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High blood pressure may make it difficult for the elderly to think clearly

Adding another reason for people to watch their blood pressure, a new study from North Carolina State University shows that increased blood pressure in older adults is directly related to decreased cognitive functioning, particularly among seniors with already high blood pressure. This means that stressful situations may make it more difficult for some seniors to think clearly.

Dr. Jason Allaire, an assistant professor of psychology at NC State who co-authored the study, explains that study subjects whose average systolic blood pressure was 130 or higher saw a significant decrease in cognitive function when their blood pressure spiked. However, Allaire notes, study subjects whose average blood pressure was low or normal saw no change in their cognitive functioning – even when their blood pressure shot up.

Specifically, Allaire says, the study shows a link between blood pressure spikes in seniors with high blood pressure and a decrease in their inductive reasoning. "Inductive reasoning is important," Allaire says, "because it is essentially the ability to work flexibly with unfamiliar information and find solutions."

Allaire says the findings may indicate that mental stress is partially responsible for the increase in blood pressure – and the corresponding breakdown in cognitive functioning. However, Allaire notes that normal fluctuations in blood pressure likely play a role as well.

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The study, which is published in the current issue of *Journal of Gerontology: Psychological Sciences*, examined blood pressure and cognitive functioning test data collected from a cohort of adults aged 60-87 twice daily for 60 days. The lead author is Alyssa A. Gamaldo, a Ph.D. candidate in psychology at NC State. A second co-author is Sarah R. Weatherbee, who is also a Ph.D. candidate in psychology at NC State.

Note to editors: The study abstract follows.

"Exploring the Within-Person Coupling of Blood Pressure and Cognition in the Elderly"

Authors: Alyssa A. Gamaldo, Sarah R. Weatherbee, Dr. Jason C. Allaire, North Carolina State University

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Abstract: This study examined the relationship between within-person blood pressure and cognitive functioning. Analysis was conducted on 36 community-dwelling elderly (age range = 60 -87). Participants measured their blood pressure and completed cognitive tasks (i.e. Rey Auditory Verbal Learning Task (AVLT), Letter Series, and Number Comparison) twice a day over 60 consecutive days. A significant interaction for within-person blood pressure and average blood pressure was observed for the Letter Series test. Individuals with high blood pressure tended to perform poorly, particularly on occasions when their blood pressure was above their average blood pressure level. These results demonstrate that the relationship between blood pressure and cognition at the between-person level and the relationship within each individual should be further explored simultaneously.
