Relationship benefits can be seen in your eyes

April 8 2019, by Joe Hadfield

Senior author Wendy Birmingham (center), lead author Tyler Graff (right), and co-author Steven Luke (left). Credit: Brigham Young University

Turns out that relationships are the secret to keeping calm and carrying on.

BYU psychology professor Wendy Birmingham's lab used an infrared camera to put an innovative twist on their latest study of marriage and stress.

The experiment worked like this: Forty participating couples tried to complete an intentionally challenging task on a computer. Some of the couples were randomly assigned to work alone. The others got to sit near their spouse and hold their hand. While they worked, an infrared camera continuously measured pupil diameter, which is a direct signal of the body's physiological stress response.

"The neat thing is that the pupils respond within 200 milliseconds to the onset of a stressor," said Steven Luke, a study co-author and psychology professor at BYU. "It can immediately measure how someone responds to stress and whether having social support can change that. It's not just a different technique, it's a different time scale."

The experiment initially stressed out participants in both groups. But the spouse support group calmed down significantly sooner, allowing them to work on the task at reduced stress levels.

Measuring health benefits from social connection in real time is quite rare. It's also one reason the research is published in the highly-ranked scientific journal *PLOSOne*.

This study builds upon landmark research at BYU showing that relationships help people live longer.

"When we have a spouse next to us and with us, it really helps us navigate and get through the stress we have to deal with in life," Birmingham said.

For instance, grad school can be pretty tough. But Tyler Graff, the lead

study author, points to the high level of support he is receiving right now as a Ph.D. candidate.

"It was a ton of work, and I learned so much throughout the process," said Graff. "It's amazing to be here and have fantastic mentors to guide me."

Birmingham also sees a connection between this research and the line in the BYU Mission Statement that says "all relationships within the BYU community should reflect a devout love of God and a loving, genuine concern for the welfare of our neighbor."

"The research we're doing with physiology and relationships helps us understand why we should be loving and supportive to everyone as Christ taught," Birmingham said. "And when we show Christ-like love for our spouse, we are not only helping them cope in a time of need, but we are helping them physiologically as well."

More information: Tyler C. Graff et al. Supportive hand-holding attenuates pupillary responses to stress in adult couples, *PLOS ONE* (2019). DOI: 10.1371/journal.pone.0212703

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