end of life.

2. Spiritual Needs are Universal (Not Just Religious)

- Spirituality includes a broad search for meaning, hope, inner peace, and connection—whether the person is religious.
- Ignoring this dimension risks overlooking sources of comfort, resilience, and healing (such as faith, rituals, connection to nature, or a sense of legacy).

3. Unmet Spiritual and Existential Needs Cause Suffering

- Research shows that unaddressed spiritual or existential distress can manifest as depression, anxiety, hopelessness, anger, or even a desire for hastened death.
- Conversely, attention to these needs is linked to less depression and anxiety, better coping, and a higher quality of life.

4. Enhances Coping and Meaning-Making

- Many older adults draw strength from their beliefs, values, and engagement in practices or rituals.
- Spiritual and existential resources help patients:
 - Maintain hope, even when a cure isn't possible
 - Find meaning in suffering or loss ("why me?" becomes "how can I grow/change?")
 - Reconcile with past regrets or unresolved issues

5. Cultural and Individual Respect

- In many cultures—such as Thai and other Buddhist-majority societies— spirituality and existential philosophy are deeply embedded in personal identity and the way people understand illness, suffering, and death.
- Addressing these dimensions is a sign of respect and cultural competence.

6. Improved Clinical Outcomes

- Evidence shows that when clinicians attend to spiritual and existential needs:
 - Symptom control improves (pain, breathlessness, anxiety, insomnia)
 - Satisfaction with care rises—for both the patient and family
 - Advance care planning and end-of-life conversations are more meaningful and accepted

7. Fulfills Core Professional Values

- Modern medicine is not just about prolonging life, but enhancing **quality** of life and respecting patient values, especially near the end of life.
- The spiritual and existential dimensions help clinicians honor personhood and dignity, ensuring that care is compassionate and holistic.

8. Guides Complex Decisions

 When facing tough choices (e.g., life-prolonging treatments vs. comfort care), understanding a patient's hopes, fears, and meaning systems is critical for ethical, patient-centered decision-making.

Summary Table

Benefits of Addressing	Spiritual Dimension	Existential Dimension
Reduces Suffering	Brings peace, connection, hope	Helps with meaning, dignity, acceptance
Supports Coping	Draws on faith, rituals, inner strength	Allows reframing, finding purpose
Guides Clinical Care	Informs values, goals, preferences	Clarifies wishes for end-of-life, autonomy
Enhances Outcomes	Improves mental health, satisfaction, and resilience	Promote closure, peaceful acceptance
Fosters Respect	Honors beliefs, rituals, identity	Acknowledges universal human search for meaning

First draft: 20 August 2025 Wengpakaran $\mathcal{N}_{\mathscr{E}}\mathcal{T}$

How Hidden Fear of Death Can Contribute to New or Worsening Symptoms in Older Adults

1. Increased Anxiety or Panic Symptoms

Patients may experience unexplained episodes of anxiety, agitation, restlessness, or panic attacks. While the surface complaint is "shortness of breath" or "heart racing," the underlying trigger is unacknowledged fear of dying—especially if they have heard about someone their age who died suddenly from an illness.

2. Somatic (Physical) Symptom Exacerbation

Fear of death can amplify the perception of bodily symptoms. For example, an elderly person with mild chest discomfort or dizziness may catastrophize the sensation ("Is this a heart attack? Am I about to die?"), making the pain feel worse and leading to frequent emergency visits.

3. Avoidance Behaviors

The hidden fear may cause increased avoidance and withdrawal:

- Avoiding going out alone ("What if I die and no one is there?")
- Stopping physical activities (I'm afraid exercise might make my heart stop")
- Avoiding social events, fearing sudden collapse in public
 This withdrawal can worsen mood, reduce physical function, and accelerate frailty.

4. Depression and Hopelessness

Unprocessed death anxiety often manifests as persistent low mood, emptiness, or a sense of futility ("What's the point of treatment? I'm going to die anyway"). The patient may become less engaged in self-care or rehabilitation, worsening their underlying illness.

5. Disrupted Sleep (Insomnia or Nightmares)

Patients may experience insomnia, frequent night wakings, or nightmares about dying, loss, or separation. They may give vague explanations ("I just can't sleep") when the root is a fear of not waking up or anxiety about the unknown.

6. Exaggerated Complaints and Frequent Help-Seeking

A hidden fear of death can drive increased complaints about minor symptoms and repeated reassurance-seeking from doctors and family, which can be misinterpreted as hypochondriasis.

7. Somatization and Medically Unexplained Symptoms

Patients might develop new physical symptoms that have no apparent medical cause (headaches, stomachaches, palpitations), triggered subconsciously by existential anxiety about mortality, especially when death or dying is a taboo subject in their family or culture.

8. Resistance to Palliative or Advanced Care Planning

Fear of death might manifest as strong resistance to discussing advance directives or

palliative care. The patient becomes angry, dismissive, or avoids these conversations, leading to inadequate preparation for end-of-life needs.

Introducing the BPSSE Model: Expanding Holistic Care for the Elderly

To meet the complex and multilayered needs of older adults, a genuinely practical clinical approach must evolve alongside our understanding of human experience. Modern medicine has made remarkable progress in managing physical disorders, but older adults often bring challenges and stories that go far beyond the boundaries of biology. Their care requires us to look at the whole person—encompassing mind, relationships, personal values, and fundamental questions about life, suffering, and what lies beyond.

This broader view is not simply a matter of compassion; it is essential to high-quality, patient-centered care. The experiences, outcomes, and satisfaction of older adults are shaped not only by their diagnosis and treatments, but also by how clinicians address their deepest fears, hopes, and beliefs.

It is in this context that the holistic five-dimensional approach becomes both timely and essential. By expanding our focus beyond physical and psychological symptoms, we invite richer conversations, more humane care, and ultimately, greater healing.

To help clinicians recall these five dimensions, consider the mnemonic 'BPSSE': Big Practitioners Should See Everything—pronounced 'Bee-Pee-See' model.

This simple phrase reminds us not to overlook any essential aspect of patient care.

With this holistic framework and memorable guide in mind, it is helpful to understand how our perspectives on patient care have evolved over time. Appreciating the journey from the traditional biomedical model to today's five-dimensional approach can deepen our commitment to truly comprehensive care.

1. The Evolution of Holistic Care: From Bio-Psycho-Social to Five Dimensions

The bio-psycho-social (BPS) model, first articulated by George Engel in 1977, revolutionized the way health professionals understood illness, emphasizing that disease is not just a biological state but is deeply affected by psychological and social factors.

However, clinicians increasingly recognize that spiritual (beliefs, faith, meaning beyond the self) and existential (purpose, meaning, questions about mortality and suffering) domains are crucial—especially for the elderly. These dimensions may have faded in modern biomedicine but remain deeply rooted in patients' lived experiences, particularly where Buddhism shapes the worldview.

Moving to a five-dimensional model acknowledges that to heal and comfort the elderly, especially in their last chapters of life, we must care for the whole person.

2. The Biology: Accepting Change

Biological Dimension

This remains the foundation: diagnosing, treating, and managing chronic illnesses (such as diabetes, stroke, cancer, and neurodegenerative disorders) and the natural processes of aging—frailty, pain, sensory loss, and functional decline.

Patients and families benefit when their medical team integrates up-to-date medical care with sensitivity and acceptance of the changes associated with aging.

3. The Psychology: Seeing and Soothing the Mind

Psychological Dimension

This covers cognition (such as mild cognitive impairment or dementia), mood disorders (depression or anxiety), coping skills, emotional responses to loss, and patterns of behavior formed over a lifetime.

Effective care targets not just physical symptoms but also mood, thought patterns, emotional distress, and mental resiliency as patients adapt to aging and illness.

4. The Social: Interdependence, Community, and Compassion Social Dimension

Aging often brings social challenges—retirement, the loss of peers, changing family roles, financial stress, loneliness, or neglect. Social support is a major mediator of health, resilience, and even longevity.

Caregivers, whether family members or professionals, play a central role in the lives of older adults. Their presence, compassion, and practical assistance can buffer against isolation, support daily living, and provide emotional security. At the same time, caregivers themselves require recognition, guidance, and support to prevent burnout and maintain their own well-being.

Recognizing and reinforcing the patient's social connections—including the essential contributions of caregivers—along with the broader role of family and community support can significantly improve well-being and outcomes for elderly patients.

5. The Spiritual: Meaning, Hope, and Transcendence

Spiritual Dimension

Spirituality may or may not be religious; it includes the search for meaning, hope, transcendence, and a sense that one's life is part of something greater than oneself. For many elderly, spiritual beliefs and practices provide a vital anchor in the face of loss, pain, and death.

The Buddhist Lens

- Merit (bun): Acts of kindness, generosity, and spiritual devotion prepare one for the next life and bring meaning to suffering.
- Karma: Understanding that actions have consequences can ease guilt or regret.
- Three Refuges (Buddha, Dhamma, Sangha): A source of peace, security, and hope.

 Rituals and practices—prayer, chanting, meditation—provide structure, comfort, and continuity.

For Buddhist patients, spiritual care can involve facilitating access to spiritual rituals, encouraging practices that bring peace, and incorporating spiritual teachings or community involvement as requested.

6. The Existential: Dignity, Purpose, and Facing Mortality

Existential Dimension

Existential issues focus on questions of meaning ("Why me?"), purpose ("What is left for me to do?"), fear of death, the search for dignity and legacy, and confronting one's mortality.

The Buddhist Lens

- Anicca (Impermanence): Everything changes; health, abilities, life circumstances, and even life itself are never static. Accepting this, including the reality of death, can reduce anxiety about loss and change.
- **Dukkha (Suffering):** Suffering arises when we cling to what we want or resist what we dislike, and aging is not a personal failure, but part of the human condition.
- Anatta (Non-Self): The mind resides within the body but is neither the body nor a
 part of it. The mind—or Self—cannot fully control the body. Letting go of the
 illusion of control helps release arrogance, attachment, and frustration towards
 physical decline
- Samsara and Nibbana: Death is seen not as annihilation, but as a continuation—an entry into the cycle of life after death (rebirth)—or, for the spiritually advanced, an end to suffering and liberation from the cycle entirely.

Drawing on these Buddhist concepts, clinicians can support patients in accepting impermanence, approaching death with mindfulness, and finding meaning and reconciliation at the end of life.

7. Benefits for Patients, Families, and Medical Teams

For Patients

- Reduced suffering: Addressing spiritual and existential needs relieves fear, despair, and pain.
- Enhanced dignity: Being seen as a whole person, not a diagnosis.
- Better coping: Drawing on spiritual or community strengths improves adjustment and resilience.

For Families

Meaningful involvement in care.

First draft: 20 August 2025 Wengpakaran \mathcal{N} & \mathcal{T}

- Guidance through grief ("What rituals or practices can we perform to help our loved one and ourselves?").
- Hope and acceptance in bereavement.

For Teams

- Avoids medical futility: Recognizes when more "doing" is not helping and allows for compassionate "being."
- Reduces provider burnout: Working with meaning and community counters compassion fatigue.
- Fosters cultural competence and respect.

How the five-dimensional model is used for both assessing etiology and building a treatment plan in the care of older adults

Five-Dimensional Assessment: Etiology

1. Biological

- Assessment: Explore physical health, acute and chronic illnesses, medication side effects, genetics, age-related physiological changes, nutrition, and sensory deficits. Pay special attention to the brain—assess for cognitive decline (memory, attention, executive function), neurodegenerative diseases (such as dementia, Parkinson's disease, or stroke), delirium, as well as changes in brain structure or function related to aging.
- Purpose: To identify bodily or medical factors, including neurological and brainrelated changes, that are causing or contributing to symptoms, decline, or distress.

2. Psychological

- Assessment: Evaluate mood (depression, anxiety), cognition (memory, attention), coping behaviors, trauma history, psychological resilience, and personality factors. Explore psychodynamic issues such as unresolved childhood conflicts, the impact of early attachment or loss, and pathogenic beliefs—deeply held or unconscious beliefs formed in childhood that can influence self-worth, relationships, and one's response to aging or illness.
- Purpose: To understand how mental health factors, including previous
 psychiatric history, current emotional state, and long-standing psychodynamic
 patterns, contribute to the presenting problems and symptoms. Recognizing the
 influence of childhood experiences and pathogenic beliefs can reveal the roots
 of certain behaviors, fears, or maladaptive coping styles in older adults.

3. Social

- Assessment: Assess living situation, social network, quality of relationships (family, friends), social support, community involvement, financial status, and history of isolation or neglect. Evaluate the presence, well-being, and participation of caregivers—both family and professional—as well as any stress, burden, or unmet needs caregivers may experience.
- Purpose: To clarify the influence of social determinants, environmental context, caregiving dynamics, and available resources on the patient's challenges.

4. Spiritual

- Assessment: Explore spiritual beliefs and practices, sources of inner strength or hope, religious or faith affiliations, participation in rituals or spiritual communities, signs of spiritual distress, or loss of connection to the sacred.
 Assess openness to spiritual care, changes in spiritual beliefs following illness or loss, and the patient's preferred ways of expressing or nurturing spirituality.
- Purpose: To uncover unmet spiritual needs, identify sources of support and comfort, recognize crises of faith or meaning, and understand the role of spirituality in coping, healing, and adaptation to illness or aging.

5. Existential

- Assessment: Ask about sense of meaning and purpose in life, confrontation with mortality, issues of dignity and self-worth, "unfinished business" or regrets, feeling like a burden, loss of identity, and mortality-related fears. Explore the patient's worldview, beliefs about life after death or what may follow, attitudes toward death and dying, hopes for legacy, and any practices of reflection, forgiveness, or reconciliation. Inquire about how the patient is preparing practically or spiritually—for the journey ahead.
- Purpose: To address profound questions of meaning, legacy, acceptance, personal growth, and end-of-life concerns—including beliefs about life after death and readiness for that transition—that may contribute to suffering or influence well-being. Support the patient in integrating loss, preparing for what may come, fostering acceptance, and finding peace with impending changes.

Five-Dimensional Approach: Treatment Plan

1. Biological

• Interventions: Optimize medication regimens, manage acute and chronic medical conditions, address brain health (screen and treat for cognitive decline, delirium, dementia, and neurodegenerative diseases), refer for physical/occupational therapy, ensure proper nutrition and hydration, correct sensory deficits (e.g., hearing aids, glasses), and support preventive care. Include neurological consultation or rehabilitation when indicated.

• Goal: Maximize physical health and function, support cognitive health, prevent complications, and manage distressing symptoms.

2. Psychological

- Interventions: Provide counseling, psychotherapy (including cognitivebehavioral, psychodynamic, control-mastery, inner strength through perfection therapy, or trauma-informed therapy as appropriate). Address maladaptive ideas, unresolved childhood issues, pathogenic beliefs, and promote psychological resilience and adaptive coping.
- Goal: Improve mental health and emotional well-being, address psychodynamic factors, strengthen resilience and effective coping, and promote personal growth in late life.

3. Social

- Interventions: Strengthen family and community ties, directly support and
 educate caregivers (assess for caregiver burden, provide respite care or
 counseling), coordinate with social services, encourage socialization and group
 activities, and assist with logistical challenges (housing, transport, finances).
 Foster collaborative care among healthcare and social professionals.
- Goal: Reduce isolation, harness social support systems—including robust support for caregivers, improve quality of life through engagement, and ensure access to community resources.

4. Spiritual

- Interventions: Facilitate access to spiritual practices (prayer, meditation, rituals), involve spiritual care staff or relevant religious leaders, encourage meaningmaking activities, provide space for spiritual expression, and validate spiritual beliefs. Respond sensitively to spiritual distress and offer resources tailored to cultural or individual preferences.
- Goal: Promote peace, hope, meaning, and spiritual well-being; relieve spiritual suffering and foster spiritual connection.

5. Existential

- Interventions: Support meaning-centered therapies (such as dignity therapy, life review, or legacy work); foster open, compassionate discussion of life goals, fears, hopes, and beliefs about life after death; assist with advance care planning, preparation for the journey ahead, and discussions about death, dying, "unfinished business," or legacy; encourage reflection, forgiveness, and reconciliation; and validate concerns related to dignity or feeling like a burden.
- Goal: Enhance sense of meaning, purpose, acceptance, and readiness for life's
 final transition; reduce existential and mortality-related suffering; promote
 dignity; and support patients and families as they approach end-of-life and
 consider what may come after, with greater understanding, peace, and spiritual
 preparation.

Case History

Mrs. A is a 76-year-old retired seamstress who has been living with Parkinson's disease for the past six years. She resides in Chiang Mai with her husband, who serves as her primary caregiver. Over recent months, she has begun to show increasing cognitive difficulties, such as forgetfulness and trouble finding words, which seem to have worsened after a recent adjustment in her dopaminergic medication. She also experiences occasional visual hallucinations, like seeing "strangers" in her house, which troubles both her and her husband.

Recently, Mrs. A has had a fall at home, leaving her with a persistent fear of falling again. This fear has increased her anxiety about being alone, making her even more dependent on her husband for day-to-day activities. She rarely leaves the house now, and the couple's two adult children live in other provinces and can only visit occasionally. Mrs. A feels distressed whenever her husband is out of sight, describing significant worry about being left by herself.

A lifelong Buddhist, Mrs. A finds comfort in listening to temple chanting on the radio each morning. However, she misses participating in temple visits and making merit as she used to do before her illness progressed. She feels a sense of guilt about no longer fulfilling her religious practices and wonders aloud if she is becoming a burden to her husband and family.

In private conversations with her husband, Mrs. A has expressed fears about her future, questioning why Parkinson's disease happened to her and what will become of her and her family as her condition progresses. She sometimes worries about dying and wonders what will happen in the next life but also speaks of a desire to "let go," suggesting an ongoing search for acceptance and meaning amid her challenges.

Analysis

Five-Dimensional Assessment: Etiology

1. Biological

Assessment:

- Mrs. A's primary medical issue is Parkinson's disease (6 years), for which she takes dopaminergic medication.
- Recent cognitive decline (forgetfulness, word-finding trouble) suggests possible Parkinson's disease dementia, medication side effects, or delirium.
- Occasional visual hallucinations (e.g., seeing "strangers" at home) are common in Parkinson's and may be medication-related.
- She recently suffered a fall, leading to persistent fear and possible mobility or balance impairment.
- Age and chronic illness place her at risk for further sensory deficits and frailty.

First draft: 20 August 2025 Wengpakaran $\mathcal{N}_{\mathscr{E}}\mathcal{T}$

Purpose:

Recognizing both neurodegenerative and iatrogenic causes for cognitive and perceptual changes, identifying risk factors for further decline and falls, and acknowledging disease-related progression that affects daily functioning.

2. Psychological

Assessment:

- Reports of anxiety, especially around being left alone.
- Increased dependence and fear after the fall, potentially contributing to learned helplessness or agoraphobia.
- Emotional distress about declining abilities and feeling like a burden.
- Cognitive symptoms (forgetfulness, word-finding) may contribute to frustration or sadness.
- Possible psychodynamic components: Ms. A questions "why did this happen to me?" and expresses guilt (possibly from childhood or cultural roots in righteousness/karma).
- Displays some resilience by seeking comfort in religious activities.

Purpose:

To assess how anxiety, mood, self-perception, and resilience—possibly influenced by deep-seated beliefs about worth and suffering—impact her ability to cope with illness and loss of independence.

3. Social

Assessment:

- Primary caregiver is her husband; his increasing responsibilities and potential for caregiver burden need evaluation.
- Kids live far away, resulting in weak support from extended family.
- Social withdrawal: Rarely leaves house; isolation likely exacerbates her distress.
- Social environment: changes in roles (from caregiver to care-receiver), strain on marital relationship, and reduced community participation.

Purpose:

Understanding how social context (caregiver strain, physical isolation, lack of accessible support networks) and reliance on her husband affect both her well-being and the household's resilience.

4. Spiritual

Assessment:

Lifelong Buddhist, previously active in temple rituals and merit-making.

- Now restricted to passive forms of worship (radio chanting); feel guilt and loss for not fulfilling spiritual duties.
- Maintains a strong spiritual identity but is distressed by her inability to participate as before; upcoming spiritual needs and distress require attention.

Purpose:

To identify and address unmet spiritual needs, spiritual guilt, and the positive/negative impact of faith-based coping in her current life situation.

5. Existential

Assessment:

- Mrs. A is preoccupied with mortality and questions about the afterlife, reflecting commonly held Buddhist views on rebirth and karmic consequence.
- Expresses worries about what will become of her and her family, and at times a
 desire to "let go," reflecting a need for acceptance and reconciliation with her
 condition.
- Ongoing search for meaning despite suffering expresses concern about being a burden—a common existential worry in serious illness.
- Hopes and fears for herself and her family's future, uncertainty about what's next, and unfinished emotional business (e.g., guilt, acceptance, letting go).

Purpose:

To provide a supportive environment where Mrs. A can process fears about dying, explore her beliefs about life after death, meaning, and suffering, and find peace and dignity as she nears the later stages of her journey.

Summary Table

Dimension	Mrs. A's Case – Key Elements
Biological	Parkinson's, cognitive decline, hallucinations, medication side effects, fall/fear of falling, frailty in advanced age
Psychological	Anxiety, dependence, distress at losing abilities, fear of being alone, guilt, possible existential depression, resilience
Social	Husband as primary caregiver (risk of caregiver burden), adult children distant, isolation, role change, reduced engagement
Spiritual	Lifelong Buddhist, spiritual comfort from chanting, guilt about not participating in rituals, and spiritual distress
Existential	Worries about mortality, future, life after death, being a burden, search for meaning and acceptance, hope to "let go"

Five-Dimensional Assessment: Treatment Plan

1. Biological

Interventions:

- Medication optimization: Review her dopaminergic therapy to balance motor symptom relief with cognitive side effects — possibly adjust dose or consider alternative agents to minimize confusion and hallucinations.
- Brain health: Screen and, if feasible, treat for Parkinson's disease dementia; assess for delirium triggers (e.g., infections, metabolic issues).
- Physical/occupational therapy: Refer to reduce fall risk, improve mobility, and help her regain confidence in movement.
- Nutrition/hydration: Monitor intake as both Parkinson's and cognitive decline can affect swallowing and appetite.
- Sensory support: Check vision and hearing and correct deficits, as this may reduce the risk of falls and help with hallucinations.
- Specialist referral: Arrange for neurologist and geriatrician input regarding hallucinations and cognitive issues.

Goal:

Stabilize Parkinson's symptoms, minimize cognitive decline and visual hallucinations, prevent future falls, and maximize independence and comfort in daily activities.

2. Psychological

Interventions:

- Counseling: Offer supportive psychotherapy to help process fears (e.g., of falling, being alone) and adjustment to chronic illness.
- Targeted therapy: Consider supportive therapy, control mastery therapy, or adapted psychodynamic therapy, addressing anxiety, guilt (possibly rooted in deep-seated beliefs or early experiences), and sense of helplessness.
- Resilience-building: Employ techniques to boost self-esteem, adaptive coping, and sense of agency (e.g., setting achievable daily goals).
- Address pathogenic beliefs: Work through worries about being a burden and "why did this happen to me?" by exploring and challenging possible maladaptive ideas.
- Medication: Screen for and manage coexisting anxiety or depression pharmacologically if needed.

Goal:

Reduce anxiety and emotional distress, enhance coping with progressive illness, address deep-seated beliefs impacting self-worth, and promote psychological resilience and growth.

First draft: 20 August 2025 Wengpakaran $\mathcal{N}_{\mathscr{E}}\mathcal{T}$

3. Social

Interventions:

- Caregiver support: Educate her husband about Parkinson's progression, cognitive/behavior changes, and signs of caregiver stress; offer counseling or support groups for caregivers.
- Family involvement: Facilitate communication with distant children (phone, video calls); explore periods when children can stay or provide support.
- Combat isolation: Arrange safe, small social activities at home or virtually; encourage reconnecting with friends or local Buddhist community members.
- Access social services: Ensure home safety evaluations, arrange for assistive devices, or consider visiting nurse/home health aide to support both patient and husband.
- Financial/logistical help: Connect with social welfare resources if there are concerns about finances or access to care.

Goal:

Reduce isolation, bolster practical and emotional supports for Mrs. A and her husband, and ensure continued connection to family and meaningful community.

4. Spiritual

Interventions:

- Facilitate religious practice: Provide access to chanting recordings, streamed temple services, or prerecorded merit-making rituals.
- Spiritual care consultation: Involve a Buddhist chaplain/monk for home visits or phone calls, if possible, to sustain spiritual connection and address distress.
- Meaning making: Encourage narrative or reflective practices about her faith journey and what brings her spiritual comfort now.
- Spiritual validation: Reassure her that current limitations do not diminish her spiritual value or merit.
- Ritual adaptation: Explore ways to adapt or participate in rituals at home with family support.

Goal:

Restore spiritual connection, reduce feelings of spiritual guilt, nurture hope and meaning, and support Mrs. A's Buddhist faith as a source of healing.

5. Existential

Interventions:

First draft: 20 August 2025 Wengpakaran \mathcal{N} & \mathcal{T}

- Meaning-centered therapy: Offer life review, dignity therapy, or storytelling techniques that highlight her life's contributions and legacy (e.g., her career as a seamstress, family memories).
- Advance care planning: Encourage open discussion about future wishes, advance directives, and how she wants to be cared for—engage family in these conversations.
- End-of-life exploration: Provide a safe space to discuss mortality, fears of dying, and beliefs about the next life under her Buddhist worldview.
- Processing unfinished business: Address guilt, fears of being a burden, and encourage dialogues of gratitude, forgiveness, and reconciliation with loved ones.
- Promote acceptance: Support her journey toward "letting go" through mindfulness, meditation, or spiritual approaches incorporated from her beliefs.

Goal:

Enhance her sense of meaning, dignity, and acceptance; reduce existential suffering around dependency and mortality; and help Mrs. A and her family prepare for the journey ahead with peace and hope rooted in her values and beliefs.

Summary Table: Treatment Approach for Mrs. A

Dimension	Interventions (Tailored for Mrs. A)	Goals
Biological	Optimize meds, brain health, rehab, nutrition, vision/hearing, neuro consult	Health, safety, comfort, cognitive function
Psychological	Therapy (cognitive/behavioral/psychodynamic), resilience-building, address beliefs, med if warranted	Emotional well-being, reduce anxiety, and inner growth
Social	Family/caregiver support, connect with children, socialization, social services	Reduce isolation, strengthen support, and improve the quality of life
Spiritual	Support Buddhist practices, adapt rituals, chaplain/monk, validate distress	Peace, meaning, hope, spiritual connection
Existential	Meaning therapy, life review, ACP, legacy work, support, acceptance, and hope	Meaning, dignity, acceptance, hope for the future

First draft: 20 August 2025 $\mathscr{W}_{ongpakaran}\,\mathscr{N}_{\mathscr{E}}\,\mathscr{T}$

Practical approach applying the BPSSE Model

The geriatric psychiatrist utilizes the BPSSE model (Biological, Psychological, Social, Spiritual, Existential) for a holistic approach to Mrs. A's challenges.

Biological

Mrs. A's Parkinson's disease is carefully managed with regular review and adjustment of medication to minimize cognitive side effects and visual hallucinations. Physical and occupational therapy are used to reduce fall risk and improve confidence after her recent fall, along with mobility aids as needed. The psychiatrist frames these physical changes as a natural part of aging while ensuring active intervention for optimal day-to-day functioning. Nutritional status is monitored, sensory deficits are addressed, and a neurologist is consulted regarding the balance of motor versus cognitive symptoms.

Psychological

Beyond cognitive decline and anxiety, the psychiatrist identifies a long-standing obsessive-compulsive personality trait in Mrs. A, evident as a strong need for order, control, and predictability. Though once adaptive, this trait has become distressing in the face of her illness and loss of control.

Rather than pathologizing, the therapist helps her reframe and utilize this trait:

- Mrs. A is encouraged to channel her need for routine into positive coping strategies (e.g., structured medication schedules, self-care rituals, safety checklists).
- She focuses on aspects within her control (tidy living space, organized belongings, gentle daily routines), building confidence and reducing helplessness.
- With guidance from control mastery therapy, as well as cognitive-behavioral and psychodynamic approaches, Mrs. A learns to identify and challenge maladaptive core beliefs, reduce guilt and anxiety, and distinguish what is and isn't within her control.
- She practices self-compassion and develops resilience, shifting her obsessive-compulsive tendencies into tools for mastery and well-being.

Social

The care plan involves Mrs. A's husband and distant children, providing tailored caregiver education, emotional support, and linkages to community resources (such as online Buddhist groups or local elder support). The psychiatrist arranges for periodic respite, encourages safe socialization (remote or small group), and ensures Mrs. A is not isolated despite functional decline. Family counseling is also offered to address caregiver burden and foster shared problem-solving.

Spiritual

Mrs. A's Buddhist identity is honored and nurtured. The psychiatrist validates any spiritual guilt and works with her to adapt spiritual practices to her abilities—such as radio chanting, mindful meditation, and daily acts of compassion from home. Opportunities for tele-visits with monks or lay spiritual leaders are explored. Mrs. A is reassured that intention and heart matter as much as physical rituals, thus relieving her guilt and restoring spiritual connection.

Existential

Mrs. A's fears about death and uncertainty about her future are gently explored. The psychiatrist introduces meaning-centered and existential therapies, including life review and dignity therapy, and incorporates death contemplation (maranasati) from her Buddhist tradition. Open discussions include her beliefs about life after death, preparation for the journey, reconciling unfinished business, and fostering acceptance. Mrs. A finds comfort in her long history of merit-making. She is guided to see this as ongoing spiritual support, reducing distress about dying alone and feelings of being a burden.

Outcome

With her need for control reframed as personal strength, spiritual practices tailored to her situation, and existential fears compassionately addressed, Mrs. A achieves greater acceptance of her limitations. She becomes less distressed about her symptoms, can remain alone with less anxiety, and faces the future with more equanimity and peace—deriving meaning in the present and feeling prepared for what may come after.

BPSSE Summary Table: Mrs. A's Parkinson Case

Dimension	Etiology (Causes in this case)	Treatment/Management (in this case)
Biological	Parkinson's disease; side effects of dopaminergic medications (hallucinations, cognitive impairment); motor symptoms; fall risk	Optimize/adjust medication regimen; monitor/manage cognitive/motor side effects; fall prevention; physical/occupational therapy; sensory correction; neuro consult
Psychological	Cognitive impairment from Parkinson's/meds; anxiety, depression; distress from	Counseling/psychotherapy (Cognitive, psychodynamic, control mastery); adaptive routine-building; coping skills

First draft: 20 August 2025 Wengpakaran $\mathcal{N}_{\mathscr{E}}\mathcal{T}$

	obsessive-compulsive trait (need for control)	for unpredictability; resilience/self- compassion training
Social	Isolation; dependence on husband; distant children; fear of being alone	Caregiver education/support/respite; strengthen social ties; facilitate participation in group/community/religious activities (in-person/online); community resource link
Spiritual	Inability to perform traditional merit-making; guilt about spiritual inadequacy; less ritual practice	Adapt rituals (radio chanting, remote temple services); support daily merit-making/intention; access to spiritual leaders; validate spiritual distress
Existential	Fear of death/dying alone; loss of meaning/purpose; feeling like a burden; seeking acceptance and preparation for the next life	Guided death contemplation (maranasati); meaning-centered and dignity therapy; open discussion of life after death; acceptance and legacy work; spiritual preparation

Case 2

Case History Summary

Patient: 69-year-old retired military officer, living in Chiang Mai with wife. Two adult children in Bangkok.

Presenting Problem

- Longstanding Parkinson's disease with multiple medical comorbidities and a recent diagnosis of delirium/dementia.
- Recent onset of paranoia, delusions, and behavioral disturbances triggered by a neighbor's threatening behavior and repeated home intrusions (Dec 2024–Jan 2025).
- Episodes of acute confusion, aggression (mainly towards wife), sleep disturbances, and hallucinations since the incident.
- Ongoing delusional jealousy towards his wife, frequent accusations, irritability, and arguments.
- Social withdrawal, reduced participation in physical therapy, and loss of prior independence.
- Insists nothing is wrong mentally and resists psychiatric medication, experiencing side effects, and dislikes polypharmacy.

Family & Social

First draft: 20 August 2025 $\mathscr{W}_{engpakaran}\,\mathscr{N}_{\&}\,\mathscr{T}$

- Wife is the primary caregiver but under considerable stress and psychiatric care for depression.
- Children live far away, with limited day-to-day involvement.
- Relationship with wife strained due to jealousy and frequent conflict. Occasional physical altercations.

Past Medical History

- Parkinson's disease, BPH, overactive bladder, AF, hypertension, prior TIA/CVA, osteoporosis, duodenal ulcer, thyroid disease, dry eyes, and edentulous.
- Recent left femur fracture (Jan 2025); previous jejunal GIST surgery.
- On complex medical regimen; previous side effects (dizziness, falls) from psych meds.

Current Status

- Mood is stable except for irritability over suspicions.
- Continues to experience delusions (infidelity, harm) and some hallucinations (less frequent).
- Prefers medication reduction.
- Physical mobility limited, but no current severe Parkinsonian motor symptoms.
- Maintains some self-care and emotional engagement with wife (e.g., music, attempts at affection).

BPSSE Model Analysis – 69-Year-Old Retired Military Officer

1. Biological

Key Issues:

- Parkinson's Disease (MSA-P), history of BPH, OAB, AF, hypertension, dyslipidemia, prior stroke/TIA, osteoporosis, duodenal ulcer, dry eye, occasional diplopia, recent femoral fracture.
- Polypharmacy: Multiple overlapping medications, experiencing side effects (dizziness/falls/tolerability issues), requesting medication reduction.
- Delirium/dementia: Fluctuating cognition, hallucinations, aggression, sleep disturbances, delusions.
- Loss of hand-eye coordination, mobility issues (shuffle gait), wheelchair use.
- Sensory loss: Edentulous, dry eye, osteoporosis leading to increased fall risk.

First draft: 20 August 2025 Wengpakaran \mathcal{N} & \mathcal{T}

 Recent hospitalization—likely to have exacerbated physical and mental deconditioning.

Approach:

- Optimize medication regimen (balance benefits and risks, minimize CNS side effects).
- Address underlying causes of delirium (review meds, infections, metabolic imbalances).
- Rehabilitate physical function (PT/OT for mobility, fall prevention).
- Support nutrition, hydration, and manage comorbidities.
- Address sleep hygiene and manage BPH/OAB symptoms.

2. Psychological

Key Issues:

- Delusions: Jealousy towards wife (infidelity), paranoia (neighbors/intruders), auditory and visual hallucinations, suspicion.
- Irritability, aggression, especially towards wife.
- Denial of mental illness (lack of insight), resistance to psychiatric care.
- Sleep disturbance, anxiety, possible underlying or situational depression.
- Identity: Former high-ranking officer; now physically limited, out of control, reliant on others. Strong ego, striving for autonomy—ego defense mechanisms, possible narcissistic or compulsive traits.
- Evidence of distress with change and loss of control.

Approach:

- Psychoeducation for patient and family on illness insight, symptom control, medication rationale (compassionate, patient-centered discussion).
- Psychotherapy approaches if possible (reality-testing, supportive therapy, address narcissistic injury, identity work, gentle confrontation of delusions).
- Techniques to maintain self-respect and engagement (give structured roles, involve in decision making).
- Address sleep and anxiety pharmacologically and non-pharmacologically.
- Support for wife's emotional burden due to relationship strains and repeated aggression.

3. Social

Key Issues:

- Wife is main caregiver, under stress and psychiatric care herself; physical/verbal aggression from patient creates cycles of distress.
- Children live far away; limited day-to-day support.
- Patient's social isolation and lack of trust (locks doors, suspicion of neighbors, withdrawn).
- Social withdrawal: less interaction, less therapy involvement.
- Family system: conflict, codependence, communication breakdown over delusions.

Approach:

- Enhance caregiver support (respite, counseling, psychoeducation).
- Foster connections with distant children (regular calls/visits/support groups).
- Encourage safe, structured social contact (e.g., supervised group activities, appropriate stimulation to reduce withdrawal).
- Address safety at home (environmental management to prevent violence/falls).
- Multidisciplinary collaborative care (medical/psychological/social services).

4. Spiritual

Key Issues:

- No explicit spiritual concerns stated, but may be present given increased paranoia, fear of ghosts, concern for safety, seeking meaning in adversity.
- Military background may provide a sense of discipline/ritual or existential questions around usefulness, loyalty, and purpose.
- Listening to sad love songs, possibly as an emotional or spiritual expression, seeking connection or catharsis.

Approach:

- Screen for spiritual distress or sources of comfort/meaning (e.g., military values, religious beliefs, music).
- Encourage engagement in meaningful rituals or practices aligned with patient's background and values.
- Provide access to spiritual care/support if desired (chaplain, clergy, or peer support).
- Use music or other meaningful activities as therapeutic tools.

5. Existential

Key Issues:

- Struggle with loss of autonomy, authority, and physical/cognitive capacity ("egoistic, narcissistic" traits; strives for independence and control).
- Delusions and paranoia further deepen sense of vulnerability, meaninglessness, or lack of safety.
- May experience fear of dependency, mortality, and loss of masculine identity/role as protector.
- Lack of insight and acceptance regarding mental illness can be seen as an existential defense against loss of self.
- Need for validation, respect, and role; seeking to engage wife emotionally, fighting against irrelevance.

Approach:

- Existential counseling around accepting change, facing vulnerability, and redefining purpose and dignity in late life.
- Frame dependence as a form of mutual human connection rather than failure.
- Encourage legacy work: life review, storytelling, focusing on achievements and positive impacts.
- Foster acceptance (anicca), explore suffering (dukkha), and reflect on control/non-control (anatta)—gently introduce or reinforce ideas from his cultural or personal worldviews.
- Support conversations around mortality, worth, and peace with ongoing change.

Summary Table: BPSSE Model for This Patient

1. Biological

Key Issues:

- Parkinson's disease (MSA-P), history of BPH, OAB, AF, hypertension, dyslipidemia, prior stroke/TIA, osteoporosis, thyroid disease.
- · Recent femur fracture and surgery.
- Polypharmacy with sensitivity to medication side effects (dizziness, fall risk).
- Delirium and suspected dementia (BPSD): fluctuating cognition, hallucinations, delusions, aggression, sleep disruptions.
- Mobility limitations (wheelchair use, shuffle gait), sensory losses (dry eyes, edentulous).

Approach:

- Optimize and simplify pharmacotherapy, closely monitor for adverse effects.
- Screen and treat reversible medical/neurological contributors to cognitive decline and delirium.
- Fall prevention and rehabilitation, address sleep hygiene.
- Manage chronic illnesses and ensure nutritional support.

2. Psychological

Key Issues:

- New onset paranoia and persistent delusions (jealousy towards wife, fear of harm), auditory and visual hallucinations.
- Aggressiveness and irritability, particularly towards spouse.
- Denial of mental illness and resistance to psychiatric intervention.
- Loss of former identity (military leader), wounded ego, striving for independence.

Approach:

- Psychoeducation for patient and family about illness, medication, and behaviors.
- Supportive and reality-oriented psychotherapy where tolerated (maintaining respect for autonomy and dignity).
- Interventions to maintain self-esteem and purpose (role adaptation).
- Family support for coping with aggression and communication challenges.

3. Social

Key Issues:

- Main caregiver (wife) is stressed and treated for depression.
- Children live far away (limited daily support).
- Relationship conflict (delusional jealousy, arguments, physical altercations).
- Social withdrawal, decreased activity, lack of trusted interactions after traumatic incidents at home.

Approach:

- Strengthen caregiver support (education, respite, emotional support).
- Facilitate regular family communication and involvement, including remote support from children.

- Encourage structured, supervised social contact to reduce isolation and withdrawal.
- Ensure safety at home (prevent violence, minimize risk of falls).

4. Spiritual

Key Issues:

- No explicit spiritual or religious practice described, but possible need for meaning and reassurance after decline and trauma.
- Uses music (sad love songs) as emotional or symbolic connection.
- Military background may provide personal values (discipline, order, duty).

Approach:

- Explore and support any spiritual or existential concerns if present.
- Encourage participation in meaningful rituals or valued activities (e.g., music, connection with others, remembrance of military service).
- Offer spiritual care options or referrals if he or his family are interested.

5. Existential

Key Issues:

- Encountering loss of power, independence, and traditional roles; struggling with dependency and diminishing control.
- Defensive denial of illness—perhaps to protect sense of self.
- Ongoing search for dignity, relevance, and legacy (wanting respect from family, wife).
- Fears about vulnerability, dependency, and mortality.

Approach:

- Provide existential counseling or life review to facilitate acceptance of limitations, reframe dependence, and find meaning.
- Validate his need for dignity and respect; encourage legacy-building (storytelling, sharing experiences).
- Introduce concepts such as impermanence (anicca), loss and suffering (dukkha), and letting go of fixed identity (anatta) for those open to such discussions.

BPSSE Summary Table

Dimension	Central Issues in This Case	Interventions/Focus
Biological	Parkinson's, multiple comorbidities, delirium/dementia, falls, polypharmacy	Optimize meds, treat reversible causes, rehab, chronic care
Psychological	Delusions, paranoia, hallucinations, aggression, denial, loss of former role, and control	Psychoeducation, supportive reality-based therapy, and family support
Social	Caregiver burden, social isolation, conflict, limited support from children, and home safety risks	Caregiver support, increase family involvement, and safe social contact
Spiritual	Need for meaning, symbols (music), unaddressed spiritual concerns	Explore/validate spirituality, support meaningful activities
Existential	Struggle with loss of identity/control, existential fears, need for dignity and meaning	Counseling, legacy work, acceptance, and reframing of meaning

Using the BPSSE Model for Specific Problems: Non-compliance

Biological

- **Impact:** Side effects from polypharmacy (e.g., dizziness, fall risk, somnolence) may lead the patient to stop or resist medication.
- **Perception:** The patient may not recognize or accept the need for medications, especially those for psychiatric symptoms he denies having.
- **Action:** Review for adverse effects, simplify regimen, if possible, explain medical rationale in clear terms, and re-evaluate the necessity of each medication.

Psychological

- **Impact:** The patient demonstrates denial and poor insight into his mental illness (delusional jealousy, paranoia, hallucinations), viewing himself as mentally healthy and attributing problems to others.
- **Defenses:** Ego-protective mechanisms (narcissistic traits, denial) may fuel resistance, as accepting illness or medication may threaten his self-concept as strong/independent.
- Action: Use psychoeducation, motivational interviewing, and supportive techniques that preserve dignity and autonomy, addressing underlying fears or feelings of loss.

Social

• **Impact:** Strained relationships (especially with his wife), perceived lack of empathy or support from healthcare providers or family, and minimal day-to-day involvement from children may fuel mistrust or resentment.

First draft: 20 August 2025 $\mathscr{W}_{ongpakaran}\,\mathscr{N}_{\mathscr{E}}\,\mathscr{T}$

- **Role:** History as a commanding officer may lead to authority struggles—with a preference to direct his own care rather than be told what to do.
- **Action:** Foster collaborative care; involve family in discussions (so patient feels understood, not "ordered"); build alliances between patient and care team to increase buy-in.

Spiritual

- **Impact:** Loss of roles, purpose, or perceived dignity may underlie a reluctance to accept help or medical treatment.
- **Meaning:** If taking medication symbolizes decline, dependency, or loss of control, he may view non-compliance as preserving self-worth or values.
- Action: Explore values and sources of meaning—military identity, music, personal rituals—and align care recommendations with what matters most to him.

Existential

- **Impact:** Facing mortality and loss of agency, non-compliance may be an effort to assert control or resist confronting fears about dependency, irrelevance, or death.
- **Identity:** Medication refusal may symbolize resistance to being labeled "sick" or "dependent," holding onto past identity and legacy.
- **Action:** Provide existential counseling, encourage life review or legacy activities, and validate his efforts to maintain dignity and meaning—even as his condition changes. Frame medical care as a way to maintain autonomy and quality of life, not just as "giving in" to illness.

In Short

Non-compliance in this patient is multi-layered, driven by biological side effects, psychological denial and defense, social authority issues and support gaps, threats to spiritual meaning and dignity, and existential struggles with loss and mortality.

A holistic, compassionate, and collaborative approach addressing each dimension is essential to improving trust, engagement, and adherence.

Miscellaneous

Realities and Challenges

Cultural sensitivity is essential—never assume all Buddhist patients have the same beliefs or needs. For some, spiritual or existential questions may be private or even sources of distress. Always explore gently and invite, rather than insist upon, discussion.

Interdisciplinary collaboration (with chaplains, social workers, and community volunteers) is vital. Clinicians must also recognize their limits: sometimes the most significant intervention is presence, silence, and respectful attention.

References

- Coleman, D., Lawrence, R., Parekh, A., Galfalvy, H., Blasco-Fontecilla, H., Brent, D. A.,...Oquendo, M. A. (2017). Narcissistic Personality Disorder and suicidal behavior in mood disorders. *J Psychiatr Res*, 85, 24-28. https://doi.org/10.1016/j.jpsychires.2016.10.020
- DeMaranville, J., Wongpakaran, T., Wongpakaran, N., & Wedding, D. (2025). Death recollection moderates stress-influenced depression in Thai boarding school students. *BMC Psychol*, *13*(1), 846. https://doi.org/10.1186/s40359-025-03147-4
- Evans, S., & Garner, J. (2004). *Talking over the years : a handbook of dynamic psychotherapy with older adults*. Brunner-Routledge.
- Glushich, A., Wongpakaran, N., Wongpakaran, T., DeMaranville, J., & Wedding, D. (2025). Positive death attitudes and psychological well-being: examining the influence of the four immeasurables. *Front Public Health*, *13*, 1622813. https://doi.org/10.3389/fpubh.2025.1622813
- Hategan, A., Bourgeois, JA., Calvin H. Hirsch, CH., & Giroux, C. (2024). *Geriatric PsychiatryA Case-Based Textbook* (2nd ed.). Springer Cham.
- Sundström, M., Blomqvist, K., Rämgård, M., & Edberg, A. K. (2025). Challenges for staff encountering older people's existential concerns: Swedish first-line managers' views. A cross-sectional study. *Scand J Caring Sci*, 39(1), e13300. https://doi.org/10.1111/scs.13300
- Weiss, J. (2002). Control-mastery theory. *Encyclopedia of Psychotherapy*, 1, 1-5. https://doi.org/10.1016/B0-12-343010-0/00062-3
- Wongpakaran, N., Klaychaiya, S., Panuspanudechdamrong, C., Techasomboon, N., Chaipinchana, P., DeMaranville, J.,...Wongpakaran, T. (2025). A comparative study of the impact of meditation and Buddhist five precepts on stress and depression between older adults and younger adults. *Sci Rep*, *15*(1), 15739. https://doi.org/10.1038/s41598-025-99430-w
- Yalom, I. D. (2002). The gift of therapy: An open letter to a new generation of therapists and their patients. HarperCollins Publishers.
- Zimmer, Z., Jagger, C., Chiu, C. T., Ofstedal, M. B., Rojo, F., & Saito, Y. (2016). Spirituality, religiosity, aging and health in global perspective: A review. *SSM Popul Health*, *2*, 373-381. https://doi.org/10.1016/j.ssmph.2016.04.009

First draft: 20 August 2025 Wengpakaran \mathcal{N} & \mathcal{T}