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Utilizing Best Practices for Preventing Injury Among Master Gardener Volunteers

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Abstract

Master Gardener Volunteers (MGV) participate in physically demanding service activities that put them at an increased risk for injury. Workshops were presented to MGVs to address ways to prevent or minimize injury and pain by using best practices, proper posture, and correct tool use when working in the garden.

Introduction

Gardening is shown to have many health benefits, especially in older adults (Kaplan, 1973; Wang & MacMillan, 2013), but injuries are common (Hall, 2018; Powell et al., 1998). While gardening positions have been studied, there is insufficient evidence of best practices for gardening posture and technique to minimize or prevent pain and injury (Nicklett et al., 2014; Park & Shoemaker, 2009). Non-fatal injury data on personal home gardening is limited, but data for professional landscaping and groundskeeping can help shed light on the nature and source of injuries experienced by gardeners. That is, repetitive strain injuries that affect hands, back, knees, and ankles are caused in part by unsuitable movements, positions, and tool use (US Bureau of Labor Statistics, 2021). Although the prevalence of injury is small compared to other leisure activities, recovery takes time away from this beneficial activity and can involve various types of treatment (Hall, 2018: Park & Shoemaker, 2009: Powell et al., 1998). Educating gardeners on proper posture and tool use can help prevent or minimize injury.

Response

Adaptive Gardening and Minimizing Injury with Tools, Techniques, and Stretches was developed as a 90-minute interactive workshop that combines classroom instruction and hands-on practice to teach participants best practices, proper postures, and correct tool use to help prevent and minimize pain and injury while engaging in common gardening activities. To date, four workshops were presented in three urban counties (i.e., Utah, Salt Lake, and Weber) to 53 Master Gardener Volunteers (MGVs) and horticulture staff. Three workshops were taught in person and one was taught as an online class with a similar interactive format.

Program Coordinators supplied classroom space for the in-person presentation, gardening tools for participants to practice with, and outdoor garden space. After completing the classroom portion, participants practiced proper techniques and postures while using tools and doing common gardening activities under the guidance and instruction of Utah State University (USU) Extension faculty. Participants first practiced indoors without tools, then with tools, and then moved outdoors to “put it all together” in the garden space. Alternative movements addressed mobility challenges that some volunteers experienced, such as limited shoulder movement and knee surgery.

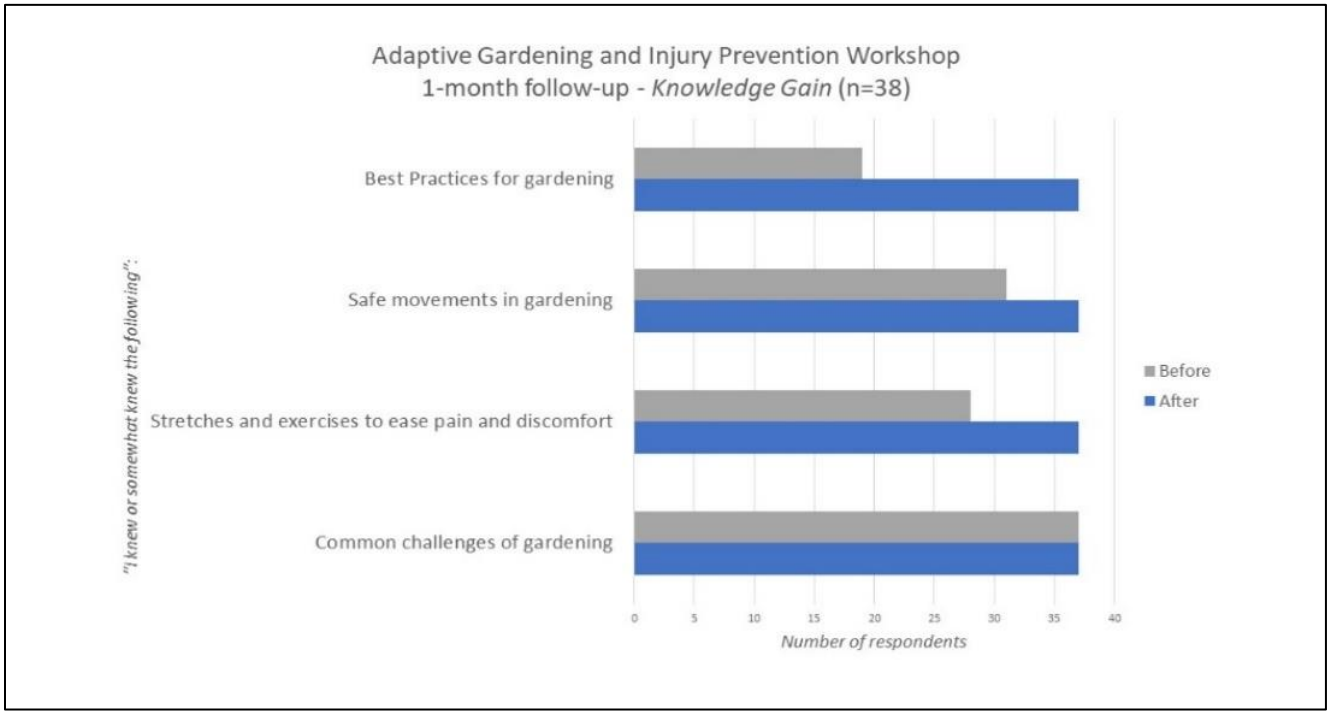
Target Audience

The target audience was Master Gardener Volunteers (MGVs) in Utah's Master Gardener Program. Currently, approximately 1,440 MGVs are enrolled. While we do not have complete data on the demographic characteristics of MGVs, in Weber County (n = 39), most MGVs identified as female (67%), were 60 years of age or older (67%), Caucasian (87.5%), and Non-Hispanic/Latino (95%). Findings from other states' Master Gardener programs suggest similar volunteer demographics; they tend to identify as female, age 45 years and older, Caucasian, Non-Hispanic/Latino, and have a variety of professional backgrounds (e.g., education, self-employment, private industry). In Utah, participants who provided demographic information in the pre-post survey (n = 36) self-identified primarily as female (n = 34), Caucasian (n = 33), and Non-Hispanic/Latino (n = 33).

Outcomes and Impact

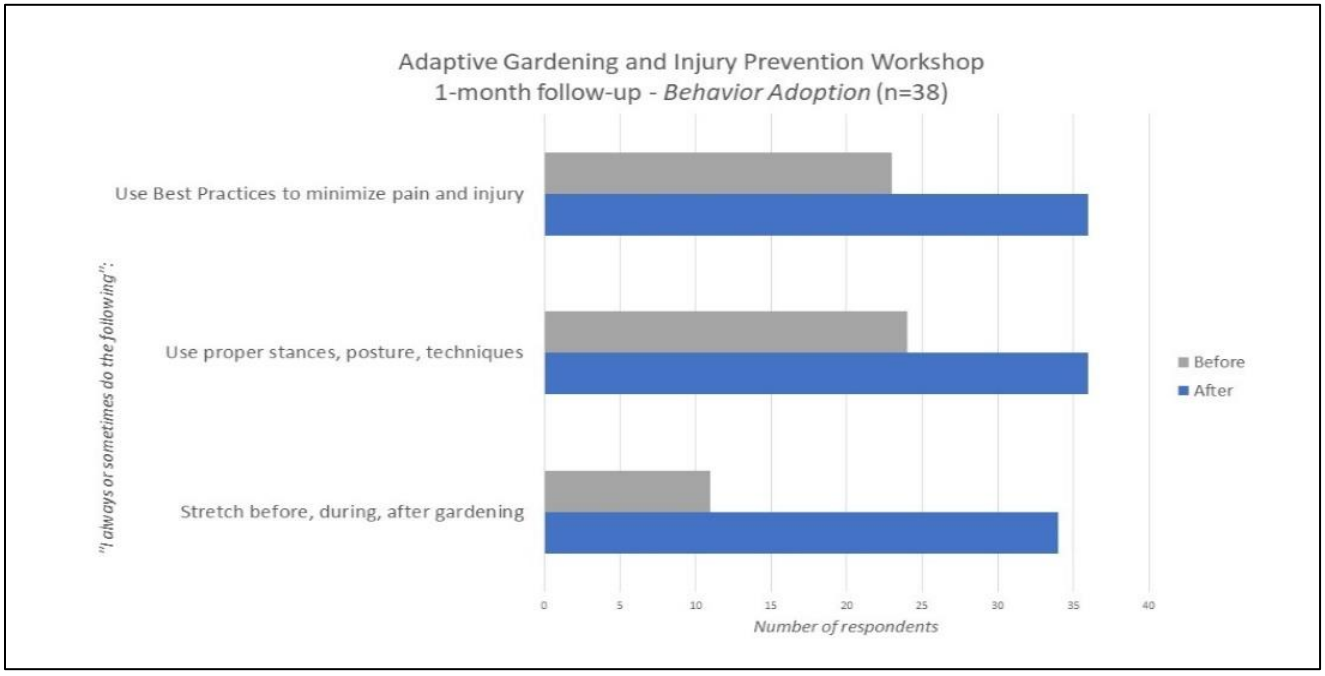
A retrospective pre-post survey was developed to assess short-and-medium-term outcomes. The survey was administered to participants two to four weeks after the workshops to assess knowledge gain and early behavior adoption. To assess medium-to-long-term outcomes, a six-month follow-up survey was administered to assess continued behavior utilization and perceived change in pain level while gardening. Thirty-eight participants (n = 38) responded to the first short-to-medium-term survey, yielding a 72% response rate. Knowledge was assessed for four injury prevention concepts: (a) best practices, (b) safe movements, (c) stretches and exercises, and (d) common challenges. Figure 1 shows participants' self-assessed improvement in knowledge of injury prevention concepts after the workshop.

Figure 1: Before and After Comparisons of Stated Injury Prevention Concepts



Early behavior adoption was assessed for three gardening behaviors: (a) using best practices, (b) using proper stances, and (c) stretching. Figure 2 shows the number of participants who reported their level of engagement in the behaviors before and after the workshop.

Figure 2: Before and After Comparisons of Stated Engagement Behaviors



In the six-month follow-up survey, 25 participants (n = 25) reported their continued behavior engagement in best practices (Figure 3), and their perceived changes in pain level using a 0-10 scale where 0 = no pain to 10 = extreme pain (Figure 4).

Figure 3: Self-Reported Engagement in Gardening Behaviors

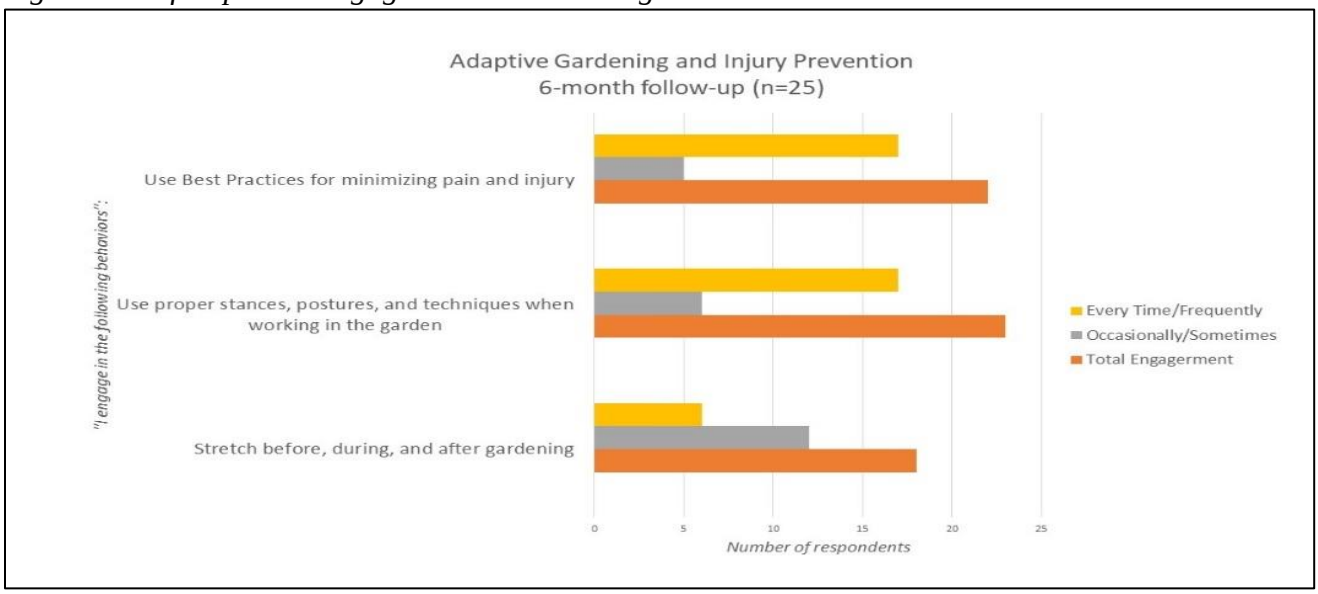
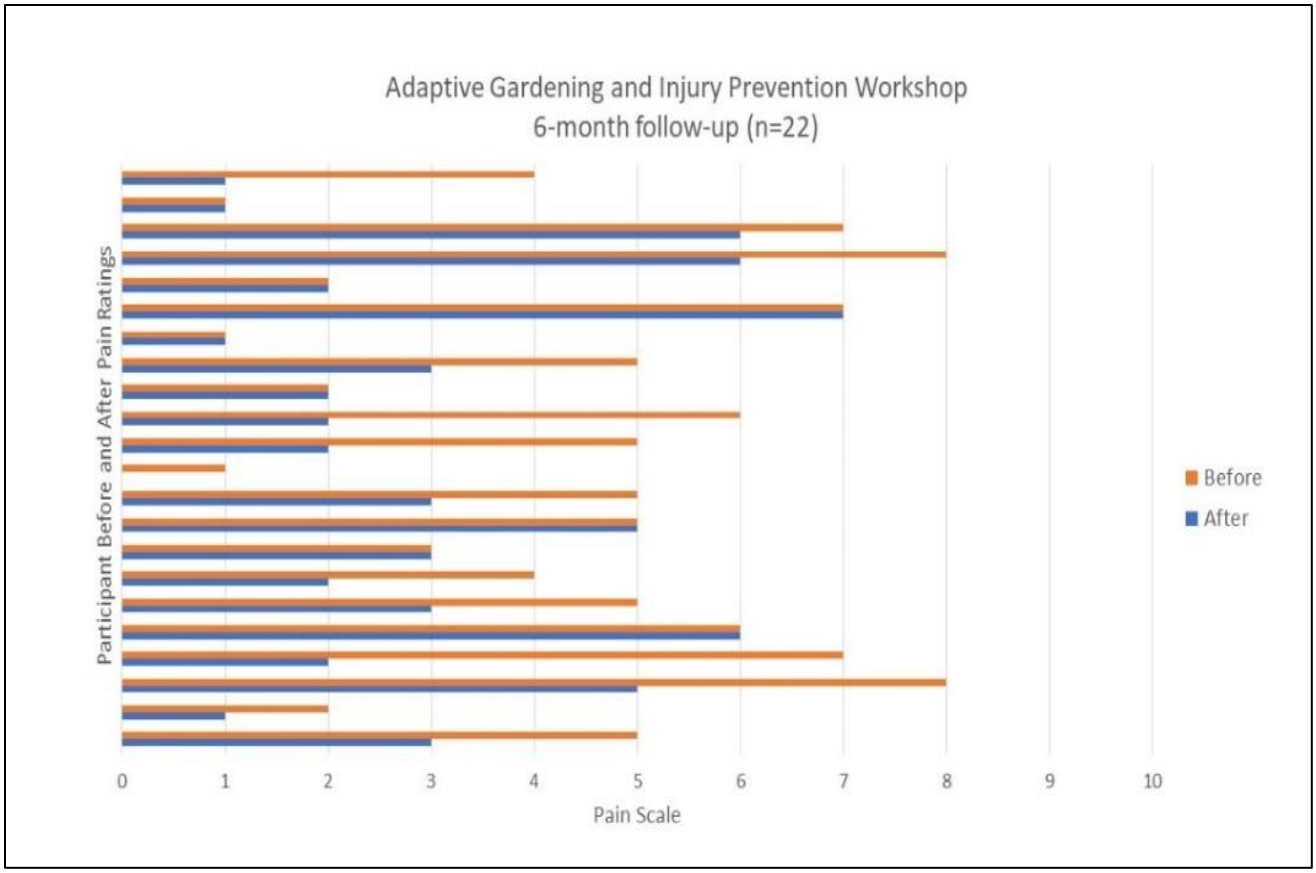


Figure 4: Self-Reported Changes in Perceived Pain



From Figure 4, the average perceived pain level of participants decreased from 4.65 to 3.00. Some respondents attributed low baseline pain levels or little change to an overall active lifestyle, physical therapy, and engagement in regular stretching routines.

Public Value

Gardening injuries occur mainly due to improper posture and tool use. Workshop participants shared their experiences of similar pain and injury when gardening. When discussing treatment strategies, they also shared their use of various pain management treatments, including taking pain medication as needed. While pain medication can be an appropriate treatment option for chronic pain, certain medications, like opioids, have the potential for addiction and should not be taken if not needed (CDC, 2019). Even if participants do not use medication to relieve pain, the fact that they experience pain due to poor gardening techniques suggests the need for this workshop and its potential value for MGVs.

Survey results suggest that after the workshop, the majority of participants adopted best practices relating to gardening behaviors of proper posture and stretches for garden safely. While MGVs were the primary audience, the content and format of the workshops may also benefit anyone active in gardening. Therefore, we plan to incorporate demonstration videos to reach a wider audience and improve accessibility to the content. While some participants may not be able to

practice with real tools or receive real-time feedback, it allows them to practice on their own and view the movements in action.

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