

# Gardening and the elderly: A study involving the effects on purpose of life and activity involvement

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## ABSTRACT

Gardening tasks were performed at an assisted living facility with an elderly male twice a week for eight weeks during the summer of 1999. Crumbaugh's (1968) Purpose of Life Test was administered to obtain pre and post results. In addition, a daily log of activities in which the subject participated in was compiled. The hypothesis stated the subject's participation in a biweekly gardening group would increase purpose of life as well as participation in daily activities. Although Crumbaugh's (1968) Purpose of Life Test results did not change substantially, an increase was shown in activity involvement.

## INTRODUCTION

Many factors have been found to be an influence on the well being of the elderly, one such factor is that of perceived control. This idea is supported by Perrig-Chiello, Perrig, and Stahelin's 1999 study which found that control beliefs may influence physical and psychological well being and health. Additionally, Perrig-Chiello et al.(1999) also identified that perception of control may operate as a major determinant in regulating human cognition, motivation, and emotion, which are crucial in prevention and remediation of health problems. This results in those with higher perceived control taking greater responsibility for their health than those with lower perceived control.

Many studies have been performed concerning the relationship between control, the elderly, and health. Baltes, Wahl, and Schmind-Furstoss (1990) found a positive correlation between personal control and functional health. These researchers also found a negative health rating which was thought to be associated with an experimentally induced loss of control. A study conducted by Krantz and Schulz (1980) found patients who received control-related information about their environment more likely to rate their health better than the control group who received no control-relevant information. In addition, these patients were judged by nurses as being healthier, more satisfied, and more enterprising.

When faced with repeated traumatic events over which they have no control, people tend to feel helpless, hopeless, and even depressed. Additionally, those given little control may experience low morale and increased stress (Meyer, 1995). Rodin (1986) noted that 93% of nursing home patients who were encouraged to exert more control became more alert, active, and happy. It was also noted by Rodin (1986) that nursing home patients who had little perceived control over their activities declined faster and died sooner than those given more control. As concluded by Ellen Langer (1983), "Perceived control is basic to human functioning. For the young and old alike, we create environments that enhance a sense of control and personal efficacy."

One way of enhancing perceived control is through the use of purposeful activities. When a therapist offers choices or options regarding activities for the patient, feelings of mastery and satisfaction result from participation in the chosen activity. A positive sense of self is developed from these feelings of satisfaction, and is critical for successful treatment (Levine & Gitlin, 1993). According to Steinbeck (1986), when a person actively engages in a familiar and purposeful task, they will gain enough satisfaction to "sustain performance." Therefore, when an individual is involved in an activity that interests them, the satisfaction and positive sense of self that results from engagement in a chosen activity encourages them to participate for longer periods of time. As a result, the individual engaged in purposeful activity experiences an increase in motivation (Levine & Gitlin, 1993).

Steinbeck (1986) also found purposeful activities to "provide an intrinsic motivation to act". In Steinbeck's (1986) study, those subjects who participated in activities assessed to be purposeful performed a much greater length of time for activities of the upper and lower extremities than during activities assessed to be non-purposeful. Because the subjects enjoyed the activities which they found to be purposeful, exertion levels were lowered and they were more motivated to complete the activity.

In order to correctly refer to a task as purposeful, active participation is crucial. Barris (1986), and Heppe & Ray (1986), produced literature on activity and aging which revealed "older adults participate more readily in activities that are important to them and that provide or reinforce a sense of identity and self." As a result, those engaging in purposeful activity will experience an increase in quality of life as mentioned by Pedretti (1990) who believes, "engaging in meaningful, or purposeful activities is the essence of life."

One way to express purposeful activity and incorporate the concept of perceived control into therapy is through the use of nature and horticulture. Whether it is research signifying the connection between environment and well being, or an intangible feeling expressed by an individual, human beings' connection to nature has been demonstrated on numerous occasions.

This connection to nature has been an area of interest for many and has led to research about the power of "healing environments". Much of this research has found there are psychological as well as physical benefits when incorporating natural elements into people's lives. Two of these benefits found include reduced blood pressure and relaxation of tense muscles as evidenced through the findings of Ulrich (1994). Others have found simple exposure to natural environments important for well being. This was demonstrated through research involving hospital patients who were given hospital rooms which had a view of trees and other natural elements. These patients' health improved as compared with other patients who had only a brick wall view. Overall, the patients with the view of the trees needed less medications and stayed fewer days in the hospital (Rothert, 1994). Thomas (1994), creator of the "Eden Alternative," predicted the use of natural environments would be supported by a significant decline in medication use by patients. This was examined in a nursing home with the results showing a 38% reduction in the prescription costs as well as a reduction in the number of prescriptions prescribed per resident (Borrett, 1997).

Marcus and Barnes (1995) also recognize the relationship between well being and environment. While their findings tend to be more qualitative, therefore subjective, they also support the benefits of healing environments. They concluded 75% of people who used gardens in healthcare facilities reported feeling more relaxed and calm than when starting the project. In addition, the study also found the elements in nature which produced these feel-

ings to vary depending on the patient. For some, trees and plants were important, while others found tactile and visual sensations to elicit the calm and relaxed feelings (Borrett, 1997).

Gardening allows one way of capitalizing upon this connection with nature and obtaining the benefits it has to offer. Statistics reveal for many Americans over the age of 55, gardening is a top leisure activity, allowing a peaceful outlet from which creativity can be explored and rewards can be derived (Rothert, 1994).

For this reason, gardening may be used as a valid therapy, incorporating the benefits of nature, perceived control, and purposeful activity. Because it is purposeful and meaningful to many, gardening can provide not only the benefit of a peaceful, pleasant environment, but can also supply a means of exercising, building endurance, coordination, and strength.

The concept of gardening as therapy correlates well with the purpose of occupational therapy. The following study involves the use of gardening, purposeful activity, and perceived control with three elderly subjects residing at the Village Apartments. The hypothesis states the subjects will experience an increase in purpose of life and activity involvement resulting from voluntary participation in a biweekly gardening group.

## METHOD

Three residents from the Franciscan Skemp Village Apartments (an independent living facility), voluntarily participated in the study. All three participants, two females and one male, considered gardening a valuable activity. Unfortunately, the two female subjects were non-compliant with data collection therefore results were obtained from the male subject. After volunteers were selected, corresponding times were agreed upon between the researchers and the activity director at the facility. It was decided that one-hour gardening sessions would consist of the residents watering, weeding, and choosing various vegetables and flowers to plant around the facility. This study would be conducted biweekly for eight weeks during the months of July and August.

One week prior to gardening, an initial Purpose of Life Test (Crumbaugh, 1968) was administered to the individuals. The Purpose of Life Test was a twenty-question survey in which an individual rates each question on a one to seven scale. Questions pertaining to how an individual perceives his/her purpose in life, future goals, and the control one has over his/her life were some of the topics included in this survey. This test was used as a baseline to determine how each participant viewed his/her purpose of life before beginning the study.

A second means of data gathering taken at this time included a checklist of activities offered at the Franciscan Skemp Village Apartments. The daily activities that each resident participated in were charted. This charting continued throughout the duration of the study to signify fluctuation of activity involvement as gardening was introduced.

Equipment was gathered before the gardening sessions began. This equipment included: potting soil, large pots, seedlings, fertilizer, gloves, two shovels, hay, and a hoe.

The activity director, researchers, and the three subjects began the first gardening session in the upstairs shaded solarium. The residents began by placing hay on the bottom of five pots in order to make them easier to transport by the researchers. Each resident then placed potting soil in the pots and individually chose the vegetables, herbs and flowers they wanted to plant. Following the planting process, the residents watered and fertilized each plant. Rest periods were taken as a safety precaution throughout each session.

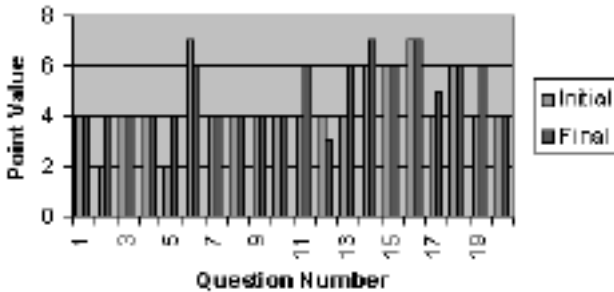
A garden party featuring mint tea, fresh cut flowers, pesto, and salads (all grown by the residents) was held to celebrate the efforts the residents instilled in the eight weeks of gar-

dening. To wrap up the study, the Purpose of Life Test (Crumbaugh, 1968) was readministered in order to compare the responses to the test given eight weeks prior.

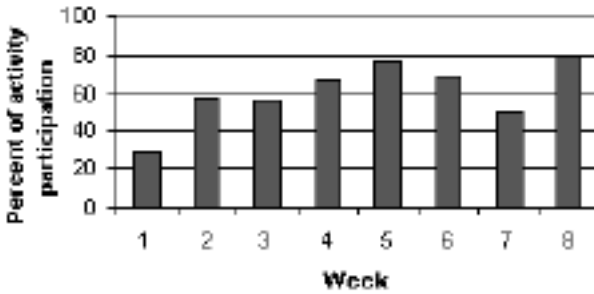
### RESULTS

Pre and post results of Crumbaugh's (1968) Purpose of Life Test for this study were obtained. Eleven of the responses remained unchanged. Seven of the scored responses revealed an increase in the subject's perception of his purpose in life, whereas two of the responses showed a decrease in his perception (see Graph 1).

When comparing the first week to the eighth week of the current study, the subject's weekly activity involvement increased from 29% to 80% (see Graph 2). This signifies a 51% increase in activity participation. The range of activities offered per week was 13 to 19 activities with 16 activities being the average.



Graph 1. Comparison of pre and post Purpose of Life Test (Crumbaugh, 1968) results.



Graph 2. Activity involvement throughout the study.

### DISCUSSION

The results obtained in the study did not fully support the hypothesis which stated that subject's participation in a biweekly gardening group would increase purpose of life and activity involvement. The results obtained from the Purpose of Life Test (Crumbaugh, 1968) did not show a significant change which would indicate an increase in the subject's purpose of life. This could have been due to numerous reasons including time of day the test was administered, the weather during test administration, and life circumstances. All of these fac-

tors were out of the control of the researchers, but may have impacted the results of the test. In addition, the reliability of the Purpose of Life Test (Crumbaugh, 1968) was unknown.

The hypothesis also stated that the subject's activity involvement would increase throughout the eight weeks of gardening. Despite the lack of significance in the results obtained, it is felt that there was an increase in activity involvement throughout the eight weeks. This was verified when comparing the initial week of the experiment to the final week in which the subject's activity involvement increased 51%. This increased involvement could be due to the subject's participation in the purposeful activity of gardening. As stated in the introduction, active engagement in purposeful activity results in satisfaction and a positive sense of self (Steinbeck, 1986). This increased satisfaction and positive sense of self may have contributed to the increased activity involvement of the subject.

When reviewing the other weeks, activity levels did fluctuate. This could be due to the different activities available per week. Some of the activities may have offered more meaning to the subject when compared to other activities. With the increased meaning of activity, the subject's motivational levels could have increased. This is supported by Levine and Gitlin (1993) who state that engagement in purposeful activity also contributes to an increase in motivation. This was evident when the subject initiated further gardening after the conclusion of the study. He purchased fifty tulip bulbs and requested the researchers to assist in the planting of these bulbs.

By allowing the subject to choose from a variety of flowers, herbs, and vegetables, the researchers allowed the subject to gain a sense of control. This sense of control is critical as Perrig-Chiello and colleagues (1999) identify control to play a role in regulating human cognition, motivation, and emotion. It is felt that the subject's high level of motivation while participating in the gardening sessions and other activities offered could be due to meaningful activity and control given throughout the eight weeks.

The concept of control relates well to the profession of occupational therapy (OT). Through incorporating control and purposeful activity in a therapy setting, the motivational levels of the patient will increase, thus resulting in a more compliant therapy session. With compliance, the patient/therapist relationship is enhanced. The patient may exhibit a faster recovery, increased function, and positive sense of self.

## LIMITATIONS

The original intent of the study was to have a control group and an experimental group. Unfortunately, the two female participants were not compliant with filling out the required information (i.e. activity list and Purpose of Life Test (Crumbaugh, 1968)) or attending the biweekly gardening group, therefore excluding them from the study.

An additional limitation concerned the data collection of weekly activity involvement and the Purpose of Life Test (Crumbaugh, 1968). The researchers collected the activity involvement data twice weekly by verbal recall of the subject. This required recall of activities engaged in two to three days prior to the gardening group, making the data subjective. The Purpose of Life was only administered twice, pre and post gardening. To add significance to the results, this test should have been administered at least weekly.

With the information we did have from the one subject, there was not enough data to make this study a true single-case design.

Upon reflection of this study, it is recommended to future researchers interested in conducting a similar study that the following changes be implemented. First, a larger sample size would be beneficial in collecting data of significance. If a single-case design is desired, more

frequent data collection through the use of the Purpose of Life Test (Crumbaugh, 1968) would be needed. Recording the weather conditions, how the patient is feeling that day, as well as blood pressure recordings can help validate variations in data collection.

## ACKNOWLEDGEMENTS

We would like to thank our faculty advisor, Sally Huffman, for helping us throughout the study. She dedicated much time with the IRB Board in addition to contributing hours at the Village Apartments. We would also like to thank Karon Anderson for generously assisting us despite her busy schedule. Additionally, our thanks goes to instructor Robin McCannon who graciously guided us in writing the manuscript and Dr. Elfessi for his help in interpreting the results of the study.

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