

## *Commentary*

### **Heart Attack Symptoms Knowledge can Lead Children to Summon Help for Grandparents**

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Children may represent an innovative and largely untapped resource that could be utilized as an intervention for reducing disability and other adverse effects of illnesses in the older generation simply by teaching them the signs and symptoms and how to respond appropriately.

In the United States, more than seven million children under the age of 18 are living with their grandparents. It is estimated that 1.77 million children under age 18 are living with grandparents who are between the ages of 30 and 59 and nearly 1 million children are living in households with grandparents age 60 years and older (U.S. Census Bureau, 2012a).

Approximately 93,000 grandparents are living with their own grandchildren who are under age 18 in the state of Mississippi (U.S. Census Bureau, 2012b). Of the number of Mississippi grandparents living with their grandchildren, 52,000 are responsible for the care of their grandchildren. More than 22,000 of grandchildren cared for by grandparents are age 5 or older (U.S. Census Bureau, 2012b).

The number of grandchildren residing with grandparents is growing because of their parents' inability or unwillingness to care for them due to a variety of reasons. These reasons may include marriage, divorce, single and teen parenthood, incarceration, long- and short-term illness, unemployment, job relocation, homelessness, mental illness, educational pursuit, substance abuse or military deployment. Grandparents or guardians may also be caregivers of grandchildren in order to protect them from neglect or abuse, to avoid foster care or adoption outside of the immediate family and to preserve cultural heritage. Indeed, many grandparents are serving in roles as after school, weekend and summer vacation caregivers for their grandchildren. As a result, children are spending greater amounts time with the elderly population (Henderson & Stevenson, 2009; Bailey, 2012).

Children who are naturally curious and observant of change may be adept at noticing when something is out of the ordinary with their grandparents' health. Children who have been subjected to traumatic life events such as the separation from a parent and the subsequent upheaval of a once stable home environment may be even more perceptive at recognizing anything that might challenge or cause yet another disruption in their home life such as losing a grandparent caregiver to illness or injury. As a result of their astute observational abilities, children may be likely candidates for recognizing the signs and symptoms of adverse health events and for subsequently making the appropriate response.

At least three published school-based studies (Miller, King, Miller, Kleindorfer, 2007; Morgenstern, et al., 2007; Williams & Noble, 2008) have shown that teaching children the symptoms of stroke, and when to dial

9-1-1, can be a viable means of improving accurate recognition of a stroke occurrence and subsequently making a quick and appropriate response to call for medical attention.

The *Kids Identifying and Defeating Stroke (KIDS)* conducted by Morgenstern et al. (2007) was a three-year randomized control trial that targeted, but was not limited to Mexican Americans residing in Corpus Christi, Texas. The trial aimed to improve knowledge, motivation and behavioral intent of middle school students in grades six through eight and their parents/guardians to dial 911 if they witnessed someone having a stroke. Results indicated that the intervention student group (n=294) had greater improvement in the mean difference of proportion of correct responses from pretest to posttest compared to the control student group (n=279) for all three domains of: 1. stroke pathophysiology, 2. stroke symptom knowledge and 3. what to do for witnessed stroke. The authors reported that the educational objective for parents/guardians was not successful due to a large attrition rate of parents between the pretest and posttest.

A two-month pilot study conducted by Miller et al. (2007) with a convenience sample evaluated the effects of teaching “FAST” to middle school students (n=72) with a mean age of 13.5. FAST is an acronym for F-face drooping, A-arm weakness, S-speech difficulty and T-time to call 9-1-1 (American Heart Association and American Stroke Association, 2014). The two-month study focused on improving knowledge of the signs and symptoms of stroke, stroke risk factors, treatment-seeking behavior (call 9-1-1), the overall attitude toward stroke (i.e., perceived self-efficacy in stroke warning signs identification and dealing with a stroke victim), stroke risk-reduction behaviors and other stroke risk factors. The authors reported that the study results indicated significant increases in stroke risk factor knowledge, stroke warning signs knowledge and in the attitudes of self-efficacy among middle school students. The increases were sustained from pretest to long-term posttest.

Williams and Noble (2008) conducted the “Hip-Hop Stroke” intervention with 582 9- to 11-year-old pre-dominantly African American fourth, fifth and sixth graders in central Harlem in New York City. “Hip-Hop Stroke” featured a one-hour session taught consecutively for three days. The intervention used culturally appropriate music and dance with an interactive didactic curriculum to teach FAST. Results showed that the intervention served to educate young students about identifying stroke and the necessary urgent action. They were able to retain the information at a three-month follow-up.

Based on the results of stroke education studies aimed at children, perhaps health promotion and education interventions can be designed and developed to teach children the signs, symptoms and appropriate life-saving behavior for a heart attack.

Approximately 83.6 million American adults (greater than one in three) suffer from one or more types of cardiovascular disease (CVD). Of these, 42.2 million are estimated to be 60 years old or older. In the 60- to 79-year-old age group, 70.2% of men and 70.9% of women have CVD. For those 80 and older, 83.0% of men and 87.1% of women have CVD (American Heart Association, 2013). Cardiovascular disease can lead to a heart attack or stroke (American Heart Association, 2011).

The average age of a person who experiences a first heart attack is 64.7 years for men and 72.2 years for women. About 80% of deaths from coronary heart disease occurs in persons 65 years old or older (American Heart Association, 2013).

The lives of grandparents can potentially be saved and their likelihood of becoming disabled can be reduced by teaching their grandchildren to recognize the major signs of a heart attack. According the U.S. Centers for Disease Control and Prevention (2013), the signs and symptoms of a heart attack are:

- **Chest pain or discomfort.** Most heart attacks involve discomfort in the center or left side of the chest that lasts for more than a few minutes, or that goes away and comes back. The discomfort can feel like uncomfortable pressure, squeezing, fullness, or pain.
- **Discomfort in other areas of the upper body.** Can include pain or discomfort in one or both arms, the back, neck, jaw, or stomach.
- **Shortness of breath.** Often comes along with chest discomfort. But it also can occur before chest discomfort.
- **Other symptoms.** May include breaking out in a cold sweat, nausea, or light-headedness.

When a grandparent experiences any of these signs or symptoms of a heart attack, children should be taught to dial 9-1-1. This action could help to increase the possibility that grandparents will remain functional caregivers for their grandchildren.

Not only can children help reduce the risk of the devastating effects of a heart attack for their grandparents, but their knowledge and action can also reduce the risk for their parents, other relatives, the parents and grandparents of their friends, and even for themselves in the years to come.

### References

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