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Researchers develop custom data collection system to improve health disparity research

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Epidemiological studies rely heavily on survey research; however, limitations of traditional data collection methods—paper-based, in-person, phone, mail, and internet surveys—can serve as barriers to recruitment and retention of research participants. Conventional data collection methods are especially ineffective for aging minority populations, who may have limited English proficiency and less access to and facility with technology. To overcome these research barriers, Rutgers researchers developed an adaptable web-based platform to facilitate in-person, multilingual survey data collection with minority research participants.

The platform, in use since 2011 for the PINE Study, or the Population Study of Chinese Elderly, a longitudinal cohort study of more than 3,000 older Chinese Americans, is the focus of a new article in the *Journal of the American Geriatrics Society*.

"The custom web application allows our researchers to administer in-person interviews in a study participant's preferred language and dialect," said study author XinQi Dong, director of Rutgers University's Institute for Health, Health Care Policy and Aging Research and the lead researcher of The PINE Study. "This method of data collection has allowed our researchers to overcome common cultural and communication barriers and has promoted the development of stronger interpersonal connections between researchers and participants."

The application allows for surveys to be administered in-home via a

wireless device by trained multilingual and bicultural research assistants in participants' preferred language or Chinese dialects. The application then transmits the data through wireless services to a secure server in real-time.

Once data is entered into the database, multiple features are enabled to optimize quality monitoring, data security, and streamlined data set preparation for analysis purposes. Additional enhanced security measures ensure data safety and security of participant information.

According to Dong, the application allows research staff to actively engage with the participants during the survey process to develop rapport and ensure comprehension.

"Administering the surveys on mobile devices allows for greater eye contact and facilitates the generation of a more organic conversation between researcher and participant," he said. "These interactions foster stronger interpersonal connections among study participants and our researchers. This has led to improved participation and retention rates, with a respective 89.4 and 90.4 percent of participants completing follow-up interviews in the second and third research waves."

Dong said the application could potentially serve as a guide to aid population health researchers in the design and implementation of digital survey platforms to facilitate large-scale epidemiological studies with minority older adults.

"This innovative platform addresses multiple challenges related to collecting data in minority and vulnerable populations," Dong said. "With advantages such as real-time data quality monitoring and programmed automatic data validation, multilingual interface, streamlined data set preparation, and automatic built-in skip patterns to reduce interviewer errors, this application has the potential to

revolutionize survey research and ultimately improve the health and well-being of many diverse populations."

More information: XinQi Dong et al, Leveraging Technology to Improve Health Disparity Research: Trilingual Data Collection Using Tablets, *Journal of the American Geriatrics Society* (2019). DOI: 10.1111/jgs.16097