

The Mediating and Moderating Effect of Volunteering on Pain and Depression, Life Purpose, Well-Being, and Physical Activity

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■ ABSTRACT:

To improve function and quality of life in patients with chronic pain, a prevalent and costly condition, an understanding of the relationships among well-being, physical activity, depression, and life purpose with pain is needed. Because of the role loss experienced by people with chronic pain, activities such as volunteering could have an important role in improving health and well-being. In one study, chronic pain patients who participated in volunteer activities reported both decreased pain and “a sense of purpose.” The aim of this study is to test the relationships among pain and well-being, physical activity, depression, and life purpose and then to determine if volunteering activities mediated or moderated these relationships. This observational study was conducted in a large university setting in Kentucky and used a sample of 200 women older than age 50. We found that people with higher pain were more depressed and had lower life purpose and well-being. People who volunteered less had more pain, lower perceived life purpose, more depressive symptoms, and decreased physical activity. Volunteer activities did have a significant mediating effect on the relationship between pain and depression; approximately 9% of the relationship between pain and depression can be accounted for by volunteering. Moderation by volunteering was found between pain and life purpose. We identified important relationships among pain, volunteering, and health outcomes and found that volunteering has a role in improving depressive symptoms and life purpose in women with pain.

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INTRODUCTION

Chronic pain or persistent pain affects 37% of people residing in developing countries. The total (direct and indirect) U.S. costs attributed to this condition are estimated to be between \$560 and \$635 billion annually, and an estimated 3%-10% of the gross domestic product has been spent on this condition in European countries (Breivik, Eisenberg, & O'Brien, 2013; Phillips et al., 2016; Tsang et al., 2008). People with persistent pain have been found to have decreased well-being, physical activity, and life purpose and increased depression (Gureje, Von Korff, Simon, & Gater, 1998; Schleicher et al., 2005). In efforts to improve function and quality of life in this population, these factors are important. Despite the clinical importance of and vast resources used on a number of pharmacologic and nonpharmacologic strategies, the management of chronic pain remains a significant health problem (U.S. Department of Health and Human Services, 2016), suggesting a different approach to treatment is needed.

Volunteering is defined as providing a service without the intent of compensation (Klinedinst & Resnick, 2014). Health benefits of volunteering in older adults have been well-described, including (1) increased physical activity; (2) improved self-reported health, life satisfaction, and well-being; and (3) reduced depressive symptoms, pain, and mortality risk (Ahern & Hendryx, 2008; Ayalon, 2008; Cattan, Hogg, & Hardill, 2011; Choi, Stewart, & Dewey, 2013; Jenkinson et al., 2013; Klinedinst, Resnick, Yerges-Armstrong, & Dorsey, 2015; Pillemer, Fuller-Rowell, Reid, & Wells, 2010; Veerasamy, Sambasivan, & Kumar, 2013). The health benefits of volunteering in people with pain conditions are not well-studied. Yet the loss of roles in people with chronic pain has been described (Harris, Morley, & Barton, 2003). In the only study identified, people with chronic pain who participated in volunteer activities reported significantly decreased pain. Participants in this study also reported "a sense of purpose" after volunteering (Arnstein, 2002).

It is possible that volunteer activities could mediate or moderate the relationships among pain and well-being, physical activity, depression, and life purpose. A mediational relationship, or an indirect effect, would imply that pain affects volunteer activities, which, in turn, affects life purpose, depression, physical activity, and depression (Hayes, 2013). A moderated relationship, or a contingent effect, would imply that volunteer activity influences the effect of pain on well-being, physical activity, depression, and life purpose (Hayes, 2013). Because quality of life and

function are targeted clinical outcomes, a furthered understanding of these relationships could affect care of patients with chronic pain.

Therefore, the purpose of this study was to test the relationship between pain and well-being, physical activity, depression, and life purpose and then to determine if volunteering activities mediate or moderate these relationships in a sample of older women. The following hypotheses were tested:

1. There will be a significant relationship between pain and depression, physical activity, life purpose, and well-being.
2. Volunteer activities will have a significant mediating effect on the relationship between pain and well-being, physical activity, depression, and life purpose.
3. Volunteer activities will have a significant moderating effect on the relationship between pain and well-being, physical activity, depression, and life purpose.

METHODS

Sample

Because pain disproportionately affects older women (Johannes, Le, Zhou, Johnston, & Dworkin, 2010), the hypotheses were tested on a sample of 199 women older than age 50. One additional participant was not included in the present study because of incomplete daily diary measures for pain. Mean age of the sample was 61.9 years (standard deviation [SD] = 6.4 years) with a mean of 16.7 (SD = 2.3) years of education. The majority (99%) were Caucasian, with the rest African American (Table 1).

Procedure

Women were recruited using the Kentucky Women's Health Registry, a registry of more than 15,000 women residing in the state of Kentucky, to participate in an observational study titled "Daily Activity and Health in the Lives of Adult Women" (Kentucky Women's Health Registry, 2016). Women with pain were oversampled in this study, which addresses the study aims of investigating the effect of pain on well-being. More than half of the sample reported no pain (54%)

TABLE 1.
Demographics Table

Age	61.9 yr ± 6.4
Education	16.7 yr ± 2.3
Ethnicity	
Caucasian	197 (99%)
Other	2 (1%)

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