

COMMENTARY

The Spiritual Heart: Can Gratitude Change Cardiac Biology?

P. Murali Doraiswamy
Duke Medicine and the Duke Institute for
Brain Sciences

Mehmet C. Oz
New York-Presbyterian Hospital and
Columbia University

Positive psychological activities not only enhance our happiness but may also alter biomarkers of risk for many systemic diseases. If confirmed in larger trials, such practices hold enormous promise for enhancing self-efficacy.

There is a candle in your heart ready to be kindled . . . you feel it, don't you?

—Rumi

Perhaps the poets were correct after all. Their correlation of emotional status with our hearts—cold, broken, and so forth—is now being supported by high-quality correlational analysis and even some controlled studies. This represents a huge opportunity for preventing cardiovascular diseases (CVD), the leading cause of death and disability worldwide. Heart failure (HF) is a particular deadly form of CVD (Bui, Horwich, & Fonarow, 2011) where despite much progress in preventive strategies (e.g., medications, exercise, diet), prognosis remains poor and 5-year mortality rates are still about 50% (Bui et al., 2011).

The magnificent 13th century poet Rumi also noted that we should “ignore those that make you fearful and sad, that degrade you back toward disease and death.” But only over the past 50 years or so has modern medicine ac-

cepted that negative psychological attributes, such as hostility, stress, or depression, may be linked to adverse CVD outcomes (Steptoe & Molloy, 2007). However, medical interventions for negative affective traits, such as antidepressant pills, have not consistently improved cardiac outcomes (Thombs et al., 2013). For example, in the 12-week SADHART-CHF (Sertraline Against Depression and Heart Disease in Chronic Heart Failure) trial of 469 patients (LVEF \leq 45%), antidepressant therapy did not produce significant improvements in either depression or HF status (O'Connor et al., 2010).

In this issue of the journal, Mills et al. (2015) report on a highly intriguing association between spirituality, gratitude, and HF self-efficacy profiles. In a study of 186 subjects, higher levels of self-reported gratitude were correlated with better sleep, reduced depression and fatigue, reduced inflammatory markers, and higher levels of self-efficacy to maintain heart function. Further, a path analysis found that gratitude fully or partially mediated the links between self-reported spiritual well-being and psychological well-being (sleep and mood). The findings point to the need for behavioral cardiology to move beyond just a focus on negative psychology.

A core tenet of the field of positive psychology (Layous, Chancellor, Lyubomirsky, Wang, & Doraiswamy, 2011) is that we can learn more about humans by studying what's right (e.g., gratitude, happiness) in flourishing individuals than by studying what's wrong (e.g., depression). Research over several decades has elucidated not only why some people are more likely

P. Murali Doraiswamy, Department of Psychiatry, Duke Medicine and the Duke Institute for Brain Sciences; Mehmet C. Oz, Department of Surgery, New York-Presbyterian Hospital and Columbia University.

P. Murali Doraiswamy has received research grants and advisory fees from several health companies for other studies/talks. He also owns stock in companies whose products are not discussed here. He is a collaborative investigator in the SBTI study. Mehmet C. Oz is the host of *The Dr. Oz Show*.

Correspondence concerning this article should be addressed to P. Murali Doraiswamy, DUMC-3018, Duke University Medical Center, Durham, NC 27710. E-mail: murali.doraiswamy@duke.edu

to be happy and grateful but also ways in which individuals can enhance their signature strengths. Such behaviors are termed as positive activity interventions and include exercises such as doing acts of kindness, counting one's blessings, thinking about good things, writing letters of gratitude, and meditating on positive feelings toward others (Layous et al., 2011).

Many of the attributes of positive psychology also form the common core elements of most spiritual practices, and the report by Mills et al. supports and extends prior studies linking spiritual well-being to heart health (Naghi, Philip, Phan, Cleenewerck, & Schwarz, 2012). However, because a cross-sectional study cannot determine causality, the enthusiasm for the findings by Mills et al. has to be tempered till they are confirmed in larger controlled trials.

Spirituality of course has many elements, of which gratitude is just one. Most spiritual practices also believe in an all powerful force in the universe (God) that is benevolent and responsive to prayer. However, prayer and noetic therapy were not found to improve CVD outcomes in a large multicenter trial (MANTRA; Krucoff et al., 2005). These data suggest that self-efficacy may not rest solely on a core creator-caregiver belief but also on accepting the physical realities of life and being thankful for the good things that have occurred.

Are we ready for a controlled trial of positive activity interventions in HF? The good news is that these interventions have already been shown to be effective in controlled trials of healthy individuals and those with depression (Layous et al., 2011). Studies also suggest that cardiac patients with positive emotions may recover faster (Fredrickson & Levenson, 1998). A pilot trial of an 8-week intensive positive activity intervention, administered via telemedicine, in 30 hospitalized patients with CVD, demonstrated it was feasible and well tolerated with promise to enhance self-efficacy (Huffman et al., 2011).

Likewise there is now accumulating evidence that spiritual lifestyle practices can change not only our psychological feelings but also genetic expression, inflammatory markers, stress physiology, and chromosomal biology (Kaliman et al., 2014). New insights will also come soon from the Self-Directed Biological Transformation Initiative (SBTI), controlled trial of the health effects of spiritual practices (Ayurveda,

meditation), which is a collaboration between The Chopra Center and leading universities (Harvard, UCSD, Scripps, UCSF, Mt Sinai, and Duke). SBTI is quantifying biological and physiological changes using whole genome analysis, transcriptomics, metabolomics, stool microbiomics, chromosome telomere analysis, and cardiac function measurements.

So, yes, larger trials in not just CVD but also in other disorders, such as cancer and chronic pain, are warranted.

In this regard, we should respect and heed the insights of his Holiness the Dalai Lama who, when asked what surprised him the most about man, noted that

He sacrifices his health in order to make money. He sacrifices money to recuperate his health. And then he is so anxious about the future that he does not enjoy the present; the result being that he does not live in the present or the future; . . . and then he dies having never really lived.

If thankfulness and other positive aspects of spirituality practices can heal the heart while strengthening our minds and capability for self-efficacy, then that would fulfill one of our most basic human desires.

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