Memory, Attention, and Aging: The Benefits of Staying Active

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Today’s presentation

• Myths about aging
• Factors affecting mental functioning
  • Stress
  • Stereotype threat
• Benefits of staying active
  • Social engagement
  • Physical activity
  • Mental activity
Myth #1
Aging Leads to Decreased Subjective Well-Being and Life Satisfaction
TRUE or FALSE?

FALSE!
Subjective Well-Being (SWB)

- Generally, SWB = overall sense of happiness
- In research, three components:

  1. Positive Affect
  2. Negative Affect
  3. Cognitive Appraisal of Life
Aging & Subjective Well-Being

• Aging often associated with decline in well-being
• Viewed as “number one public health problem”
• Young adults foresee loss with aging
  • How does this compare with actual experience?
Aging & Subjective Well-Being

The Challenges of Aging
It’s not as bad as younger adults think

<table>
<thead>
<tr>
<th>Issue</th>
<th>Ages 18-64 expect...</th>
<th>Ages 65+ experience...</th>
<th>Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory loss</td>
<td>57</td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Not able to drive</td>
<td>45</td>
<td>14</td>
<td>31</td>
</tr>
<tr>
<td>A serious illness</td>
<td>42</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Not sexually active</td>
<td>34</td>
<td>21</td>
<td>13</td>
</tr>
<tr>
<td>Feeling sad or depressed</td>
<td>29</td>
<td>20</td>
<td>9</td>
</tr>
<tr>
<td>Not feeling needed</td>
<td>29</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Loneliness</td>
<td>29</td>
<td>17</td>
<td>12</td>
</tr>
<tr>
<td>Trouble paying bills</td>
<td>24</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Being a burden</td>
<td>24</td>
<td>10</td>
<td>14</td>
</tr>
</tbody>
</table>

Note: Asked of adults 18-64, n=1,631; and adults 65+, n=1,332.

The U-bend
Self-reported well-being, on a scale of 1-10

Life Satisfaction Across the Lifespan

- Stable satisfaction with life over time or increased
- Closer “fit” between current and ideal self
Debunking Myth #1: The Paradox of Aging

- Despite natural physical and cognitive changes with aging:
  - Ratings of subjective well-being tend to be increased
  - Life satisfaction remains stable or improved
  - Higher feelings of positivity
Myth #2
Everyone eventually gets dementia
TRUE or FALSE?

FALSE!
What is Dementia?

- A set of symptoms that are caused by disorders affecting the brain
  - Memory loss
  - Difficulty in thinking or problem-solving
  - Difficulty in language
  - Change in mood or behavior

- Symptoms are progressive
## Normal Aging vs. Dementia

<table>
<thead>
<tr>
<th>Normal Aging</th>
<th>Dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not being able to remember details of a conversation or event that took place a year ago</td>
<td>Not being able to recall details of recent events or conversations</td>
</tr>
<tr>
<td>Not being able to remember the name of an acquaintance</td>
<td>Not recognizing or knowing the names of family members</td>
</tr>
<tr>
<td>Forgetting things and events occasionally</td>
<td>Forgetting things or events more frequently</td>
</tr>
<tr>
<td>Occasionally have difficulty finding words</td>
<td>Frequent pauses and substitutions when finding words</td>
</tr>
<tr>
<td>You are worried about your memory but your relatives are not</td>
<td>Your relatives are worried about your memory, but you are not aware of any problems</td>
</tr>
</tbody>
</table>

Debunking Myth #2: Aging and Dementia

• Although the risk of dementia increases with age, not everyone will develop dementia
• Like any disease, dementia is affected by both genetic and environmental factors
% Prevalence of Dementia in North America

Adapted from Prince et al., (2013) Alzheimer’s & Dementia
Dementia: Combat the Stigma

• Learn the facts
• Don’t make assumptions
• Watch the language
• Treat people with dementia with respect and dignity
• Be a friend
• Speak up

Myth #3
Memory decline is inevitable as we age
TRUE or FALSE?

TRUE ...

&

... FALSE!
Debunking Myth #3: Memory and Aging

• There are different types of memory
  • Some types decline
    • Short-term memory
  • Some types remain stable
    • General knowledge, personal history, procedural memory

• The role of attention is very important
  • Focused vs. divided attention
  • Presence of distractions
Memory and Aging

• Our memory for pictures is better than our memory for words

• If you need to remember a list of groceries and you don’t have a pen and paper handy, try to imagine the pictures of these items!
Emotional Memory

Younger adults (18-29 yrs)
- Positive: 38%
- Neutral: 26%
- Negative: 38%

Middle-aged adults (41-53 yrs)
- Positive: 40%
- Neutral: 25%
- Negative: 35%

Older adults (65-80 yrs)
- Positive: 46%
- Neutral: 23%
- Negative: 31%
Emotional Attention

• Looking **towards the good** and **away from the bad**
Emotional Attention

Happy

Neutral

Angry

Neutral
Summary

• Myth #1: Aging Leads to Decreased Subjective Well-Being and Life Satisfaction  
  → FALSE!

• Myth #2: Everyone eventually gets dementia  
  → FALSE!

• Myth #3: Memory decline is inevitable as we age  
  → TRUE…and … FALSE!
Factors Affecting Mental Functioning

- Stress
- Mental activity
- Stereotype Threat
- Physical activity
- Social engagement
Stress and Aging

What is stress?

N.U.T.S

N ovelty: new situations or experiences
U npredictability: unexpected occurrences
T hreat: threat to your sense of self
S ense of control: poor sense of control
Stress and Aging

• It is more difficult to remember and pay attention when you are stressed or in a stressful situation
• Long-term stress can negatively impact your brain through stress hormones
• Battle stress!
  ➢ Be self-aware of your stress levels
  ➢ Manage stress through meditation, social interactions, exercise
Stereotype Threat and Aging

• What is stereotype threat?
  • When we are confronted with negative stereotypes about a group which we identify with, we tend to self-handicap and underperform. We then confirm the negative stereotypes that we were worried about. (Wu, 2013)
Stereotype Threat and Aging

• What are these stereotypes?
  • Physical declines, cognitive declines, etc.
  • Are these true for everyone??
Stereotype Threat and Aging

• How do we get age-related stereotypes?
  • They originate as early as childhood
  • Stereotype can operate without awareness
  • In old age, these stereotypes become self-stereotypes
How does stereotype threat affect our memory?

- Young and older participants were randomly assigned to each of these groups

**Negative:**
- Age-related declines are inevitable

**Positive:**
- Individual has control over loss

**Control:**
- Did not read any news article

Negative condition: Older adults who cared a lot about their memory showed worse memory performance, due to reduced use of effective memory strategies.

Effect not seen in positive condition

(Hess, Auman, Colcombe, & Rahhal, 2003)
Stereotype Threat and Aging

• How to counter stereotype threat?
  • *Education:* What is normal aging? What are just myths? Not everyone ages the same way!
  • *Exposure to positive aspects of aging:* E.g., wisdom! Life experience!
  • *Intergenerational contact:* Retirement home in Seattle

(Chasteen, Kang, & Demedios, 2011)
Factors Affecting Mental Functioning

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Mental Functioning
Social Engagement

• Social engagement:
  • Maintenance of social connections and participation in social activities (Bassuk, Glass, & Berkman, 1999)
  • Social network size
    • How many close friends and relatives do you see regularly?
  • Frequency of participation in social activities
    • How often do you participate in social activities, such as volunteering or going out with others?
  • Perceived social support
    • Do you feel you are cared for, and will get help from others?
Social Engagement

• Participation in social activities is beneficial to cognitive health
  • Older adults who engaged in 3+ social activities (e.g., participation in elderly organizations, socializing with neighbours, friends, and relatives) showed better cognitive performance than those who did not engage in any activities (Glei et al., 2005)
Social Engagement

• Social ties as a protector factor against cognitive decline
  • In comparison to older adults with no social ties, those who had 5-6 social ties were at reduced risk for cognitive declines over a 12-year period (Bassuk, Glass, & Berkman, 1999)
Social Engagement

• It’s not just quantity, but also quality!
  • Emotional support (feeling loved & cared for) predicts better cognitive functions after 7 years (Seeman, Lusignolo, Albert, & Berman, 2001)
Social Engagement

• How does being socially active change our brains?
  • Some possible theories:
  • Stimulates brain through high degree of comprehension, memory, and problem solving required to maintain relationships
  • Reduced depression and stress
  • Someone to consult or work with to manage everyday problems
Factors Affecting Mental Functioning

- Stress
- Stereotype Threat
- Mental activity
- Physical activity
- Social engagement
Physical Activity

• Regular exercise has been associated with less cognitive decline over time

• Berryman et al. (2014): tested effectiveness of 8-week combined aerobic + strength training or gross motor activities
  • Aerobic + strength training increased physical fitness
  • Increases in cognitive functioning across both programs
Factors Affecting Mental Functioning

- Stress
- Stereotype Threat
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Mental Activity: Keeping the Brain Active

• Exercising the brain can help to improve certain cognitive functions

• Ballesteros et al. (2014): tested effectiveness of web-based video game training ("Lumosity.com")
  • Completed twenty 1-hour sessions of video games designed to train certain cognitive functions
  • Improvements to the practiced games and to other specific cognitive functions
What about Mental Health?

- Our lab: Comparison of 10-week video-game training program vs. 10-week physical training program
  - Both are showing some benefits to depression and stress over time

![Bar chart showing pre and post data for cognitive and physical domains for depression and stress.](image-url)
Today’s Take Home Messages

1. **Be a myth buster:** Know the myths about aging

2. **Be aware:** Understand the factors that can affect memory and attention as we age

3. **Be active!** There is no downside to engaging in social, mental or physical activity:
   1. It’s fun & keeps you busy
   2. You may increase the fitness of both your body AND brain
   3. May help to buffer against feelings of stress and depression
Thank you!

www.ryerson.ca/rspp
References


