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Newsroom

Georgia Southern University

Georgia Southern student, faculty research shows surprising findings about pet ownership, potential health risks for women

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The health benefits of owning pets have been well-documented. However, a research team in Georgia Southern University's Jiann-Ping Hsu College of Public Health (JPHCOPH) led by professor and medical epidemiologist, Jian Zhang, M.D., DrPH, has been exploring the other side of pet ownership to answer the question — could furry companions actually be harmful to your health?

In the United States, 68% of U.S. households, or approximately 85 million families, own a pet, according to the 2017-2018 National Pet Owners Survey. More than 60 million homes have a dog, while more than 47 million households and 7 million have cats and birds, respectively.

"Any detrimental impact of pet ownership, even too small to be detected statistically, if overlooked, can be translated into a substantial health impact at population level," said Zhang.

To explore the potential risks of pet ownership, the research team analyzed large data sets from the third National Health and Nutrition Examination Survey conducted almost 30 years ago. The team, which includes JPHCOPH master's and doctoral students, and faculty investigators community health educator, Andrew R. Hansen, DrPH, and environmental health scientist, Atin Adhikari, Ph.D., was able to link more than 17,000 survey participants with a national data bank of death certificates to ascertain whether each survey participant remained alive. If not, what cause(s) of death were listed on the death certificate? These unique longitudinal data sets of nationally representative samples offered the JPHCOPH team a 360-degree view on the relationship between pet ownership and health effects, both beneficial and potentially harmful.

Research on human-animal interactions remains inconclusive. Some previous studies have shown positive health effects, but the results have been mixed. According to the Centers for Disease and Prevention, heart disease is the leading cause of death in the United States, claiming more than 640,000 lives each year. It's well-documented that companion animals improve the survivability of cardiovascular patients, but it remains unclear whether pets are also good in prevention of cardiovascular mortality among populations without well-documented cardiovascular risk factors.

The first study from the research team looked at the relationship between pet ownership and the risk of dying from cardiovascular diseases among generally healthy adults and found that owning a cat significantly reduced the hazard of dying from stroke, especially in women. Owning a dog didn't seem to impact the cardiovascular outcome at all.

Cancer is the second leading killer in this country, causing more than half a million deaths annually. The second study from the pet research group examined the relationship between pet ownership and cancer. Women, not men, were found to be more likely to die from cancer if they kept a pet at home. Further breaking down the data, research found that it was birds and cats that put women at an elevated risk of dying from cancer compared to those who had neither birds nor cats. Women who owned birds were 2.41 times more likely to die of cancer and those who owned cats were 1.48 times more likely.

Lung cancer causes the most deaths in this country, killing 154,000 Americans in 2018. The third study specifically examined the risk of dying by pet owners from lung cancer. The findings confirmed with more

confidence that women were vulnerable to the cancer risk associated with birds or cats. Women who owned birds or cats more than doubled their risk of dying from lung cancer compared to their counterparts who did not keep a cat or a bird in the home. Interestingly, the risk was not significant at all for dog owners or for male pet owners of any type of pet. The detrimental effects from pets was not explained by cigarette smoking or other conditions.

The researchers continued their efforts by assessing the relationship between pet ownership and colorectal cancer, the second leading cancer killer in this country. The fourth study found that, again, a cat was significantly associated with an elevated risk of dying from colorectal cancer, especially in women. The observed detrimental effects the cats conferred were not explained by confounding effects from sociodemographics, cigarette smoking, sedentary life or atopic conditions. No association was found with having a dog. The evidence consistently points to cats and birds and women were observed to be more vulnerable for both lung cancer and colorectal cancer independently, making the researchers believe that the chance played a limited role in this series of studies.

Georgia Southern students and faculty make continuous efforts to look at links between pet ownership and a number of other health conditions in order to explore public health strategies and clinical practices that maximize the benefits of pet ownership and minimize the potential detrimental impacts.

“This research effort also presents great opportunities for graduate students to get hands-on research experience and build their research identity,” stated Zhang.

Georgia Southern University, a public Carnegie Doctoral/R2 institution founded in 1906, offers 141 degree programs serving nearly 26,500 students through nine colleges on three campuses in Statesboro, Savannah, Hinesville and online instruction. A leader in higher education in southeast Georgia, the University provides a diverse student population with expert faculty, world-class scholarship and hands-on learning opportunities. Georgia Southern creates lifelong learners who serve as responsible scholars, leaders and stewards in their communities. Visit GeorgiaSouthern.edu.

Georgia Southern helping rural teachers introduce renewable energy into classrooms

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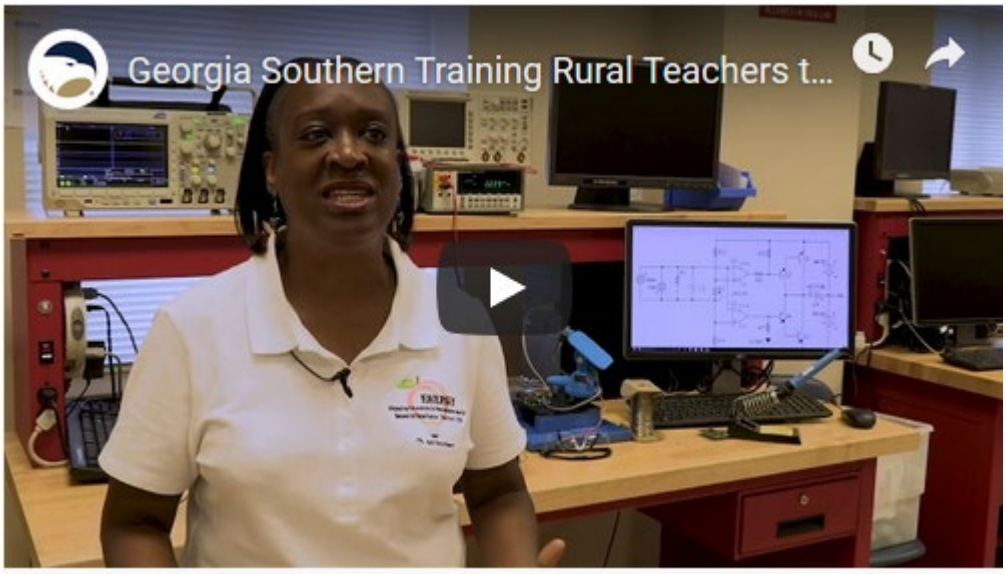

This year marks the third summer that 10 teachers from rural areas in Georgia have come to Georgia Southern University to learn more about renewable energy. Faculty from the Allen E. Paulson College of Engineering and Computing (CEC) and the College of Education helped the teachers bring renewable energy projects and practices into their classrooms.

The National Science Foundation Research Experience for Teachers (NSF-RET) program was funded by ENgaging Educators in Renewable EnerGY (ENERGY), a $525,000 NSF grant, that Valentin Soloiu, Ph.D., Allen E. Paulson Distinguished Chair of Renewable Energy and professor in the Department of Mechanical Engineering, won in 2016. The program aims to help STEM educators at all levels teach their students about renewable energy and to implement it into their classrooms. Georgia Southern is the only university in Georgia to receive the prestigious ENERGY grant from NSF after submissions from universities nationwide.

Soloui is the head of the NSF-RET program at Georgia Southern. He said the program aims to develop a diverse, competitive and nationally engaged teacher workforce through activities and projects performed alongside graduate and undergraduate students, as well as faculty and industry advisors at Georgia Southern University. The goal is to educate, engage, and inspire teachers to bring renewable energy to their classrooms through summer-term interdisciplinary STEM research experiences in the field of engineering and computer science.

Research teams in the CEC work on renewable energy research projects for 10 months before the teachers arrive for their eight weeks of training in the summer. This research includes biologically inspired fin research, which will be used to extract waste thermal energy from exhaust gases; pico-grid (smart house) research, which seeks to minimize the wasted power in smart homes and explore renewable power generation and storage through electric vehicles; biologically inspired flow networks, which will be used to transport thermal energy obtained from the sun to homes for domestic water heating applications; developing vertical axis wind

turbines; and solar-tracking systems research, which will help participants engage in deductive reasoning processes.

The summer program then provides the 10 teachers with tangible projects to take back to their classrooms.

“We try to make lesson plans and prototypes for the actual classrooms,” Soloiu said, “We try to implement these technologies on a small scale and in a simplified manner so their students can understand them easily. Some of the teachers developed a robot-type tracker that has solar panels that can orient based on the motion of the sun. The panels recharge batteries that can be used in the classroom.”

The program consists of seven weeks of instruction in June and July and a two-and-a-half-day workshop per semester in the upcoming academic year. The teachers are split into two cohorts consisting of current teachers and emerging teachers who are soon to graduate. Soloiu said teamwork between the teachers is an important part of the program.

“They are all STEM teachers, but they come from different fields,” he said. “They need to work together to patch the knowledge because some will go from science to the more biology oriented and some are more math-oriented, so they have to work together to help their students.”

Soloiu said he will apply for the grant again after the three-year program comes to an end after the upcoming academic year. A total of 30 educators will have completed the program by the end.

Katrina Vaughn, a teacher at Ben Hill Middle School in Fitzgerald, Georgia, said programs like the NSF-RET are a great way to combat the current depletion rate of non-renewable resources.

“I think it’s important for my students to learn about renewable energy, and solar in particular, because we live in Georgia, and we have plenty of sunlight,” she said. “I think it’s important for them to harness those energies and use them in their homes. One of the projects I want my students to do is to build solar panel cell phone chargers. Then hopefully they’ll apply what they’ve learned on a bigger scale when they get older.”