



UNIVERSITY OF MIAMI MBI/MBRF Communications Workgroup

Our contribution to Topics #1 and #2 for Key Message Development

Topic 1:

What is cognitive aging? Its definition, what it is, and what it is not. (Inevitable?)

Proposed summary statements:

- **Cognitive aging refers to the effect age has on cognition.** (*By definition, this means it's unavoidable and inevitable given that all humans will age; "inherent in humans and animals as they age"[1]*)
- **The effects, and therefore impact, of cognitive aging are not uniform.** *They can involve one cognitive domain (e.g., memory), or another (e.g., processing speed.) They may impact a person noticeably, or they may not.*
- **Cognitive aging is NOT defined by a neurological or psychiatric disease or process.**

Rationale:

We would like to recognize and appreciate the comprehensiveness of the 2015 IOM report in defining and discussing "cognitive aging" as an entity, and the challenges and limitations of defining it. [1] In stating that it is "inherent in humans and animals as they age," this definition includes even those in whom **cognitive aging** may have no symptomatic impact.

In contrast, the 2017 National Academies of Science report deals with defining the efficacy of interventions in participants with cognitive decline related to aging. Thus, it became important to define these individuals by the presence of "deterioration in cognitive performance that can be a normal part of aging," which they termed **age-related cognitive decline (ARCD)**. [2] Since not all individuals with cognitive aging will have a meaningful deterioration in cognitive performance, **ARCD could** arguably specifically refer to only impacted individuals. However, the National Academies suggest that "some level of decline is expected with age." Ultimately, our choice to use ARCD in this way (or not) rests on whether we feel that every aging adult 1) will have cognitive decline (equating **ARCD** to **cognitive aging** as the authors do,) or 2) not necessarily have cognitive decline (distinguishing **ARCD** from **cognitive aging**.) Currently, expert consensus appears to favor equating the terms [1] .

In addition to the scientific and etiological considerations when defining it, there is the pragmatic concern of how a clinician may choose to evaluate and characterize a patient's memory symptoms. Dr. Camargo speaks as a cognitive neurologist to the difficulty of determining if a patient's symptoms may represent early neurodegenerative disease versus symptoms consistent with cognitive aging. There is overlap in the beginning, and the subtlety of the distinction is not within the scope of most cognitive tests that can be reasonably performed by an MD in the office, even a memory expert.

Therefore, a clinically-meaningful definition of cognitive aging will likely require sequential evaluations, a multidisciplinary approach which includes detailed neuropsychological testing, and potentially the ruling-out of pathological process that may mimic cognitive symptoms attributable to cognitive aging (especially at their earliest stages.)

Topic 2:

Activities/behaviors that help to delay or prevent **cognitive aging**? What is successful aging?

Proposed summary statement(s):

- **Cognitive training and increased physical activity are interventions that have encouraging, although inconclusive evidence in delaying or slowing ARCD.** (*Cognitive training is defined as "a broad set of interventions, such as those aimed at enhancing reasoning, memory, and speed of processing".*) [2]

Rationale:

Once more, the definition of terms highlights the philosophy and thought process as it pertains to cognitive aging. For example, the National Academies' goal, to "delay or slow age-related cognitive decline (ARCD)," [2] disregards the idea of prevention: "[P]revention is not included in the discussion of **ARCD** since some level of decline is expected with aging." In this sense, they are treating ARCD as a process in which one can intervene to decrease its impact, but which is inherently unavoidable (thereby equating **cognitive aging** to **ARCD**, as discussed above). Towards this vein, they give specific recommendations for communicating with the public about specific interventions and their impact. The only two interventions with positive effects (supported by "encouraging although inconclusive evidence") are cognitive training and physical activity.

They additionally caution, "There is insufficient high-strength experimental evidence to justify a public health information campaign, per se, that would encourage the adoption of specific interventions to prevent(sic) [**ARCD.**]"

However, they feel that providing accurate information about the potential impact of cognitive training and physical activity on cognitive outcomes is appropriate, as is to mention the potential cognitive benefits when promoting them for other conditions (e.g., physical activity for obesity.)

Concerning successful (cognitive) aging, the term itself can imply two things: 1) That the process of **cognitive aging/ARCD**, despite being unavoidable, has not resulted in meaningful/impactful cognitive decline, or 2) That **cognitive aging/ARCD** is avoidable if certain steps are taken. Both the IOM and National Academies' conclusions suggest that **cognitive aging/ARCD** is unavoidable. Therefore, "successful aging" would equate to engaging in processes that relate to delaying or slowing **cognitive aging/ARCD**.

That said, the IOM report specifically addresses "successful aging" when it "decided not to adopt the term [...] because it may suggest a value judgment regarding those with greater or lesser preservation of cognitive capacity." [1] The specifically cite the difficulty that arose when three different studies, with different definitions of successful aging, failed to consistently identify individuals as successful agers with the different criteria. Therefore, we should proceed with caution when using this scientifically-ambiguous term to communicate to the public, especially as the IOM authors elected to avoid its usage in their report on **cognitive aging**. The National Academies' report makes no mention of this term.

REFERENCES:

1. Committee on the Public Health Dimensions of Cognitive, A., P. Board on Health Sciences, and M. Institute of, *The National Academies Collection: Reports funded by National Institutes of Health*, in *Cognitive Aging: Progress in Understanding and Opportunities for Action*, D.G. Blazer, K. Yaffe, and C.T. Liverman, Editors. 2015, National Academies Press (US)

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2. National Academies of Sciences, E., et al., in *Preventing Cognitive Decline and Dementia: A Way Forward*, A. Downey, et al., Editors. 2017, National Academies Press (US)

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