

Cognitive and Psychological Changes Across the Life Span

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Today's Objectives

- Learn about the current understanding of how our cognitive capacities (brain) change across our life span
- Learn about how other psychological factors – personality changes with age.
- Understand the implications of these changes on adult life-long service delivery.
- Increase our awareness of internalized ageism.

The Human Context

- Aging is associated with change
 - Biological factors (physical capacities, genetics)
 - **Psychological factors (cognitive abilities and personality)**
 - Environmental factors (housing, education, living conditions)
 - Social and Cultural factors (change in roles and expected behavior with age, life style)

All are interrelated and interact on the human experience

Psychological Perspective

From a psychological perspective we have:

- Cognitive capacities - thinking
- Affective capacities – feeling
- Behavior –what we do

Cognitive (brain) and Personality Changes as we Age

- Cognitive (brain) changes get the most attention but other psychological aspects are impacted by age: emotional reactivity, perceptual process, interpersonal style
- Change in adulthood is multidimensional. Some abilities improve, others remain stable, and other decline.
- Adults differ greatly –as we age we become even more diverse socially, cognitively, and emotionally.

Neurological Dogma is Dead

- Loss of brain (neuron) cells across the life span is minimal in healthy individuals.
- Any brain cell death in healthy individuals has few, if any, real world consequences.
- The brain's functioning depends heavily on one's cardiovascular, respiratory and metabolic fitness

Cognitive Capacity: A New Understanding

- The brain is an information processor
- It is not fixed – our brain continues to develop.
- There is strong evidence of neuronal plasticity: the dynamic, constantly reorganizing, and malleable properties of the human nervous system.
- We generate new cells: neurogenesis
- Create intellectual reserve to sustain a healthy memory

Multiple Factors

- Environment appears to be critically in developing and maintaining our brain; genetics, novel and complex learning opportunities, work, socialization, nutrition, and physical exercise may be critical. - A vital life style and healthy heart may be key.
- A great deal of variation among adults. We optimize cognitive functions, selectively maintain some abilities but not others, and practice what we like.

Cognitive Decline

- Cognitive decline is not due to chronological aging per se but rather reflects multiple causal factors from a broad range of biological and physical health domains that operate along the age continuum.

(Stuart, W. S., et. Al. 2011)

And the Brain Ages

- Our brains are subject to the same basic biology as the rest of our body. Our brains age and change --- Many theories --build in aging --- normal wear and tear ----damage by free radicals

Impact of the Aging Brain on Personality

- Starting at age 50 – the brain shrinks

Frontal lobe: may impact personality changes in social judgment and emotional responsiveness, may lessen attention, impulse control and cause difficulties focusing on several things at the same time.

Is this why as older adults we say what is on our minds – the impatience with social niceties that comes with mature aging?

Impact of Normal Aging on Memory

- Hippocampus – in normal aging, between age 50-90, the level of neurotransmitter acetylcholine falls.

Associated with forming and retrieving memories.

Thought to be the explanation for normal memory loss in healthy older adults.

There is a loss in explicit memory, the intention to remember and the ability to recall a specific name, number, or location on demand

Perceptual and Motor Skills

- Temporal lobes shrinkage: no direct evidence that this is associated with the normal hearing loss but the hearing loss results in the brain getting less reliable information to process.
- Visual cortex shrinkage is not responsible for lose of eye sight –deteriorating of the retina and optical nerves is – again less reliable information.
- Substantia nigra shrinkage impairs highly coordinated activities (e.g., writing)

Hormones and Neurotransmitters

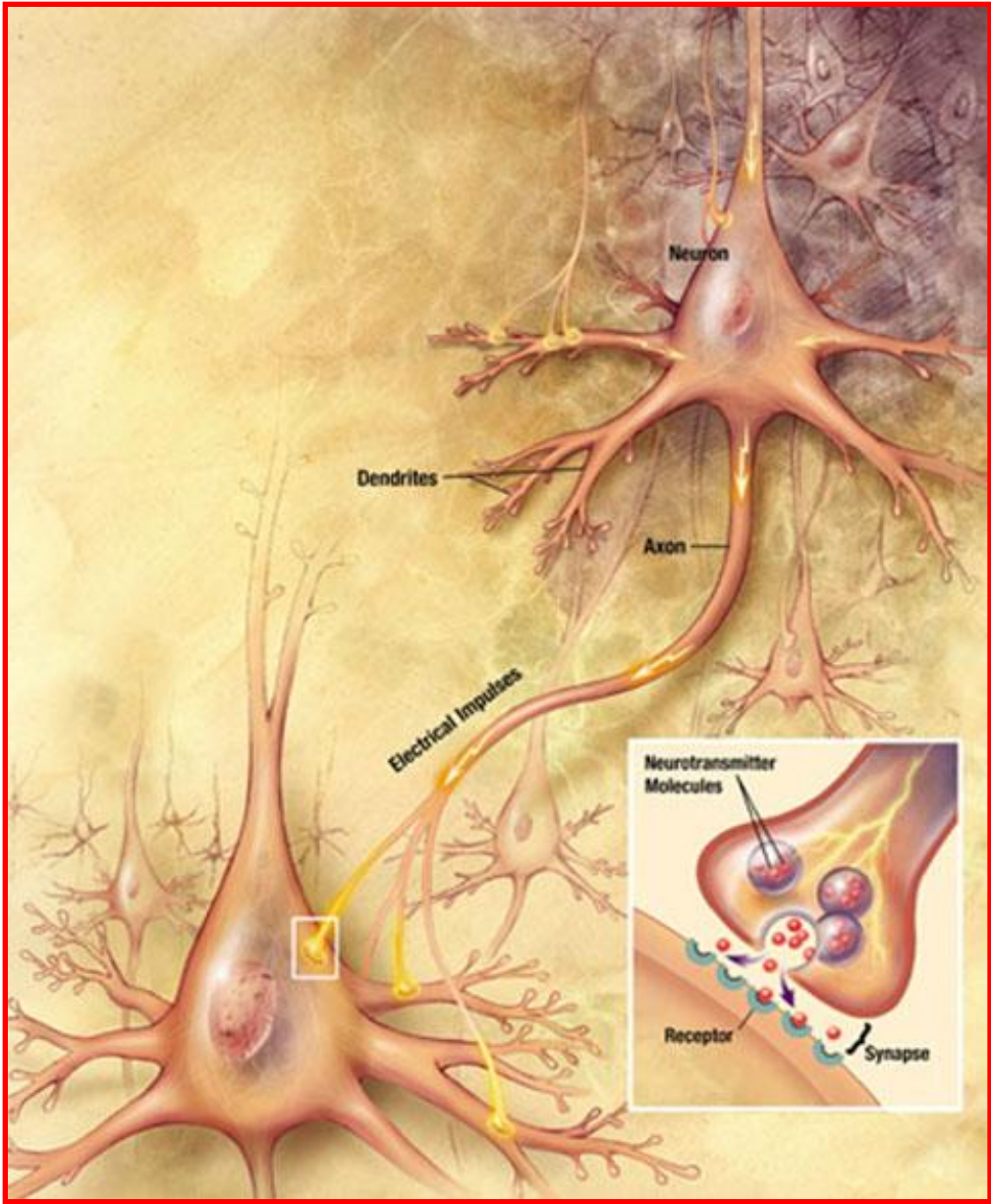
- Hormone production system get less effective. Cortisol may increase resulting in more time in light sleep and less in deep sleep – evidence suggests this effects learning.
- Dopamine receptors reduce – brain receptors for joyous feeling. May use prior joyous memories to create inspiration – reminiscence.

Number and Strength of Connections between Neuron Cells

Neural density: the number of neuron cell dendrites connecting to other cell dendrites – If dendrites are numerous the neural symphony is enhanced. Allows thinking, feeling, remembering and dreaming. Thinning of dendrites causes difficulty with following complex language and logic.

The number of times the cell dendrites connect between cells increases with use.

Complex and novel learning increase synaptic connections and create new connections between neuron cells



The Slowing Down Explanation

- If the brain is an information processing unit – age causes the neuron process signals to slow down reaction time.
- The neuron zip drive is less efficient.
- The ability to learn new information and retrieve old information slows down
- Multitasking is more challenging and our brain is less tolerant of distraction.

Intelligent Test Performance

- After age 54 we begin to see a slower rate of increase in overall IQ. Stop getting better and stabilize.
- Aging loss of speed and visual-motor coordination results in IQ performance at age 85 to be similar to age 20
- Fluid intelligence peaks in late adolescence.
- Crystallized (Verbal) intelligence is maintained.

Cognitive Changes: Implications

Learning things that require perceptual speed (hearing, seeing), physical coordination, and muscular strength becomes more challenging with age but not much until advanced age (80).

Older adults need to work at their own pace and practice new skills

Remember there is a lot of variation

Enhancing Cognitive Health: Avoiding Cognitive Decline

- Do not smoke
- Manage disease & cardiovascular risks
- Regular physical exams
- Life-long learning
- Regular Exercise
- Relaxation, stress management
- Be financially stable
- Be spiritual
- Eat less, rainbow diet, fish, avoid obesity
- Relationships-social capital
- Create role/purpose, contribute & service

Personality traits are Generally Stable

- Extraversion vs. Introversion
- Neuroticism vs. Emotional stability
- Openness to experience
- Agreeability
- Conscientiousness

We tend to decline in neuroticism, extraversion, and openness to experience and increase in agreeability and conscientiousness in psychologically health older adults.

Life Satisfaction/Well Being

Ryff's findings- key dimensions of psychological well-being in older adults are:

- Autonomy (self-confidence and control)**
- Environmental mastery (negotiating one's daily life)**
- Personal growth**
- Having warm, intimate, positive relations with others**
- Purpose or meaning in life**
- Self-acceptance**

Older adults report the same level of life satisfaction, personal control, and self efficacy as younger adults.

Coping

Baltes's theory of selective optimization and compensation – to adapt to age changes we limit effort to areas of top priority, work to optimize performance in this area, and use external aids to compensate for losses.

- Ability to cope with stress does not decline with age.

Aging Theory: Mid-life

- Carl Jung – more time gone than left – shift in thinking and impact on behavior. The insidious whispering voice, “Is this all there is?”

We may find new lovers, compete with younger people, redouble efforts towards our career dream.

Encountering our mortality and coming to terms with the past we follow the messages that come from our own realized inner self.

Embracing the Death Instinct

- We must face the reality that we will die and welcome death as our reason for seeking an even deeper understanding of the larger life
 - Transpersonal source of love and wisdom
 - Transcendence and enlightenment
 - Life instinct pushes us to be selective about relationships and projects that deepen our connection to the inner self
 - We are more focused on the quality of life than quantity.

Theories of Aging

Activity Theory:

Emphasizes the importance of activity and social interaction to counteract what are perceived as significant losses by older adults.

Cumming's Theory: Disengagement

Describes and inevitable withdrawal from people and society as one turns inward towards the end of life.

Life-Span Development

- Eric Erikson Psychosocial model
- Stages of development across the life span which culminates in ego-integration as an older adult: Wisdom or despair
- Positive aging involves continuing to improve one's sense of self by engaging strategies designed to build maturity

William Thomas

Developmental tasks of aging emphasizes peacemaking, wisdom giving, and legacy creating.

Atchley: Continuity Theory

One's identity in adult life is influenced by one's enduring self-perceptions and the contextual factors that influence the stability of the self-view.

Internal (self-knowledge) and external continuity (environment/culture)

Personal Narratives

- We strive to keep a particular narrative going – an internalized and evolving narrative of the self that incorporates the reconstructed past and the imagined future into a more or less coherent whole in order to create life unity, purpose, and meaning

McAdams & Pals, 2006 American Psy.

Gerotranscendence; Lars Tornstam

A shift in the experience of self, how one's experience life, relationships; a cosmic awareness in late life.

Transcends the body, time, and material world.
One live within a sense of interconnectivity to all things.

Wisdom

- As we age we develop “wise mind.”
- More apt to answer questions or address issues based on factors such as:
 - factual knowledge related to the issues
 - use procedures and strategies for getting additional information
 - recognize long-term consequences of decisions
 - are sensitive to religious and cultural issues and
 - appreciate that no course of action is perfect, all actions have costs as well as benefits

(Rowe & Kahn, Successful Ageing)

Re-organizational Stage of Life

- Use our cognitive competence and flexible cognitive styles to restructure the context and content of our lives.
- Personal efficacy, locus of control, and affective state now play an increasing roles.
- Socio-emotional concerns become more prominent.
- At advanced age we enter a legacy-leaving stage – life review and reminiscence to organize and integrate past experiences and leave something for the family

(Rubinstein, Moss, & Kleban, The Many Dimensions of Ageing)

Older Adult Psychological Work

- Engage in the work of inner repair, expansion of boundaries and expansion of self potential
- Turn our perceived failures into successes
- Heal relationships
- Breakthroughs in forgiveness
- Find time and energy for creating the authentic self – new careers, new relationships, new hobbies
- Find a sense of interconnectedness to all nature

Implications: Psychological Healthy Older Adults

- Be seeking self potential and growth, meaning
- Be open to learning and be conscientious
- Use past experiences in their presentations and discussions
- Say what they think but open to other's ideas
- Express wisdom and creativity in their work
- Prioritize what is important to them
- Be genuine
- Enjoy opportunities to share and build relationships that are meaningful – self directed learning.

Implications: Psychological Unhealthy Older Adults

- Life-long coping and adjustment patterns that are not effective – unsafe - disrespectful
- Excessive disability
- Comorbid illnesses and disabilities that complicate optimal development
- Mental health disorder primary and secondary to illness and disability: CD. Depression, Anxiety, Dementia, Delirium
- Medication side effects and interactions
- Social isolation

Dialectical Thinking

- All are true at the same time and always changing as we interact with the environment
- Acceptance of self just as we are and continually changing - synthesis

Implications For Self Care

- Education/Self Awareness
- Individualized care based on sense of self
- Create a sense of belonging: community
- Support self-development
- Develop meaningful relationships
- Promote healing
- Promote creativity of individual talents
- Allow for self-expression
- Vital Lifestyle

Implications For Self Care

- Alternative therapies
- Life-long learning opportunities
- Centers for Healthy Aging – vital ageing
- End-of-life Care (legacy building, healing family wounds, to palliative care)
- Creativity/spirituality/late-life development
- Person/family-centered care/mental health care
- Wellness Centers
- Cognitive Retraining
- Civic Engagement
- Life Review Programs

“ The most basic of all human needs is the need to understand and to be understood. The best way to understand people is to listen to them.”

Ralph Nichols