

Brain reserve, gender, and social isolation: Implications for cognitive resilience in aging

Thursday, September 11, 2025 5:30 PM (18 minutes)

Aging is a dynamic and multidimensional process shaped by the interaction between biological and psychosocial trajectories. Among the protective resources identified, brain reserve refers to the structural capacity of the brain to withstand damage. In contrast, cognitive reserve reflects its ability to maintain functioning through flexible and efficient processing strategies. Although these concepts are central to understanding resilience in aging, increasing evidence points to social isolation as a significant risk factor that may compromise their effectiveness.

Social isolation, often resulting from limited interpersonal contact and reduced social engagement, can diminish the cognitive stimulation and emotional support required to sustain mental functioning. When combined with low levels of cognitive reserve, this condition may intensify the impact of age-related changes, thereby accelerating the onset or progression of cognitive decline. These two vulnerabilities may reinforce one another, creating a cycle of increased risk that challenges the brain's ability to compensate for decline.

Recent data suggest that individuals experiencing persistent loneliness are more likely to show signs of cognitive vulnerability, particularly when structural and functional brain resources are limited. However, efforts to promote social connectedness and cognitively enriching experiences may strengthen resilience and delay clinical manifestations of decline.

These findings emphasize the importance of adopting a comprehensive model of aging that incorporates biological, psychological, and relational factors. Targeting cognitive and social domains could provide practical strategies to preserve functioning and improve quality of life in older adults.

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"Typical and Atypical" Aging: From Cognitive Aging to Neurocognitive Disorders

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No

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Session Classification: "Typical and Atypical" Aging: From Cognitive Aging to Neurocognitive Disorders