Researchers test biofeedback device in lowering grandmothers' stress

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In a pilot study by Case Western Reserve University's Frances Payne Bolton School of Nursing, 20 grandmothers were able to lower their stress levels with a biofeedback device that tracks breathing patterns.

According to U. S. Census data, the number of children living with their grandparents has increased 64 percent in the past 20 years. Prior studies at the Case Western Reserve nursing school have found that many grandmothers suffer stress and depression from having to serve as full-time child-care givers at this stage in their lives.

Looking at ways to reduce such negative factors, the nursing school's Jaclene A Zauszniewski, PhD, RN-BC, FAAN; Tsay-Yi Au, PhD, RN; and Carol Musil, PhD, RN, FAAN, tried biofeedback techniques that focus on heart rate variability (HRV) to reduce stress, negative emotions and depressive thoughts and help grandmothers cope with the added responsibilities.

While the study was small, it showed promise in that self-reported stress and negative thoughts were reduced during and after using the device.

The researchers report their findings in the article, "Heart Rate Variability Biofeedback in Grandmothers Raising Grandchildren: Effects on Stress, Emotions and Cognition," in the special issue of Biofeedback from the Association for Applied Psychophysiology & Biofeedback.

The researchers wanted the grandmothers to become more aware of how their bodies react to stress to help reduce the tension and associated heath risks, such as high blood pressure, heart disease and depression.

The grandmothers were recruited with flyers in health centers, churches and businesses. The average age of the women was 58 (ranging from 42 to 68) and average income was $50,000. The study group was evenly divided racially by African Americans and Caucasians and by educational level of those who have a college degree and those who do not.

The grandmothers used the device at home for four weeks. They were taught to insert their left index finger into the sensor clip on the devise that detects their pulse rate and, while doing so, to inhale and exhale slowly while observing waves on the device's screen. Thus, over time, they learn to coordinate their breathing with their heart rate.

The women provided information about their perceived stress, negative emotions and depressive thoughts by questionnaire. Researchers then collected data from the device in four face-to-face interviews, spaced six weeks apart.

The first significant improvement came two weeks after using the device, and also at eight and 14 weeks. The researchers suggest that the noticeable reduction in stress warrants a larger study.

Provided by Case Western Reserve University