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Geriatric Program Evaluation: The Use of Gardening as a Form of Activity Therapy Among Institutionalized Elderly

Robert Hobson
Western Kentucky University

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Robert B.

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Geriatric Program Evaluation: The Use of Gardening
as a Form of Activity Therapy Among
Institutionalized Elderly

A Thesis

Presented to

the Faculty of the Department of Psychology
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by

Robert B. Hobson

March 1977

Geriatric Program Evaluation: The Use of Gardening
as a Form of Activity Therapy Among
Institutionalized Elderly

Recommended 3/21/77
(Date)

Richard L. Miller
Director of Thesis

Shirley C. McKinnis
David A. Smith

Approved 4-12-77
(Date)

Elmer Gray
Dean of the Graduate College

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Geriatric Program Evaluation: The Use of Gardening as a Form
of Activity Therapy among Institutionalized Elderly

Robert B. Hobson

March, 1977

38 pages

Directed by: Richard Miller, Sheila McKenzie, David Shiek

Department of Psychology

Western Kentucky University

An attempt was made to evaluate the institutional services provided by a community mental health center's geriatric program. Intervention by geriatric staff involved the use of gardening as a form of activity (remotivational) therapy. It was hypothesized that by involving personal care home clients in gardening, an increase in clients' morale and sociability would be observed. The Philadelphia Geriatric Center Morale Scale and Stockton Geriatric Rating Scale were used to assess changes in these areas. Group 1 contained five clients who actively engaged in gardening. Group 2 contained 17 clients who, although not actively involved in the garden, were nonetheless exposed to it in more indirect ways. Statistically nonsignificant results for both groups indicated that gardening did not produce markedly positive changes in clients' morale and sociability. However, positive trends on Morale Scale scores and behavioral observations indicated that gardening, as an intervention program for the institutionalized elderly, did improve the quality of their lives.

Geriatric Program Evaluation: The Use of Gardening as a Form
of Activity Therapy Among Institutionalized Elderly

Introduction

The Barren River Mental Health Retardation Board Inc. Geriatric's Program (Division 1) attempts to provide comprehensive services to the aging population within a five county area of south central Kentucky, and incorporates a preventive as well as restorative design into its programs.

Programs of a preventive nature include the Telephone Reassurance Program, in which daily phone contact is made between community volunteers and aged citizens, and the Information Referral Project (Home Visits), where weekly home visits are made to elderly shut-ins desiring outpatient therapy. The overall goal of these programs is to help the home dweller maintain his ties with the community and thus prevent institutionalization.

A restorative approach is emphasized in the 13 health care facilities in which geriatric staff now serve. By recognizing the need for human sharing and developing meaningful interpersonal relations, as well as the institutionalized elderly patient's need to live as close to normal an existence as possible, geriatric staff attempt to promote higher levels of individual functioning, coping skills, and socialization in these elderly through regularly planned activities. This area of institutional service is the focus of the present study.

Various therapeutic techniques which are used in institutional as well as community settings include: Remotivational Therapy, Reality Orientation Therapy, Resocialization processes, Behavior Modification, Life-Review Therapy, Gestalt techniques, Rational Behavior Therapy, and Reality Therapy. Three of these techniques are frequently used by geriatric staff involved in the present research project. Through Reality Orientation Therapy an attempt is made to orient the institutionalized elderly person to his current life situation. Such questions as, "What day is this?", "What is your roommate's name?", and "Where are you living now?", are asked to accomplish this end. Life-Review Therapy deals with the personal concerns of people who are growing old and who may soon die. An example follows. On one Fall day interested residents of a personal care home were taken for a ride in the country. Upon returning these people discussed what they had seen, how this related to the season of the year, and how their own lives may be related to the yearly cycle of changing seasons. On another occasion, participants were asked to listen to several music genres (jazz, classical, religious, "old timey tunes") and then write or draw how they felt while listening to each type. Discussion of a personal nature evolved from this point. A major goal of Remotivational Therapy is to help the institutionalized person become more involved with life. This is often accomplished in a group setting where an attempt is made to involve the elderly in activities of a nonthreatening and mutually interesting nature. Such activities include rhythm bands where participants provide

musical accompaniment, using simple musical instruments, to a few favorite songs; indoor bowling and horseshoes, crafts, bingo, birthday and holiday parties, and discussions about such familiar topics as what the old general store was like and how it has changed.

Many other activities may serve to revitalize the institutionalized elderly person's interest in life. Gardening, or the planting, cultivating, and harvesting of vegetables and flowers, is one activity which seems to have such potential. Thus gardening as a form of remotivational activity therapy in an institutional setting (personal care home) was chosen as the geriatric intervention program to be evaluated in this research. The rationale for this program is discussed in the subsequent section.

Literature Review

Activity therapy seems to have much promise as a therapeutic intervention technique for the elderly. Davis (1967) conceptualizes activity therapy in the following way:

It is the arrangement of the environment (or living conditions) so that the passive organism (or individual) will be forced to react in ways that will improve and maintain his health The term "therapy" implies the clinical value that it is better for the patient to be doing something than nothing, from the standpoint of his total health.
(p. 1144)

Research has indicated that high activity levels are associated with a number of positive physiological and psychological changes.

Activity and Physiological Change

Although making direct equivalencies between rat behavior and human behavior requires frequent qualification, there often exists some valid common inference. With the above qualification in mind, it is worthwhile to note Rosensweig's (1966) study in which he demonstrated a significant increase in the cerebral cortex and neurochemical activity of rats exposed to an enriched environment. The enriched environment provided rats with stimulation by their cagemates, opportunities for free play on ladders, wheels, boxes, platforms, etc., daily exploratory sessions in a small field, and more formal training in a

series of mazes. These rats were compared with a second group, which contained animals placed in small dark cages by themselves; and a third group, which contained rats placed in community cages without playthings. The second and third groups did not demonstrate the physiological changes noted in rats raised in an enriched environment. The special importance of Rosensweig's results for the present study is that young, as well as adult rats, evidenced a similar growth in the cerebral cortex and chemical activity of their brains. Although the experiment was not tried on rats who might be considered "old," it may be that rats at all ages grow and adapt to the extent they are challenged by a stimulating environment, and that this relationship may hold true for humans as well.

High activity levels have also been associated with improved health in the aged. Palmore (1971) used data from a longitudinal study and determined that of the following three variables--obesity, cigarette smoking, and activity and exercise--activity and exercise was most associated with longevity. Kannel (1971) found that sedentary males were more susceptible to lethal attacks of coronary heart disease than were physically active males. Increased activity and its beneficial effect on health is also supported in Reichenfeld, Csapo, Carriere, and Gardner's (1973) finding that activity programs go hand in hand with higher discharge rates. One must consider in the preceding three studies, however, that it may be good health which promotes increased activity, rather than vice versa.

Activity and Morale

A positive relationship between activity level and morale in the elderly has also been reported in the literature, although not without qualification. Kutner (1956) developed his own activity and morale measures and found that a high activity level and high morale were significantly related. His data, reported in percentage totals, indicated the largest percentage of high activity subjects ($n = 200$) also demonstrated high morale. The converse held true for those subjects ($n = 300$) identified as low morale subjects. He also postulated that "not any activity but only activities that provide status, achievement, and recognition can lift morale" (p. 104). To test this assumption he contrasted people involved in gainful activities with those involved in nongainful activities. He assumed that gainful activity is more meaningful, is more apt to satisfy status and achievement needs, and hence would produce greater increase in morale. Kutner found that among members of the active group, those people who were gainfully working had considerably higher morale than those not employed; and within the inactive group, people who were employed evidenced higher morale than those who were not working. These findings lead Kutner to conclude "sheer activity to fill increased free time is less satisfying and less conducive to good adjustment than gainful activity" (p. 121). Davis (1967) suggested that in addition to gainful activities, "hobbies and interests which were passed over but are still contained or remembered in the person's life history might provide just the right level of complexity and challenge for the elderly" (p. 1157). Thus, increased morale in the aged may not be asso-

ciated with just any activity, but rather with activities which participants perceive as meaningful.

Research performed by Shmavonian and Busse (1963) and Hulicka (1967) further supports the importance of meaningful activity, rather than just any activity, in increasing morale among the elderly. Shmavonian and Busse measured the gains in galvonic skin responses (GSR), which were spontaneously emitted in the presence of various tones, in two groups of men. One group contained 10 old (60 to 70 years) men. The second group contained an equal number of young (20 to 24 years) men. They found that older subjects emitted fewer GSR's reflective of higher levels of alertness than did younger subjects. This possibly indicated that older subjects were less involved in the lab situation. When the same comparison was made with spoken phrases, or more meaningful stimuli, the difference between age groups in the GSR's was negligible. Hulicka attempted to teach 40 elderly subjects (65 to 80 years) a paired associate task in which response words were paired with such stimulus letters as TL. Eighty percent of the subjects refused to learn "such nonsense" and removed themselves from the task. Hulicka then changed the task to make it more meaningful. Occupations such as Banker were substituted for the stimulus letters, and surnames of four or five letters were the response associates (ie. Sloan, Mill). With the task thus changed to make it more meaningful, the same subjects carried it out readily with little attrition.

The relationship between activity and morale in the elderly, as well as the proposition that activity decreases with age,

has been further explored by Maddox and Eisdorfer (1962). Using 250 volunteer subjects (60 to 94 years) these researchers found limited support for the contention that among the elderly, activity decreases as chronological age increases. After applying a Chi-square analysis, variables which they found to be positively associated ($p < .05$) with high activity were (a) "good" health as determined by a medical exam and self estimate, (b) limited modification of work role, (c) stability and control of living situation, and (d) socio-economic status as indicated by the description of the head of the household's occupation as manual or nonmanual. Because many people who live in personal care or nursing homes seem to be in poor health, are no longer holding jobs, and have lost the control over their living situations which they once had while living in their own homes, one would expect their activity levels to diminish as their years progressed.

Maddox and Eisdorfer also found a positive relationship exists between activity and morale. The researchers divided 250 subjects (60 to 94 years) into the following types: Type 1--High activity/high morale, Type 2--High activity/low morale, Type 3--Low activity/high morale, Type 4--Low activity/low morale. Seventy-three percent of the subjects fell into Types 1 and 4.

Morale and Interpersonal Activity

In another study involving the same 250 subjects, Maddox (1962) found that a decrease in activity was associated with an age related decrease in interpersonal rather than noninterpersonal activity. This finding suggests a decrease in inter-

personal activity may be responsible for a decrease in morale, although this relationship is not absolute, ie., the relationship does not hold for Type 2 (High activity/low morale) and Type 3 (Low activity/high morale) subjects. Davis's suggestion that activity therapy should be carried out in a social context is supported by the above finding. Likewise, social interaction theory addresses this subject as follows:

Notions of the self vis-à-vis the environment emerge, are validated, and are sustained or changed primarily in interaction with others. Since expression of interests and activity is highly valued behavior in our society, constriction of interests and activities produces a crisis in self-evaluation for the individual. (Maddox & Eisdorfer, 1962, pp. 254-255)

Other studies have indicated that for some people (Type 3), decreased interpersonal activity is not necessarily associated with low morale. Cumming and Henry (1961) suggested the almost inevitable constriction of social activity among the elderly accompanies similar constrictions in perceived life space and expectations about social interactions. If perceived life space and expectations about interaction were modified from the middle years into old age, then a sense of deprivation or loss of morale would not necessarily be anticipated. Robert Peck (1956) suggested that under some conditions a negative association may exist between activity and morale. He stated, "A certain amount of withdrawal from hyperactive social participation or other external activity might

. . . be healthy [for some older people]" (pp. 255-256). Citing the work of Jourard (1965) and Kowal, Kemp, Lakin, and Wilson (1964), Davis implied the aged have a "natural tendency" against exposure and that this tendency "should be respected by providing them with more educational opportunities and with topical rather than self-examining discussions so that their energy is channeled in outward directions" (p. 1149). He concluded that activity should be as concrete and specific as possible while attempting to bring the regressed person into renewed contact with the world around him.

In summary, research concerning activity and morale suggests there is generally a decrease in activity (particularly interpersonal activity) as a person moves into old age, and that this decrease in activity is generally associated with a decrease in morale. However, this relationship is not without qualifications. Such qualifications include the consideration that an activity must be perceived as meaningful by those involved if it is to be expected to enhance morale. It has also been suggested that while interpersonal activity of a nonthreatening nature may be an important ingredient for improvement and maintenance of morale in most elderly, there are those who thrive without such activities.

Activity and Motivation

Any successful activity among the elderly is impossible without first motivating the people to involve themselves in the activity. Such motivation can sometimes prove difficult. Hoyer (1973) suggested that appropriate environmental and self

regulated consequences of behavior be used in modifying the behavior of old persons. The importance of setting modest goals for behavior change (Kobrynski, 1973) and the elderly's need for constant encouragement (Reichenfeld et al., 1973) have also been emphasized as important considerations in initiating and maintaining interest in activities among the aged.

Incidental Experience and Activity

It should be noted that active involvement in an activity is not necessary for one to be aware of and benefit from that activity. Wimer (1960) reported on the effects of incidental learning. Fifteen subjects (greater than age 65) and 17 subjects (less than age 30) were presented with six words, each printed in a separate color. In Condition 1 subjects were told they were going to be asked later about the colors. In Condition 2 subjects were told the procedure was a study of the effects of color on reading speed. The Mann Whitney Test was used to evaluate group differences. Results indicated a significant age difference in learning under the experimental conditions ($p < .05$), but not under the incidental conditions. Wimer stated, "It seems plausible that a large part of the information acquired over a lifetime is acquired incidental to other activities that were at the time more central to the individual's purposes (p. 79). Also addressing the topic of incidental experiencing, Kutner (1956) suggested that "through sheer activity the individual may incidentally find outlets for his feelings or find social relationships that might provide

the key to satisfying some of his more fundamental needs" (p. 104).

Summary

It has been demonstrated that if the aged can be motivated to engage in meaningful and status generating activity (particularly interpersonal activity), a number of positive physiological and psychological changes may result. However, the beneficial effects of activity do not seem applicable to all elderly. For some, interpersonal activity or other activity of a highly personal nature may be too threatening. It has also been noted that actual participation in an activity may not be necessary for aged individuals to profit from that activity. Their capacity for incidental experiencing does not seem to radically diminish over the years.

Relevance to Present Research

Based upon consideration of previously described research and the experience of geriatric staff members, gardening was chosen as an appropriate intervention strategy. Gardening was an activity which would be available to residents at all times of the day, and would not be restricted to the regular intervals during which the geriatric team made their visits. It also allowed for the possibility of interpersonal and/or solitary activity, depending upon the needs of those involved. Because many of the residents have either been farmers, the wives of farmers, or gardened at some time in the past, it was thought this activity would prove interesting and meaningful to them. It was also thought such activities as hoeing,

planting, watching plants grow, and harvesting would definitely not threaten the residents as being too difficult or too personal, but would instead help strengthen their contact with the real world and perhaps instill a sense of excitement and anticipation which often accompanies watching living things grow. In addition, even though clients' active participation in the garden might not always be achieved, the constant potential for incidental experiencing would exist.

Two groups of subjects (active and incidental garden participants) in a personal care home which is visited thrice weekly by geriatric staff were evaluated using a repeated measures design. It was hypothesized that both groups would demonstrate changes in a positive direction on scales assessing morale and sociability in the aged.

Method

Subjects

Because of a high attrition rate due to such factors as death, moving to other facilities, sickness, irritability, etc., there was a considerable reduction in subjects as the study progressed. Although 46 residents began the study, only 22 remained at its completion.

After termination of the experimental period, the one male and four female subjects who actively participated in gardening activities on six or more occasions were identified as Group 1. These subjects ranged in age from 52 to 83 years, with an average age of 74. The remaining 17 subjects (13 female, 4 male) who did not actively participate but who were exposed to the garden in an incidental way were identified as Group 2. Members of this group ranged in age from 63 to 99 with the average being 78 years.

All but three of the 22 participants were either previously employed or the spouse of someone who was previously employed in such manual occupations as farming, auto mechanics, and factory work. Most subjects had lived for a major part of their lives in rural areas of south central Kentucky.

Instruments

Two instruments were chosen to assess changes in the subjects' morale and sociability. One of these, the Philadelphia Geriatric Center Morale Scale (Morale Scale) (Lawton, 1972), was standardized on two groups of subjects. Two hundred and

eight subjects (mean age 77.9) were used from York House, an apartment dwelling for the relatively independent aged person, while the second group contained 92 subjects (mean age 78.8) who resided in a home for orphans and the aged.

Reliability was assessed in terms of internal consistency and test-retest correlations. After the 22 test items were divided by a priori process of matching content, the Pearson r between test halves, corrected by the Spearman-Brown formula, was .79 ($N = 300$). Test-retest reliability was assessed on several groups. Twenty-five York House subjects were re-tested after three months and a Pearson r of .75 was obtained. Fourteen home residents were readministered the test after five weeks and the correlation between tests for this group was .91. Another group of 25 subjects from a day care center class for older people demonstrated a correlation between testings, spaced one week apart, of .80.

Validity estimates were obtained by matching the morale scores of 199 subjects with criterion rankings of their morale made by trained observers who were familiar with the subjects. A correlation of .47 was obtained between the criterion rankings and morale scores. Cross validation was attempted using 40 subjects from York House South. Immediately following occupancy these subjects were administered the Morale Scale. Each tenant was then interviewed by a psychologist to learn more about his past interests, activities, social contacts, and his present evaluations of York House South. On the basis of these interviews the psychologist rated each subject on

the Life Satisfaction Rating Scale (LSR) (Neugarten, Havighurst, & Tobin, 1961). The administrator of the apartment complex was also asked to rate these tenants while using the definition of morale supplied by Lawton. Using 40 subjects on whom the psychologist and the administrator agreed in making their morale ratings, the correlation between Morale Scale scores and LSR ratings was .57.

Factor analysis yielded the following six factors: Surgency, Attitude Toward Own Aging, Acceptance of Status Quo, Agitation, Easygoing Optimism, and Lonely Dissatisfaction. Item content of these factors is found in Appendix A. Follow-up studies by Lawton (1975) and Morris and Sherwood (1975) replicated three of the original six factors (Agitation, Attitude Toward Own Aging, and Lonely Dissatisfaction). Lawton's sample included 828 subjects sampled from seven age segregated housing sites in urban areas of the East and Midwest and community residents chosen from two Eastern cities. In the Morris and Sherwood study, the Morale Scale was used with 269 applicants to a home for the aged in Boston and 406 applicants to a Massachusetts public housing project designed for the elderly.

In addition to the Morale Scale's appropriateness for use with the very old, its reliably reproduced multidimensional nature, and its adequate validity and reliability, the relatively short length of the 22 item scale did not cause fatigue or inattention in the often easily distracted elderly subject.

The 33 item Stockton Geriatric Rating Scale (SGRS) (Meer & Baker, 1966) was administered to provide an objective rating of behavior change which would be an useful adjunct to the

self report information acquired on the Morale Scale. This scale was developed on three samples of Stockton State Hospital patients diagnosed as having a chronic organic mental disease (organic) or a functional psychotic mental disorder (functional). There were 178 male organic patients, 165 male functional patients, 171 female organic patients, and 178 female functional patients in the 1963 sample. The 1965 sample contained a similar number of subjects in each of the above categories. A 50% random sample of new admissions during a 14 month period contained 72 male organic, 29 male functional, 52 female organic, and 41 female functional patients; and constituted the third group.

Factor analysis of the samples yielded four factors which were labeled Physical Disability (PD), Apathy (A), Communication Failure (CF), and Socially Irritating Behavior (SIB). Item content of these factors is presented in Appendix B. Reliability and validity estimates on these factors seem adequate. Internal consistency estimates on the above four factors were .92, .90, .77, .79, respectively. Interrater reliability was .88, .82, .70, and .75, respectively. Predictive validity was established by demonstrating that all factors, with the exception of SIB, were related to such outcome variables as discharge from the hospital, short visits away from the hospital, and death. It was also found that predicted changes (particularly a decrease in apathy as measured by the Apathy factor) occurred in factor scores of pre and post shock (EST) patients.

In addition to the well established validity and reliability and the replicable factor structure which is relevant to morale and sociability, another reason for choosing the SGRS was the relatively short time (10 minutes) in which it could be completed. This pragmatic consideration was necessary to insure cooperation from the personal care home administrator and the nurses who would be making the ratings.

Procedure

The first SGRS and Morale Scale measures were obtained on 46 geriatric clients during a three day period beginning May 10, 1976. Three weeks passed before the scales were re-administered. This time span, in which no special intervention programs were initiated by the geriatric staff, was designated the control period. Weather conditions, the perishable nature of already donated vegetable plants, and a wish by clients to initiate garden activities, prevented lengthening the control period. The control period was not begun earlier because an attempt was made to hold seasonal variations (most importantly temperature) somewhat constant throughout the control and experimental periods.

Because no formal training was necessary to administer the Morale Scale, which required only "yes" and "no" answers to verbally presented statements, both geriatric staff and psychology graduate students participated in administering the scale. The SGRS was completed, after observing the subjects for a three day period, by the personal care home administrator and a nurse he chose as being most sensitive to

and familiar with the clients.

On June 10, 1976, geriatric staff members and six home residents planted a 5 x 10 meter garden plot with tomatoes, green beans, cucumbers, onions, squash, and radishes. The garden was located in an area which was surrounded by three sides of the U-shaped home, thus allowing clients visual access to the garden by simply looking out their windows. During the next few visits to the home, geriatric staff asked clients to commit themselves to go outside and look at the garden for at least five minutes each week. Although this may seem to be a rather insignificant time investment, staff members thought that asking for a greater commitment would frighten many subjects into not participating. The staff thought if they could persuade clients to commit themselves to view the garden at least five minutes a week, then perhaps their interest and participation would subsequently increase. It was assumed that clients might fail to participate if initial demands were great.

As soon as a client committed himself to going outside at least once a week for five minutes and viewing the garden, his name was written on a large participation roster which was brightly decorated with pictures of vegetables. This roster was subsequently placed in a prominent location in the home. Each time a client went outside, if only to look at the garden, he was asked to mark a check in the appropriate place by his name. This public record was designed to act as a reinforcer for the clients involved in the garden. Several persons interested in the garden were acquired as new

clients by the geriatric staff during the experimental period. Because inadequate baseline data was available for these clients, however, they were excluded from the data analysis. Several younger clients (20 to 30 years) also participated in the garden. Because their ages were too deviant from the older clients, they were also excluded from data collection and analysis. It should be noted that although these clients were not included in the study's sample, their names were entered on the roster and they fully participated in garden activities. The first week of participation to be recorded on the roster began June 21.

Although organized gardening activities were usually conducted at least once a week by geriatric staff, clients were free to visit and work in the garden whenever they wished. These activities included planting and watering flowers and vegetables, cutting sheets into strips and using them to tie staked tomatoe plants, hoeing, raking, and harvesting. All vegetables harvested from the garden were used in meals served to home residents.

Although obtaining the final measures was planned for August 19-21, 1976, the home administrator was unable to complete the SGRS at this time. This forced the postponement of final data collection to three days beginning on September 8. Because of this alteration in plan--and because all but the cucumbers and tomatoes had already been harvested--turnips, collard greens, radishes, and kale were planted in mid August for a late summer harvest with the hope they would sustain interest in the garden.

Following the final set of measures, those clients who had participated in gardening activities on six or more occasions were designated as Group 1. All other subjects comprised Group 2.

Design and Data Analysis

As previously stated, a repeated measures design was used. Time elapse between the first and second measures was designated the control period, while the experimental period fell between the second and third measures. SGRS data was analyzed using a one way analysis of variance procedure (Edwards, 1968). Net change in morale from the control to experimental period was calculated for Morale Scale data and then subjected to the Wilcoxin Matched-Pairs Signed Ranks Test.

Results

Morale Scale responses for each client were rated as being either indicative or not indicative of improved morale on each of the three administrations of the scale. The net change in morale was then determined between the first and second administrations (control period) and the second and third administrations (experimental period). Finally, the net change in morale from the control period and the experimental period was calculated for each client.

These net change distributions were obtained on the Morale Scale's three factors (Positive Attitude Toward Own Aging, Agitation, and Lonely Dissatisfaction) as well as an overall measure which combined the three factor scores. These data are presented in Table 1. Although for Groups 1 and 2 greater positive change occurred during the experimental period than in the control period on the Attitude Toward Aging and Agitation factors, as well as the total Morale Scale measure, these positive changes were not statistically significant ($p > .05$). The active group (Group 1) also trended toward a positive net change in morale on the Lonely Dissatisfaction factor. One male client in the active group, who was clearly the most involved with the garden, demonstrated a net increase in morale of +10 from the control period to the experimental period. The factor on which the subject improved most during this time was Lonely Dissatisfaction.

The four factors on the SGRS (PD, AP, CF, SIB), along with a total score, were analyzed using a one way analysis

Table 1

Net Change in Morale from Control Period to Experimental Period

	Subject	Total Measure	Factor 1	Factor 2	Factor 3
Group 1	1	+10	+1	+2	+6
	2	0	-1	0	0
	3	-3	+4	0	-4
	4	-2	+1	+1	0
Group 2	1	-4	-2	-3	+2
	2	+4	+3	+1	+1
	3	-4	-5	+2	-1
	4	-4	0	-1	-2
	5	+5	+2	-1	+4
	6	+9	+3	+3	+5
	7	-8	-2	-3	-1
	8	+4	+2	0	0
	9	-2	0	0	-4
	10	+1	0	0	+1
	11	-6	-3	-3	0
	12	+6	0	+2	+1
	13	-2	-3	+1	+2
	14	+4	+2	0	0
	15	+9	+5	0	+4
	16	-4	+1	-2	+1
	17	-7	+2	+1	-5

Note. (-) signs indicate decrease in morale; (+) signs indicate increase in morale. For one client, only the SGRS was obtained. Hence her scores are not included in the above analysis.

of variance with repeated measures. A significant difference was noted between Groups 1 and 2 on the PD factor, $F(1, 20) = 4.60$, $p < .05$, suggesting Group 1 clients generally exhibited more activity, independent of the intervention program, than did those in Group 2. There was also significant variation in subjects' scores from measure to measure on the PD factor, $F(2, 40) = 4.53$, $p < .02$. No significant difference between groups across trials was noted, $F(2, 40) = .99$.

On the AP factor, no significant difference between groups was evident, $F(1, 20) = .25$. Nonsignificant variation in individuals' scores across measures was also noted, $F(2, 40) = 3.1$, $p > .05$, as well as nonsignificant difference between groups across trials, $F(2, 40) = .48$. Similar nonsignificant results were apparent in all conditions of the CF factor.

There was no significant difference between groups on the SIB factor, $F(1, 20) = 3.34$, $p > .05$. Significant variation in individuals' scores across trials was noted, however, $F(2, 40) = 13.95$, $p < .0001$. No significant difference was found in groups by trials, $F(2, 40) = .15$.

An overall SGRS measure was obtained for each individual on a trial by adding his four factor scores. No significant difference between groups was evident on this overall measure, $F(1, 20) = .84$. Nor was any significant difference noted between groups across trials, $F(2, 40) = .06$. Significant variation within individuals from trial to trial was evident, $F(2, 40) = 14.27$, $p < .0001$.

Discussion

Statistically nonsignificant results suggest rejection of the hypothesis that in both groups gardening would produce demonstrable positive changes in morale and sociability, as assessed by the Morale Scale and SGRS. However, this conclusion is not accepted without qualification.

The Morale Scale seems to measure relatively stable components of morale. An aged person's answers to such Morale Scale items as "Life is hard for me most of the time," "Things keep getting worse as I get older," and "I have a lot to be sad about," are not likely to easily change. In order for significant positive change to register on this scale, two possibilities exist. Minimal but pervasive positive change **may** become significant if the scale were administered to a large sample. Or, significant positive change might result from implementing an intervention program that produced a major impact on subjects in a smaller sample.

Both of these alternatives were not viable in the present study. The initial limited scope of the research, combined with a high client attrition rate, prevented sampling a large number of clients. In addition, previously existing responsibilities and workloads of both personal care home and geriatric staff understandably prevented them from providing the time and effort needed to develop the garden into a high status activity. This elevated status was necessary if the garden was to have a major impact on home residents.

It may be argued, however, that no intervention program of limited scope could be expected to change the relatively stable attitudes sampled in Morale Scale items. After seeing and conversing with clients in the home, it was apparent that more than a few were in ill health, felt alienated from their friends and family, and possessed little money. These people seemed to experience many of the basic societal and natural problems which accompany old age. It may be unreasonable, therefore, to expect such persons to experience significant positive attitudinal change without their basic needs first being met. Altering these persons' relatively stable attitudes would first require far sweeping changes in how our society views its older citizens; and, even then, the unfortunate inevitabilities of old age remain.

What are some ways society views its older citizens? Shrut (1958) states that fear of death is universal. The aged make us think about death, an inevitability many of us prefer not to deal with (Dempsey, 1975; Mack, 1973). There is also an unstated axiom in society which equates increasing age with increasing uselessness. Barrett (1972) describes the position in which many aged find themselves: "To live in a society where your resources are controlled for you and all decisions are made for you even though you feel perfectly capable, becomes a source of annoyance" (p. 55). A lack of tolerance exists for the eccentricities and problems which often accompany old age. We deal with these frustrations by sending the aged to be taken care of in institutions. Once in institutions, our priorities often lead us to spend only enough money to

provide for the aged's survival, caring little about their social, recreational, and status needs. Again, this must suggest to these institutionalized elderly the low esteem in which society holds them.

What might be more reasonably expected of an intervention program for the institutionalized elderly is bringing to the residents' lives experiences of excitement, interest, sharing with others, achievement, etc. This approach, although not curing the ills imposed by growing old and society's perception of the aged, would at least make life more tolerable. Evidence of these more transient, but nonetheless positive experiences, was clearly visible among clients during the experimental period. For example, a woman confined to her bed and unable to walk to the garden asked to be moved to a room with a window facing the plot. One day a woman expressed excited anticipation after identifying a small cucumber which she would pick in several days when it was at her favorite eating size. Statements by residents about seeing rabbits in the garden, or noticing that a vegetable was growing larger, indicated an awareness in these people of the world around them. Persons who usually sat next to each other, but said nothing, discussed the best way to plant beans or corn and which vegetables they enjoyed most. Smiles of appreciation after seeing flowers in bloom and eating fresh tomatoes, and statements such as "I need to get outside more often," after once being outside, occurred often. These were but a few of the many positive experiences observed in clients that were not reflected in their Morale Scale scores.

Several other considerations present themselves in this study. The significant difference between Groups 1 and 2 on the Physical Disability factor of the SGRS suggests that Group 1 may have contained clients who were previously motivated to engage in physical activity, and that those clients who were generally not motivated by physical activity and who rarely went to the garden comprised Group 2. If this is true, then efforts to motivate the participation of clients who were not active to begin with were generally unsuccessful.

Several factors seem to have contributed to this failure. For one, many Group 2 clients were physically handicapped and could not go outdoors without someone by their side. Because the home's staff was often too busy to supervise or encourage visits to the garden, the garden was accessible to handicapped clients only when the geriatric staff was present and had planned a visit to the garden. As mentioned previously, this usually occurred at least once a week. If there were a rainy week, or if a client felt ill on several consecutive staff visits and was unable to go to the garden, this minimal exposure made developing the garden's reinforcing properties difficult.

The public participation roster also seemed ineffective as a reinforcer for many clients. Although the poster's lettering was made large in an effort to compensate for poor eyesight, more than a few clients were unable to recognize their names either because of poor vision or some other inability. It was also difficult for those clients who used walkers, or otherwise lacked sufficient coordination, to mark the chart by themselves. In addition, many of the clients

who could read often did not know other people listed on the roster. This detracted from the reinforcing value which a public roster often possesses.

In retrospect, the chart's reinforcement properties probably could have been much enhanced if a small monetary compensation was associated with each check on the roster. Money seemed to be potent reinforcer for many of the clients. A minimal payment for each visit to the garden would probably have been an effective initial reinforcer, serving to get clients sufficiently involved so that they would at least be exposed to the garden's intrinsic rewards.

In summary, statistically nonsignificant results for Groups 1 and 2 indicate no significant changes occurred in client morale and sociability, as defined by items on the Morale Scale and SGRS. Based on behavioral observations and a positive trend in Morale Scale scores for both groups, however, it is the author's opinion that gardening, as an intervention program initiated by the geriatric staff being evaluated in this research, affected positive changes in clients. Although often not drastically changing clients' attitudes, these changes improved the quality of the lives they were living in an institutional setting.

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Appendix A

Philadelphia Geriatric Center Morale Scale: A Revision

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Philadelphia Geriatric Center Morale Scale: A Revision

Factor 1 Agitation

- ^aLittle things bother me more this year. (No)^b
- ^aI sometimes worry so much that I can't sleep. (No)
- I have a lot to be sad about. (No)
- ^aI am afraid of a lot of things. (No)
- ^aI get mad more than I used to. (No)
- Life is hard for me most of the time. (No)
- ^aI take things hard. (No)
- ^aI get upset easily. (No)

Factor 2 Attitude Toward Own Aging

- ^aThings keep getting worse as I get older. (No)
- ^aI have as much pep as I had last year. (Yes)
- Little things bother me more this year. (No)
- ^aAs you get older you are less useful. (No)
- ^aAs I get older, things are better/worse than I thought they would be. (Better)
- I sometimes feel that life isn't worth living. (No)
- ^aI am as happy now as when I was younger. (Yes)

Factor 3 Lonely Dissatisfaction

- ^aHow much do you feel lonely? (Not much)
- ^aI see enough of my friends and relatives. (Yes)
- ^aI sometimes feel that life isn't worth living. (No)
- ^aLife is hard for me much of the time. (No)
- ^aHow satisfied are you with your life today? (Satisfied)
- ^aI have a lot to be sad about. (No)

People had it better in the old days. (No)

A person has to live for today and not worry about tomorrow. (Yes)

^aItems selected as best representing factors 1, 2, or 3, respectively.

^bHigh morale responses indicated in parentheses.

Appendix B

Stockton Geriatric Rating Scale

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Stockton Geriatric Rating Scale

Factor 1 Physical Disability (PD)

The patient needs protection from falling out of bed or chair.

The patient needs protection from other patients.

The patient requires assistance when bathing or dressing.

The patient needs assistance when walking.

The patient is incontinent.

The patient requires assistance when eating.

The patient is confused.

The patient is in bed during the day.

The patient cannot maintain his personal appearance.

The patient requires a special diet.

Factor 2 Apathy (AP)

The patient never helps out on the ward.

The patient is never occupied in useful activity.

The patient does not socialize with other patients.

The patient never helps other patients without being asked.

The patient never starts conversations.

The patient has no regular work assignment.

The patient does not know any of the personnel by name.

The patient does not have ground privileges.

The patient needs supervision outdoors.

The patient is unwilling to do things asked of him.

Factor 3 Communication Failure (CF)

The patient does not understand others.

The patient does not make himself understood.

The patient does not respond to his name.

The patient expresses no interest in leaving the hospital.

Factor 4 Socially Irritating Behavior (SIB)

The patient is objectionable during the day.

The patient makes repetitive vocal sounds.

The patient threatens verbally to harm others.

The patient is objectionable during the night.

The patient accuses others of harming him.

The patient is destructive of materials around him.

The patient engages in useless repetitive motor activity.

The patient hoards apparently meaningless items.

The patient is often awake at night.

Note. Raters responded to each item by choosing one of three alternatives which best characterized a given client. These alternatives ranged from a minimum to maximum expression of that activity under consideration (i.e., never, sometimes, frequently). Two items concerned with night behaviors were omitted.