



The Implementation of Proper Ergonomic Programs Among Food Bank Volunteers

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Introduction

Background:
• Research has been conducted on many topics surrounding populations of older adults, volunteerism, and ergonomic program development; however, current literature lacks the combination of these topics.
• According to the Bureau of Labor Statistics, approximately 25% of the adult population engages in some sort of volunteerism annually (2016) and nearly 24% of adults aged 65 and older volunteer in social and community service groups which is consistent with the population of this pilot program (Corporation for National & Community Service, 2016).
• The program design and implementation was influenced by the Social Cognitive Theory, Constructivism Theory, and the Biomechanical Frame of Reference.
Capstone Site:
• This study was conducted at Alabama Childhood Food Solutions, a food bank, run by volunteers. Most routine volunteers are retired and present multiple days each week.
Program Purpose:
• To educate participants on proper ergonomics to increase self-efficacy and awareness and enhance volunteer's overall quality of life by promoting participation in desired occupations.

Methods

Participant Information

Sample Characteristics	n	%	M
Gender			
Male	6	35%	
Female	11	65%	
Age			
Male	62-78		71
Female	48-83		66
Frequency of Volunteering	1-4x/week		3x/week

Protocol Procedures:
• **Environmental Assessment:** Finalized program design; Ensured program would fit into rigorous schedule of food bank
• **Pre-test:** 10 question Likert-scale survey to assess target areas
• **Educational Training:** 10 minute scripted training to ensure reliability among daily education due varying volunteer presence
• **Post-test:** Repeated 10 question Likert-scale survey; Additional qualitative questions

Outcomes Measured:
• Perceived levels of knowledge
• Self-efficacy and awareness
• Benefits of visual cues (Figure 1)
• Quality of Life (QoL)
• Likelihood to continue volunteering

Analysis Methods:
• The Wilcoxon Signed-Rank test was used to find the significance level and p-value of participant's responses to each Likert-scale survey question.
• A thematic analysis assessed qualitative responses regarding quality of life, likelihood to continue volunteering, and suggestions for future studies.



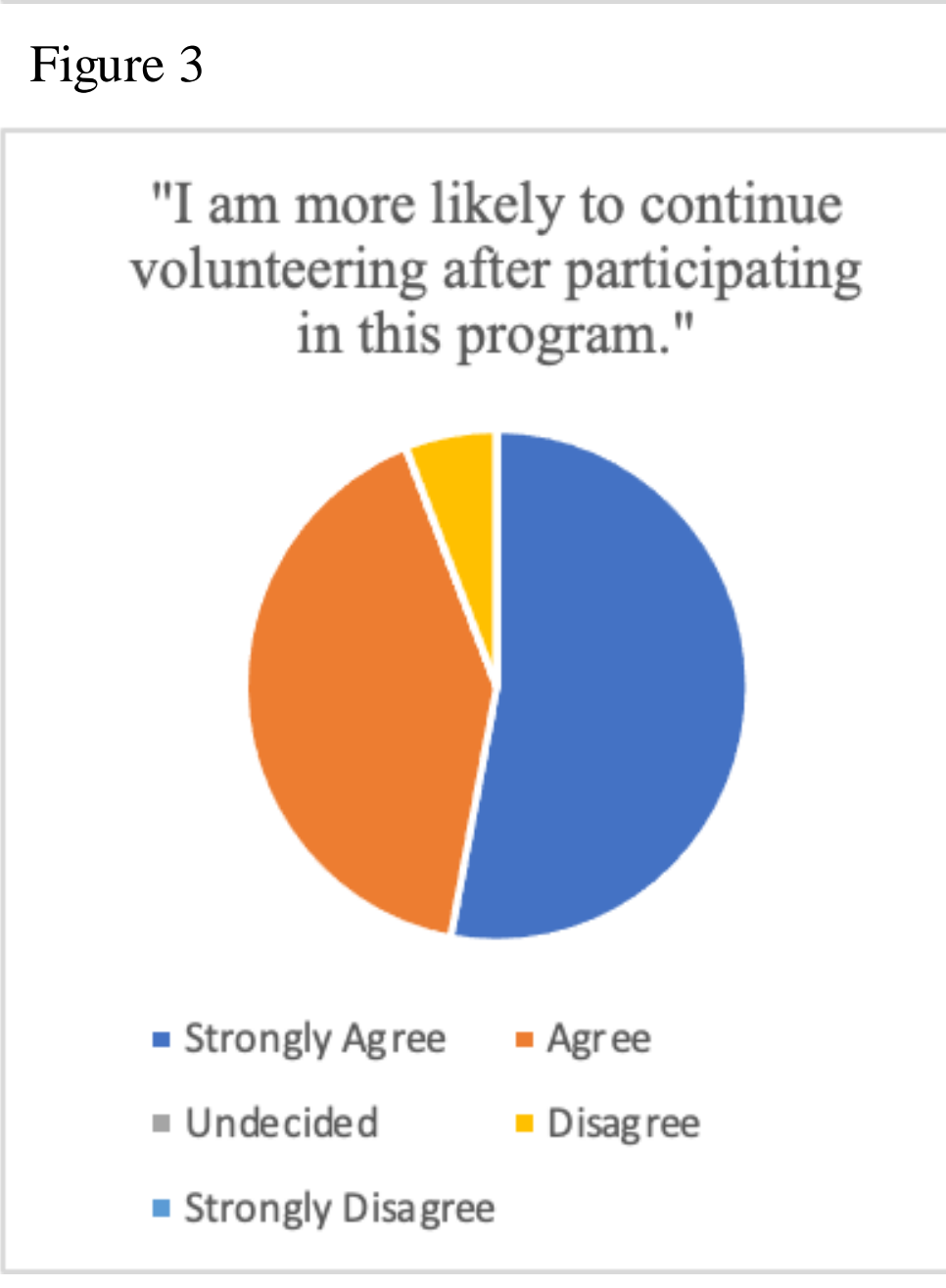
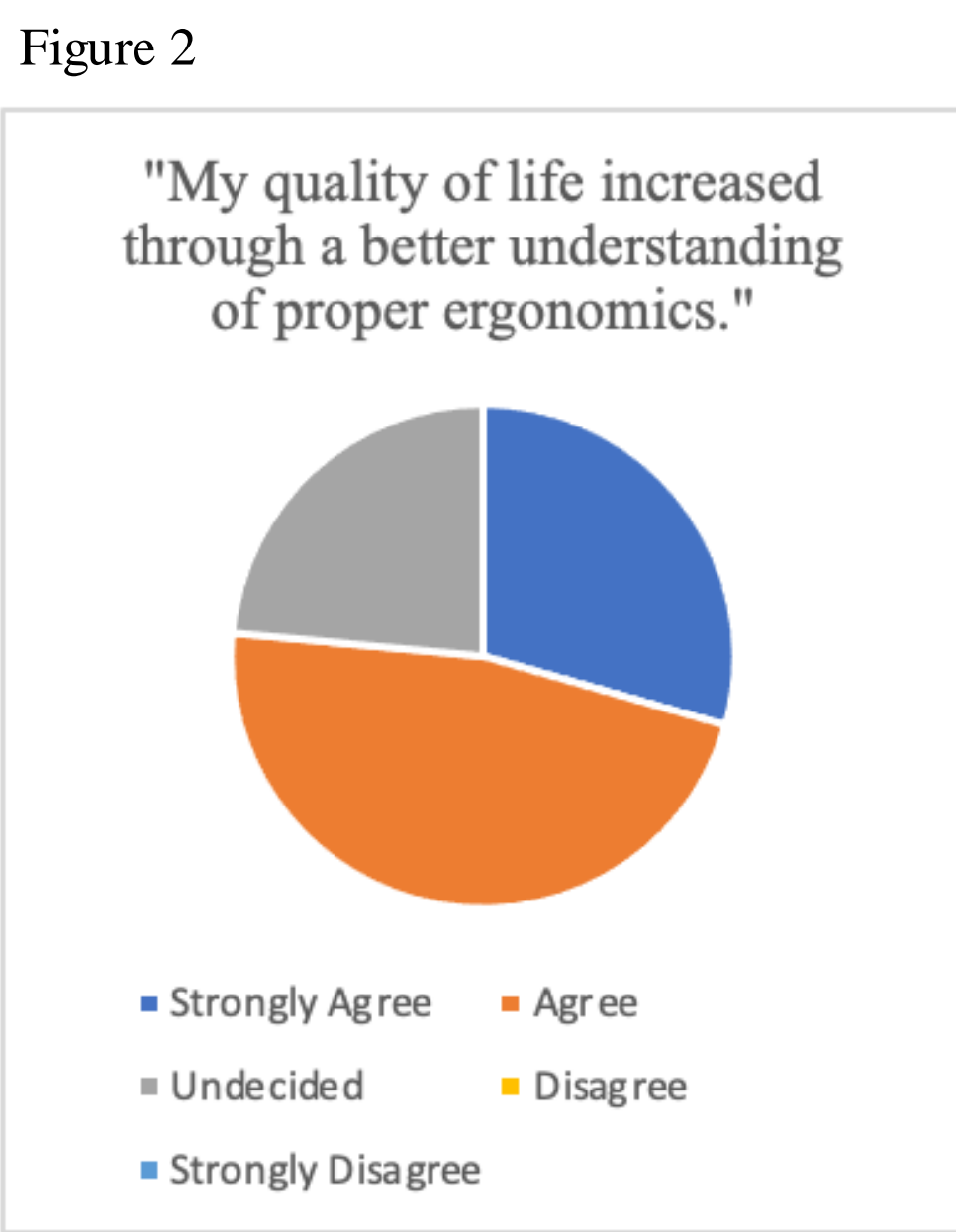
Figure 1: 8.5x11 in. visual cue posted in multiple locations throughout the facility.

Results

A total of 18 (N=18) volunteers participated in the proper ergonomic program. Of those participants, 17 completed the pre-test and post-test surveys.

Quantitative Data:
• The quantitative portion of the study yielded an overall significant large difference. These results ranged from non-significant small, medium, and large differences to a significant large difference. See Table 2 below.
• The visual cues (Figure 1) posted in the facility reportedly promoted knowledge retention weeks after the initial training.
Qualitative Data:
• A positive effect was reported in additional Likert-scale questions assessing the impact of the program on overall quality of life (76% selected "Strongly Agree" or "Agree") and likelihood to continue volunteering after participation (94% selected "Strongly Agree" or "Agree"). See Figure 2 and Figure 3 below.

Survey Question	Wilcoxon Sign-Rank Indication
I have a thorough understanding of the term "proper ergonomics."	Significant Z = -2.5, p = .013, r = -0.9.
I have a thorough understanding of the term "body mechanics."	Significant large difference Z = -2.5, p = .003, r = -0.9
While in the food bank, I am aware of the body mechanics I use during physical activity.	Significant large difference Z = -2, p = .048, r = -0.9
While in the food bank, I safely complete activities involving lifting boxes (ranging from 20-40 lbs).	Non-significant small difference Z = -0.4, p = .666, r = -0.1
While in the food bank, I safely complete activities involving bending at my trunk (to the right and/or left).	Significant large difference Z = -2.2, p = .025, r = -0.7
While in the food bank, I safely complete activities involving twisting at my trunk (to the right and/or left).	Non-significant large difference Z = -1.7, p = .092, r = -0.6
While in the food bank, I identify potential safety hazards in work areas.	Non-significant large difference Z = -1.8, p = .066, r = -0.8
I promptly alert management of identified safety hazards in work areas.	Significant large difference Z = -2.1, p = .037, r = -0.9
I implement proper ergonomics in my daily routine outside of the food bank.	Significant large difference Z = -3.1, p = .002, r = -0.9
Visual cues increase my understanding of some topics.	Non-significant medium difference Z = -1.1, p = .275, r = -0.4



Discussion

Findings
• Because the goal of the study was to increase knowledge of proper ergonomics and promote self-efficacy and awareness, the results support the inclusion of all three themes within the program for the most significant outcome.
Knowledge
• All participants agreed their perceived levels of knowledge regarding proper ergonomics increased after participating in the program.
Awareness
• Nearly all participants stated they became more aware of proper postures and techniques to use in daily activities.
• Many participants reported feeling confident in their abilities to recognize safety hazards in their environments.
Visual Cues
• Promoted knowledge retention
• Increased likelihood to implement educational training tactics in routine activities

Discussion continued

Implications for OT Practice
• Providing educational experiences for individuals to increase their levels of knowledge can increase their self-confidence and abilities to safely complete desired activities while aging.
• Proper ergonomic programs create an educational and hands-on opportunity for OTs to provide interventions in participants' natural environments
Limitations
• Small sample size
• Brief educational training due to strict scheduling within the food bank
• Study length was limited due to semester course requirements
• Principal Investigator (PI) participation in daily activities on site
• Visual cues were not optimal size
Future Studies
• Increase length of the program
• Complete re-training midway through the program to increase knowledge retention
• Control vs. Experimental group (re-training, implementation of visual cues, PI observable participation)
• Include qualitative data in pre-test survey for greater understanding of participants' levels of knowledge

Conclusion

• A survey was conducted to examine the impact of an educational program among food bank volunteers by assessing participants' levels of knowledge, self-efficacy, and awareness regarding the use of proper ergonomics in daily activities and results revealed the program positively impacted participants.
• Additional cues enhance participant learning and skill transference.
• Combining each aspect of the program (education, demonstrations, and additional learning aides) enhances the overall outcome of the study.
• Proper ergonomic programs can increase overall quality of life and likelihood of volunteerism in aging adult populations as it creates a sense of safety and belonging.
• Continuing to provide these educational experiences to individuals and groups is a way for OTs to encourage sustainable physical activities to combat sedentary lifestyles for older adult populations.

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Acknowledgement & Contact information

A special thanks to:
• Dr. Chris Eidson, my faculty mentor, for his support, guidance, and expertise throughout this process.
• Mr. Gene Rogers, my capstone site mentor, and the volunteers at Alabama Childhood Food Solutions for buying in to the role of OT while serving their community.
• The faculty and staff of UAB's Occupational Therapy department for promoting excellence and paving the way for students to reach success through their unique passions.
Each of you helped my project reach its full potential and I am extremely grateful.

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