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THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO, PH.D., 1978

SOCIAL REINFORCEMENT OF ACTIVITY AND PROBLEM-SOLVING TRAINING IN THE TREATMENT OF DEPRESSED INSTITUTIONALIZED ELDERLY PATIENTS

by

Richard A. Hussian

A Dissertation Submitted to
the Faculty of the Graduate School at
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Approved by

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APPROVAL PAGE

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HUSSIAN, RICHARD A. Social Reinforcement of Activity and Problem-Solving Training in the Treatment of Depressed Institutionalized Elderly Patients. (1978) Directed by: Dr. P. Scott Lawrence. Pp. 108.

Thirty-six depressed patients over 60 years of age who were patients in a nursing home were divided into two experimental groups to test the relative effectiveness of an operant approach and a cognitive approach to reduce geriatric depression. Twelve subjects received social reinforcement for one week, five days a week for 30 minutes for their participation in an activity. Twelve subjects received problem-solving training for the same length of time. Twelve subjects served as a waiting-list control condition. During the second treatment week, the subjects were then randomly divided into the following conditions: problem-solving to problem-solving (PS-PS), problem-solving to social reinforcement (PS-SR), social reinforcement to social reinforcement (SR-SR), social reinforcement to problem-solving (SR-PS), waiting-list control to waiting-list control (WLC-WLC), and waiting-list control to an information control (WLC-IC). The Beck Depression Inventory, a self-rating scale (SRS), and the Hospital Adjustment Scale (HAS) were administered to the subjects. After the initial treatment week, the two experimental conditions (PS and SR) showed significantly lower Beck and SRS scores than the waiting-list control (WLC). After the random division of the groups (treatment week two) when compared with the waiting-list controls only those

groups which received problem-solving training significantly reduced their scores on the Beck. Comparison of gains made after treatment week two with those evident during the first treatment week showed that the SR-PS group had lower SRS scores than either the SR-SR or the PS-SR groups, and the continuous problem-solving group (PS-PS) showed a significant increase on the HAS relative to the WLC-WLC and continuous social reinforcement groups (SR-SR). At the two-week follow-up, only the PS-PS and PS-SR group maintained reductions on the Beck over the WLC-WLC group while, on the SRS, the PS-PS group maintained reductions over the WLC-WLC and continuous social reinforcement groups (SR-SR). Activity level and problem-solving ability scores increased only for the appropriate groups. The data suggest that one form of cognitive behavior modification, problem-solving training, is important in the reduction of depression among elderly institutionalized patients. The non-significant differences between treatment and the information control at follow-up suggests the efficacy of a decision-making component. This component was discussed in relation to a compensatory model of aging.

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CHAPTER I

INTRODUCTION

Recently, interest has developed in the physiology, cognitive processes, perception, and sensation of the aged population. The experimentally sound and internally valid studies almost universally support the thesis that there are age differences on selected tasks. These differences are in the direction of decreased performance and function in senescence (e.g., Birren, Butler, Greenhouse, Sokoloff, & Yarrow, 1963; Sinex, 1975; Spencer & Dorr, 1975; Strehler, 1976). Modifications of the experimental procedures, however, reduced or removed the observed age differences. For instance, initial discrimination learning may be facilitated in the elderly by the use of positive reinforcement for faster responding (Jarvik & Cohen, 1973). Also, when the allotted response time is increased (Arenberg, 1973) or the anticipation interval is lengthened (Monge & Hultsch, 1971) age differences decrease on learning tasks. On complex learning tasks, performance improves when an instructional set is induced (Birkhill & Schaie, 1975). Even decrements in physiological indices are less drastic than previously thought when the physical condition factor is controlled (Birren et al., 1963).

While the results of experimental research with elderly populations have increased, clinical process and outcome

studies are still in the infancy stage. Much of the basic research suggests that, with procedural and methodological modifications, there are no significant age-related changes which obviate psychotherapeutic intervention. Therefore, there are no reasons to delay clinical research with the elderly. There are two main reasons why attention should be focused on aging now. First, the proportion of elderly in the institutionalized population has increased by 25% over the past decade so that the special problematic behavior of this group demands increased awareness (United States Census, 1960; United States Census, 1970). Second, the increased interaction between physical dysfunction and psychological abnormalities within this population suggests that techniques which have traditionally been utilized with younger individuals may need to be modified or adapted to the problems peculiar to the elderly individual. For the most part the well-documented clinically-related research dealing with elderly populations has to date been of two types: intervention with psychopharmacological substances and operant conditioning techniques, which will be discussed later.

Geriatric psychopharmacology, with its basic rationale within the medical model, has only recently been a topic of specific research interest. Several well-controlled studies concerning symptom alleviation and potential side effects in the elderly (e.g., Birckett & Boltuch, 1972; Fann & Maddox, 1974; Fracchia, Sheppard & Merlis, 1971; Lu, Slotsky, & Cole,

1971; Smith, Taylor, & Linkous, 1974; Tobin, Brousseau, & Lorenz, 1970) have indicated that, with strict screening and continual monitoring, clinical gains may be achieved. However, adverse effects such as potential morbidity and even mortality are much more prevalent among the elderly than in any other age group. Bassuk and Schoonover (1977) point out that hypotension, arrhythmias, constipation, paralytic ileus, agranulocytosis, atonic bladder, cerebrovascular accidents, extrapyramidal disorders, and skin pigmentation are side effects which are almost exclusively found in the elderly drug-treated population. It has also been noted that adverse reactions to psychotropic medications may be responsible for geropsychiatric admissions into an institution (Learoyd, 1972) and drug-induced deaths (Bottinger, Norlander, Strandberg, & Westerholm, 1974). The treatment of depression in institutionalized elderly patients is particularly hazardous. The tricyclic antidepressants are the treatment of choice (Appleton & Davis, 1973) but motility in the excretory organs and cardiovascular side effects are very common among the aged due to the anticholinergic properties of the drugs (Horwitz, 1968). Special care must be taken during titration and intense monitoring of the physical systems is required. When tricyclics are contraindicated, antipsychotic medication such as a piperazine or thiothixene is used but these are much less effective (Bassuk & Schoonover, 1977). Lithium is also used infrequently but the toxic

and therapeutic levels are not far apart (Lerner & Schlossberg, 1971). Difficulties also arise due to the high incidence of sequestering and palming of medications among hospitalized elderly patients as well as the high cost of such medications which may lead to less than optimal drug utilization (Lamy & Kitler, 1971).

Somatic Therapeutic Programs

Other approaches have also been used in addition to pharmacotherapy. These alternatives include a variety of somatic treatment techniques. For example, alcohol has been used in the form of beer therapy in a geriatrics ward. This beer therapy resulted in a subsequent decrease in the amount of psychopharmacological agents used and an increase in ambulation (Volpe & Kastenbaum, 1967). However, Leake and Silverman (1967) have warned of side-effect potentiation when alcohol is combined with psychoactive agents and of the decreased alcohol tolerance among the elderly.

Electroconvulsive therapy (ECT) is used quite frequently in the treatment of psychological disorders in old age. In fact, ECT is supposedly the "treatment of choice" when self-destructive psychotic depression is present in order to immediately terminate the life-threatening behavior. Kalinowsky and Hippius (1969) suggest the use of ECT with organic brain syndrome diagnoses when a secondary depressive mood is present. Treatment usually consists of five or six shock treatments and is often followed by antidepressant drug

therapy (Whanger & Busse, 1976). The quality and generalizability of the studies of ECT efficacy is limited, however, due to the lack of controls and small sample sizes.

Vitamin therapy has recently been suggested for the treatment of impairments accompanying senility. Although a disproportionate amount of vitamin deficiency exists among the elderly, little research supports the implementation of vitamins as the sole therapeutic regimen. There is some evidence to indicate that vitamin supplements may even exacerbate senile impairment (Whanger & Wang, 1974).

Psychosurgery, no longer in vogue for the alleviation of most disorders within the elderly population, may still be utilized successfully with intensely depressed elderly patients. Post, Rees, and Schure (1968) report that bimedial leucotomies are somewhat successful in the treatment of depression in elderly patients as based upon informal self-report.

Non-somatic Treatment Approaches

Other treatment approaches of a less somatic nature have also been employed in the treatment of the elderly. These approaches include outpatient group therapy (Liederman, Green, & Liederman, 1967), and in-patient group therapy (Linsk, Howe, & Pinkston, 1975). Age-integrated life crisis groups (Butler & Lewis, 1973), intergenerational group therapy (Gottesman, Quarterman, & Cohn, 1973), familial day-care treatment (Rathbone-McCuan, 1976), and interpersonal

skills training (Berger & Rose, 1977) have also been reported to be successful. Cautela (1969) suggests that, with minor modifications, the behavior therapist may be successful in the use of modeling, relaxation training, desensitization, and thought stopping. One promising approach which has been systematized on a wide basis is reality orientation (Folsom, 1968; Harris & Ivory, 1976). Reality orientation is a daily treatment program which emphasizes learning factual information such as dates, the day's weather, and the menu for the next meal. Recital of this information by the patient is followed by reinforcement. Group reality orientation also involves the use of sign boards located at convenient sites in the geriatric facility. These sign boards contain the same types of information. Folsom (1968) reports that after six months of reality orientation, 49% of his sample of elderly mental patients improved to their prehospital adjustment levels and 57% showed improvement after one year of reality orientation.

Davis (1967) reports that activities which involve physical and recreational involvement are also useful as one element in a broader-based treatment regime. Birjandi and Sclafani (1973) followed 770 geriatric patients through an interdisciplinary team-approach therapy. The program stressed reinforcement for participation in such activities as group singing, art work, television, discussion groups and exercise groups. The tentative outcome appears encouraging. It is

interesting to note that activities are now required in family care and group homes for the elderly in this state (North Carolina Department of Human Resources, 1977). This program of activities should include social, recreational, diversional, work-type, volunteer service, and intellectual and educational activities. Recently several authors (e.g., Jenkins, Felce, Lunt, & Powell, 1977) found that elderly institutionalized patients show a low base-rate activity level and that this low rate is not due to the patients' personal disabilities, but due rather to the lack of available recreational opportunities in these institutions. These authors also report, though no objective measures were employed, that the elderly residents seemed to enjoy the newly provided recreational opportunities and their environment more after the intervention.

Aggressiveness and other inappropriate behavior in geriatric patients was reduced with music therapy (Boxberger & Cotter, 1968) and Brudno and Seltzer (1968) found that nine of eleven female senile geriatric patients showed improvement in functional capacity after eight months in a re-motivation group. However, as in most of the outcome research to date with the elderly, statistics and criteria of success are not specified.

Operant Conditioning Techniques

Some of the modifications used in the basic research paradigms which resulted in a decrease or an elimination of

age differences suggest the viability of another prominent approach to clinical gerontology, that of operant conditioning. For example, Coleman (1963) modified "rigidity", defined as the inability to shift attention among concepts in a problem-solving task, through positive reinforcement. Also, Bry and Nawas (1969) observed that the "rigidity" often found in elderly subjects on risk-taking problems is associated with reinforcement and reinforcement intervals in the subject's history. This modificability of performance strongly suggests that some of the observed age-related deficiencies are correctable. Finally, Ankus and Quarrington (1972) obtained normal fixed-ratio responding in 48 memory-disordered patients between the ages of 55 and 86. By varying the nature of the reinforcer (money versus fluid) previous abnormal responding on a lever press was eliminated. By changing the nature of the reinforcer to money, these elderly subjects, therefore, responded the same as younger subjects.

Operant conditioning has recently been utilized as a treatment approach with disorders in geriatric patients. MacDonald and Butler (1974) increased ambulation in wheelchair patients in a nursing home using selective reinforcement while Hoyer, Kafer, Simpson, and Hoyer (1974) used operant techniques for the reinstatement of verbal behavior in quiet and withdrawn geriatric patients. Hoyer (1973) modified a variety of inappropriate behaviors with contingent reinforcement with a geriatric patient population. An

operant behavioral management program for resocialization of "regressed" elderly patients was found to be successful as well (Mueller & Atlas, 1972). Spangler, Edwards, and Risley (1977) used behavioral prompts to increase continence, eliminate dehydration, and increase recreational behavior.

The use of operant techniques may prove to be even more efficacious when special considerations are employed within the paradigm. These considerations might include specifically tailored geriatric stimuli, responses, and reinforcers (Lindsley, 1964). Much more research in operant applications to clinical gerontology is needed.

One other treatment paradigm or collection of procedures which may prove valuable is a cognitive-coping skills approach. Very little of the experimental research indicates that there is a drastic decline in cognitive functioning with advanced years. The minimal decrease in qualitative functioning which accompanies aging in the non-physically ill individual certainly does not preclude a cognitive behavior modification approach (Birren & Renner, 1977). Declines in the cognitive processes such as memory, complex learning, and intelligence are not universal, diffuse or significant (Gaitz, 1973). However, there is little doubt that the general decline in metabolic and cellular efficiency, sensory and perceptual accuracy, and the physical system are problems that the elderly individual is likely to encounter. This decline, coupled with the challenging environmental, societal, and

financial changes may, indeed, precipitate a disproportionate amount of problematic overt and cognitive behavior. These additional sources of stress, the lowered resource pool and the decrease in homeostatic function (Timiras, 1972) may create psychological difficulties with which the elderly individual must "compensate" or adapt. Since these slight changes in the quality of function are a natural concomitant of the aging process, strategies for dealing with this almost inevitable consequence might be successful in the treatment and prevention of a variety of disorders associated with senescence.

Cognitive Strategies and Coping Behavior

Birren (1970) suggested a cognitive approach to problematic gerontological behavior.

> Study of the cognitive strategies used by older persons may be a very promising line of research particularly if one can isolate the strategies used by productive, competent adults. It is possible that such strategies and related tactics could be transmitted verbally. It is, however, questionable whether abstract strategies derived through experience can be transmitted effectively to younger adults without their having at least some of the intervening experience that led to the formation of the strategies. The concept of evolving cognitive strategies and tactics over the adult life span is, at minimum, a useful addendum to qualifying the results of our measuring instruments that purport to measure intelligence in the adult. The level of component capacities may be less critical in the adult than are the strategies that the individual uses in the deployment of these capacities. (p. 134)

One exciting approach along these lines is the problem-solving paradigm. This approach involves the teaching of more appropriate problem-attack skills so that the probability

of a correct or adaptive solution increases. This adaptive solution should be met with reinforcing consequences and the entire process should be naturally maintained. In situations where the natural contingencies cannot be easily manipulated or the variety of problematic situations are extremely complex, the teaching of more generalizable skills that can be used to deal with problems as they arise might be a better tactic than contingency management. Problem-solving is one attempt to provide the patient with general decision-making skills which can be used even when the situational difficulties may not be easily modified. Patients utilizing adaptive strategies to manage the difficulties should fare better when the negative and inescapable aspects of hospitalization cannot be modified.

Recently, researchers (e.g., Arenberg, 1973; Baltes & Labouvie, 1973) have shown deficits in non-clinical problem-solving skills among the elderly. However, it appears that these deficits are due to perceptual, not cognitive problems (Lee & Pollack, 1977). In this study, problem-solving ability decreased with age, particularly between the ages of 40 and 60. These authors also found that more time is needed for problem solutions with age. However, these authors found that there were no differences in the strategies used in the process of problem solution with age and that the deficits in problem-solving ability were due to a decline in field independence, the ability to extract figure from ground, not in higher order cognitive functioning.

Traditional Problem-solving Therapy

Giebink, Stover, and Fohl (1968) utilized a problem-solving approach on frustration responses in emotionally disturbed adolescents. These authors gave six boys aged 10 to 12 years a pool of frustrating situations from which the authors chose the fourteen most frequently chosen as personally applicable. A frustration questionnaire served as the dependent measure. The boys were either taught adaptive responses to these frustrating situations or served as no-treatment controls. Instruction involved a table game which included prompts for adaptive behavior. After treatment it was found that the group with the newly acquired skills showed more appropriate verbal responses to other frustrating situations and their adaptive behavior in real-life situations increased over the control group's.

Coche and Flick (1975) used problem-solving training in a group setting and found that, although hospitalization helped all three groups (training, no training, and a play-reading placebo group) the training group was rated as performing at a higher level than the other two groups and had shorter hospital stays than the placebo group. The problem-solving training in this study included four steps: bringing up the problem, clarifying the problem, generating alternative strategies, and estimating the feasibility of each alternative and selecting the best alternative. Platt and Spivack (1972) compared problem-solving ability in psychiatric

patients with problem-solving ability in the staff members. These authors defined the goal of their problem-solving method, means-ends thinking, as "the ability to bring to bear relevant and effective cognitive mediational processes when presented with an aroused social need" (p. 148). The authors presented both samples with nine stories each of which had a beginning and an ending. The middle section of each story was omitted. The subjects were then asked to provide a relevant means to tie the two extreme ends of the stories together and these responses were scored as either relevant, irrelevant, or nonexistent. Psychiatric patients in this study responded with less means-ends thinking and provided a lower percentage of relevant means. This may indicate that poor problem-solving ability may precipitate the necessity for hospitalization.

In another study, Platt and Spivack (1972) found that effective problem-solving thinking (means and ability) was associated with pre-morbid social competence in 103 acutely ill psychiatric patients. Ratings were based on family reports and hospital histories.

Petty, Moeller, and Campbell (1976) used support groups to teach mildly depressed elderly patients about normal aging changes as well as more effective problem-solving skills. This problem-solving training included brainstorming for non-depressive alternative behaviors, the generation of remedial ideas, homework, assertiveness training, relaxation

training, and behavioral contracting. Although the various treatment components were not isolated for analysis and the dependent measure was not specified, post-treatment improvements were reported.

These problem-solving approaches appear to be very similar to several cognitive behavior modification procedures such as self-instructional training. The main difference is the emphasis on situational specificity in the latter approach. Both orientations see appropriate management of difficult or ambiguous situations as being a learned skill. It may be that the means-ends approach taken by the non-behavioral researchers (e.g., Coelho, Hamburg, & Adams, 1974) is a global, generalized coping strategy while that of the more behavioral researchers (Goldfried & Goldfried, 1975) is a more specific subset of the former. At any rate, more adaptive problem-solving strategies are taught through modeling and reinforcement to replace the ineffectual pre-treatment levels of skill in both approaches.

Beck (1976), whose cognitive psychotherapy contains many of the same components, states:

> The sequence of scanning the situation and making decisions leads logically to self-instructions--verbal messages directing behavior. In the most commonplace instances a person gives himself instructions in order to achieve specific, concrete aims. (pp. 38-39)

This statement expressed the relatedness of a problem-solving paradigm and self-instructional methodology. Beck's approach to the treatment of emotional disorders, and

depression in particular, emphasizes the combination of a cognitive program with a behavioral program. The importance of the cognitive component is evident in Beck (1976, p. 268):

> Merely focusing on the symptom (for example, sadness, wish to die, retarded behavior) without designing the program to include simultaneous attitude change may produce only temporary results. In fact, this "improvement" may be deceptive in that a single outward characteristic of depression is apparently changed, but the central core of the depression is not touched. A patient who is persuaded to engage in more activity may appear "better" but then may commit suicide. It is essential, therefore, that the therapist be alert to signs of fundamental attitude change as well as signs of symptomatic improvement.

This is not to suggest, of course, that a behavioral approach alone will necessarily be ineffective or useless, but merely that cognitive processes play an integral role in depressive disorders and that modification of external contingencies may prove to be only temporarily effective. A combined cognitive and behavioral approach in three case studies has been shown to be effective in as little as two weeks (Rush, Khatami, & Beck, 1975). Rush, Beck, Kovacs, and Hollon (1977) compared a cognitive therapy approach alone with imipramine medication for the treatment of depression. Both groups showed decreases in depression, but the cognitive group showed greater improvement on the Beck Inventory, the Raskin Scale, and the Hamilton Rating Scale for Depression. Seventy-eight percent of the patients in the cognitive therapy condition showed marked improvements as did 22.7% of the pharmacotherapy group and 68% of the drug group re-entered treatment while only 16% of the cognitive group returned.

The need for a combination of the behavioral and cognitive approaches should be especially warranted with institutionalized persons since it is often difficult to modify the present environment to any great extent to insure long-term maintenance of behavioral gains even though immediate within-treatment gains may be found. In line with a combination approach, Beck (1976) suggests a four-pronged attack which combines participation in activities with a cognitive component. This approach includes: (a) the scheduling of activities, (b) cognitive reappraisal to identify depressive cognitions and avoidance responses, (c) alternative therapy which includes substitution of more positive interpretations of experiences and consideration of alternative methods of adaptation, and (d) cognitive rehearsal. This approach of Beck is similar to the general problem-solving discussed above and the more specific approach of D'Zurilla and Goldfried (1971) and Goldfried and Goldfried (1975).

Behavioral Problem-solving Training

The behavioral formulation of the problem-solving approach is based on the work of D'Zurilla and Goldfried (1971). These authors define problem-solving as a behavioral process:

> whether overt or cognitive in nature, which (a) makes available a variety of potentially effective response alternatives for dealing with the problematic situation and (b) increases the probability of selecting the most effective response from among these various alternatives. (p. 108)

A problematic situation is a situation where no alternatives are presently available to the individual when that individual is presented with a novel, ambiguous, complex, or conflicting situation which requires effective responding. These authors are careful to point out in this same germinal paper the similarities between this problem-solving approach and traditional behavior therapy.

> It should now be clear that the goals of problem solving and behavior modification are one and the same, namely, to stimulate behavior which is likely to produce positive consequences, that is, positive reinforcement, and avoid negative consequences, that is, negative reinforcement. Training in problem solving, therefore, may be viewed as one of several possible behavior modification techniques for facilitating effective behavior. (p. 109)

Goldfried and Goldfried (1975) have developed a five-stage therapeutic program which includes these stages: general orientation, operational definition of the situation and formulation of goals and conflicts, generation of alternatives (strategies), decision-making (selection of strategy and tactics), and verification of effectiveness (p. 104). These stages are very similar to those advanced by Krumboltz (1966) in his problem-solving technique of counseling. These steps are: (a) gathering alternatives, (b) gathering information about these alternatives, (c) estimation of probability of success with each alternative, (d) consideration of personal values and goals, (e) weighing of the values and possible outcomes for each alternative and (f) formulation of a plan of action.

The first stage indicated by Goldfried and Goldfried (1975), general orientation, is based upon the assumption that an individual's set and attitudes can affect the way they face a situation. During this stage, the treatment rationale is presented and the factors which may contribute to the occurrence of difficult situations are discussed. This recognition of problematic situations is accompanied by stressing the negative results of responding automatically, without thinking, when faced with a challenging situation. Common situations in daily life in which problems may arise are brought out and examples of common problems are explored. The client is taught to use the unpleasant feelings which often accompany the presentation of problematic events as cues or signals to explore the causes of these feelings. During the second stage, problem definition and formulation, the client is taught to define in operational terms all aspects of the problematic situation and to classify the elements of the situation as to their relevancy or irrelevancy. Goals and issues are identified and possible conflicts between goals are discussed.

The next stage is the generation of alternatives, in which possible solutions to the problem are generated through the method of brainstorming. This generation involves stating as many alternative solutions as possible without critically evaluating their likelihood of success. No judgments are made during this stage since it is assumed that a deferment

in judgment ultimately leads to more effective problem solving and that the generation of alternatives in large quantities will lead to a high quality decision (Parnes, 1967). When all possible alternatives are specified, the decision-making stage begins. Johnson, Parrett, and Stratton (1968) have suggested that subjects may require certain guidelines in the selection of the most appropriate strategy and tactics to pursue as well as in the estimation of the subjective utility of a decision. During this stage the consequences of the various alternatives are explored after a rough screening which attempts to eliminate highly unlikely or impossible alternative strategies from consideration. The personal, social, short-term, and long-term consequences of a particular action are explored and ranked according to the likelihood of occurrence and the likelihood of success. When the best alternative or alternatives are carefully selected, the client returns to the generation of alternatives stage to select the best tactics for the implementation of these strategies. Estimates as to the valence of the consequences of each tactic are then made. D'Zurilla and Goldfried (1971) summarize this stage:

> In the case of the selection of the best strategy to pursue in a problematic situation, the value of the strategy is judged against its likelihood of effectively resolving the major issues or conflicts. In the case of the evaluation of specific means of implementing the strategy selected, the effectiveness with which the strategy is implemented is used in estimating its value. (p. 119)

The final stage of problem-solving training is similar to the final stage (exposure phase) in stress inoculation training. After the course of action has been chosen, the client tries out this solution either imaginally or in an actual situation. This process is described by D'Zurilla and Goldfried (1971, p. 120).

> In order to deal with a problematic situation at more than just a hypothetical level, the individual must carry out the selected course of action, either in the life situation or by role-playing the situation, observe the various consequences of his actions, and test or match this outcome against his expected outcome. If the match is satisfactory, the problem-solving process can be terminated. If the individual finds the match to be unsatisfactory, however, he continues to "operate" (i.e., returning to the problem definition and formulation, generation of alternatives, and/or decision making), repeating this procedure until a satisfactory match is finally achieved.

If the problematic situation is handled effectively, the results of this success should prove to reinforce the sequence of problem-solving behavior and thusly, these behaviors should continue.

The relevance of this situational problem-solving approach depends upon the assumptions that psychological difficulties such as depression, can be caused or aggravated by inefficient coping skills and that these coping skills can be taught in such a manner as to be effective in a variety of problematic situations (Goldfried & Davison, 1976). These authors suggest that problem-solving training may be particularly appropriate with patients who have recently or soon will be experiencing role transition. This would include hospitalized and incarcerated individuals. The suggestion here is that the

self-control, which is believed to accrue after problem-solving training, will be helpful in dealing with newly acquired independence and responsibility after release. Problem-solving training might also prove to be helpful when the transition between institution and community is reversed. In a situation where dependence is the norm and previously successful strategies and tactics are inadequate or insufficient the individual may require clearly defined and systematic training in adaptive problem solving. One such a situation is entrance into an institution for the physical and/or psychological care of the aged. Typically the transition from home to institution is abrupt and the role contrast is striking. This transition, coupled with the deteriorations which accompany "normal" aging can lead to maladaptive responses. One such response, depressive behavior, is quite common in this population.

Geriatric Depression

Irrespective of the age of onset, the incidence of depression increases with age and the most severe depressions occur between 50 and 60 years of age. As Post (1972, 1976) has pointed out, the nigh incidence of depression in late life may be due to a variety of precipitating factors including bereavement, organic dysfunction, genetic predisposition, or, more likely, the aging process itself. Recent studies (e.g., Berry, 1975; Duffy, 1975) have also indicated that depression in the elderly is often precipitated by loss of

status, stress, institutionalization, and disease states. The diagnosis of depression among the elderly is generally reserved for significant changes in sleeping or eating patterns, a slowing of psychomotor activity, and a slowing of the cognitive processes. If it is true that depression is often due to causative factors which are characteristic of advanced years, it may be that the previously successful coping methods are not adequate to handle these new demands. With an increase in the number and variety of stressors and role transitions comes a decrease in the effectiveness of homeostatic mechanisms and personal resources (Timiras, 1972). This combination may easily lead to the characteristics that Beck (1976, pp. 275-278) summarizes as symptomatic of depression. These behaviors include inertia, avoidance, apathy, inactivity, withdrawal, hopelessness, self-criticism, lack of enjoyment in activities, suicidal wishes and exaggeration of problems and pressures. An intervention program, or a combination of treatment approaches, which would increase the aged individual's participation in activities or would provide the elderly individual with a general set of coping strategies might reduce depressive behavior. The decreases in depressive cognitions which accompany an increase in participation in activities have frequently been documented (Jeffers & Nichols, 1961; Kurasik, 1965). The quality, in terms of controls, of this research is not extremely high, however.

If it is true that engagement in activities leads to a decrease in depression among the elderly, then operant conditioning, which has been shown to be effective with the elderly in other problems (Hoyer, 1973; Hoyer, Kafer, Simpson, & Hoyer, 1974; MacDonald & Butler, 1974) might be used to reinforce or prompt participation in these activities. For example, McClannahan and Risley (1975) found that participation in activities among elderly institutionalized patients requires prompting before any engagement occurs. On the other hand, if depression results from the inability to cope with problematic situations such as physical incapacities, lack of stimulating surroundings, or role transition and new dependencies, problem-solving training might provide the patient with an adaptive coping strategy to prevent depressive responding. Or, as Beck suggests, a combination of these two approaches may be necessary to reduce depressive behavior well after the termination of treatment.

In summary, the high incidence and severity of depression among the elderly patients make an outcome study in this area appealing. In addition, the traditional treatments outlined above are limited in their effectiveness and experimental support. Since the cognitive and behavioral changes which accompany aging are not normally debilitating, prompt, efficient, and well-validated treatment methods need to be explored.

Hypotheses

Very little research has been conducted to evaluate psychotherapeutic effectiveness using an elderly population. It would be interesting and valuable to assess the effectiveness of any clinical treatment for the alleviation of a psychological disorder in the elderly, even in the small percentage of elderly individuals who are institutionalized. Due to the prevalence of depression in this population, clinically valuable data may be obtained by comparing a social reinforcement approach with that of problem-solving training. If modification of external contingencies is an important variable in the reduction of depressive behavior within this population then operant techniques to increase engagement in activities should be effective in the reduction of that depression. This should be more effective than the cognitive modification involved in problem-solving training. If, however, the way a person attempts to deal with existent problematic situations is the more important factor in depressive behavior, then the problem-solving approach should be effective in reducing depression. According to Goldfried and D'Zurilla (1969) maladaptive responses to problematic situations may be due to either (a) the effective responses are inhibited due to anxiety, (b) an effective response deficit, (c) the inhibition of problem-solving skills, or (d) the problem-solving skills are at a deficit. These authors suggest that ineffectual responses due to category (d), a

problem-solving skills deficit, would be most amenable to a problem-solving approach (p. 190).

This study attempts to compare an operant conditioning approach in which participation in available activities is reinforced, with a problem-solving program. A pilot study indicated that both methods can be effective with a geriatric sample. The training in problem-solving behavior is aimed at the teaching of institutionalized elderly patients to deal with problematic situations in an adaptive manner so as to prevent depressive reactions. A third approach is the combination of operant procedures (social reinforcement) with a problem-solving program in order to assess whether a package containing a behavioral and a cognitive component is more effective in the reduction of depression in a nursing home population than either component alone. In order to control for the effects of attention, the effects of remission, external therapeutic changes and the use of the assessment devices, a waiting-list control and information-control conditions are also included. It is hypothesized that the patients receiving the social reinforcement program will show more immediate reductions in depression than the patients in the problem-solving condition since the final stage of problem-solving training takes longer to reach than simply reinforcing activity participation. Problem-solving training should ultimately be as successful as the operant approach but should result in more maintenance of depression reduction.

This superiority at follow-up is hypothesized to result from the modification of problem-attack skills which should provide the patient with a more general utilitarian technique in a situation where external contingencies are not easily or permanently changed. In other words, engagement in activity should result in more immediate gains but the cognitive program should show longer lasting effects (maintenance) since under the former condition only one of a variety of variables is being addressed (activity level).

CHAPTER II

METHOD

Subjects

Thirty-six residents of a nursing home were randomly pre-selected from a resident population of 350. This sample was drawn from skilled nursing and rest home levels of care. Several non-random selections occurred before intervention and these are as follows:

1. Patients must meet the following criteria before their admission to the nursing home facility. The patients must be recommended by a physician holding privileges on the Medical and Dental Staff of the nursing home. Residents of Guilford County are given priority and make up approximately 75% of the resident population. No patients are accepted with communicable or infectious diseases, extreme mental derangement, or alcohol or drug addiction.

2. Patients were not subject to selection for this experiment if they were under the age of 60 at the time of baseline measurement. Patients who are blind or deaf were not included nor were patients on antidepressant medication. Medication utilization was determined by monitoring medication refill orders for one month prior to the pre-treatment phase.

3. Subjects who refused permission after the randomized selection were not included and other patients were randomly

selected from the acceptable population to replace these patients. The consent form used in this study is presented as Appendix A. A pool of ten subjects with high Beck scores was used to replace subjects who terminated. Five subjects died during the baseline condition, none during treatment, and three after treatment.

4. Approximately 70 residents met the criteria above and were given the Beck Inventory. The top 36 scorers were included in this study. Characteristics of the subject population are presented in Table 1. The mean age of the subjects was 73.61 years, ranging from 69.33 for the SR-SR group to 75.33 for the WLC-IC group. The average length of hospitalization was 2.8 years, ranging from 10.7 months for the WLC-WLC group to 99.5 months for the WLC-IC group. This latter figure was inflated greatly by one subject who had been hospitalized for 507 months. The diagnoses varied greatly.

These 36 subjects were randomly assigned to one of three conditions. Twelve subjects were assigned to the social reinforcement group (SR), twelve subjects to the problem-solving training condition (PS), and twelve subjects to a waiting-list or baseline control condition (WLC). At the end of the first training week, the twelve subjects in each of the experimental conditions were randomly divided into either a social reinforcement or a problem-solving condition such that, at the final assessment, there were six subjects exposed

Table 1

Subject Characteristics

Subject number	Age	Length of Hospitalization	Diagnosis[a]	Experimental Condition
1	77	1 year, 4 mos.	Cardiac irregularity	PS-PS
2	75	2 years, 4 mos.	Seizure disorder	PS-PS
3	79	2 mos.	CVA	PS-PS
4	61	1 year, 1 mo.	Anemia	PS-PS
5	76	2 years, 1 mo.	LE paralysis	PS-PS
6	80	11 mos.	Diabetes	PS-PS
7	84	1 year, 6 mos.	CHF, CVD	PS-SR
8	70	4 years, 1 mo.	Alcoholism	PS-SR
9	75	11 mos.	ASCVD	PS-SR
10	84	2 years, 3 mos.	Tic deloreux	PS-SR
11	65	1 year, 11 mos.	Chronic schizophrenia	PS-SR
12	61	7 mos.	CVD	PS-SR
13	72	3 years, 6 mos.	CHF, diabetes	SR-SR
14	60	3 years, 3 mos.	MS, ASHD	SR-SR
15	63	6 mos.	CVA	SR-SR
16	68	1 year, 2 mos.	Schizophrenia	SR-SR
17	80	2 years, 7 mos.	CVD, hypertension schizophrenia	SR-SR
18	73	6 years, 11 mos.	Parkinson's, depression, senility	SR-SR
19	87	5 mos.	ASCVD	SR-SR
20	77	3 years, 1 mo.	Diabetes	SR-PS
21	64	8 mos.	Respiratory diff.	SR-PS
22	85	2 years, 4 mos.	ASVD, CVD, APVD	SR-PS
23	72	2 years, 6 mos.	CVA	SR-PS
24	62	9 mos.	CHF	SR-PS
25	78	1 year, 5 mos.	Hypertension	WLC-WLC

Table 1 (Continued)

Subject number	Age	Length of Hospitalization	Diagnosis[a]	Experimental Condition
26	71	11 mos.	OBS	WLC-WLC
27	66	3 mos.	Renal insufficiency	WLC-WLC
28	82	4 mos.	CVD, ASVD, hypertension	WLC-WLC
29	61	2 years, 3 mos.	MI, CVA, CHF	WLC-WLC
30	90	2 mos.	Diabetes, CBS	WLC-WLC
31	77	2 years, 7 mos.	ASCVD	WLC-IC
32	81	10 mos.	CVD	WEC-IC
33	87	2 years, 8 mos.	CVD, diabetes	WLC-IC
34	66	4 mos.	CVA	WLC-IC
35	74	42 years, 3 mos.	Compulsive	WLC-IC
36	67	2 years, 9 mos.	Parkinson's	WLC-IC

[a]CVA = Cerebrovascular accident; CHF = Congestive heart failure; CVD = Cardiovascular disease; ASCVD = Arteriosclerotic cardiovascular disease; MS = Multiple sclerosis; APVD = Atherosclerotic peripheral vascular disease; OBS = Organic brain syndrome; MI = Myocardial infarction; CBS = Chronic brain syndrome.

to each of the following treatments: social reinforcement-social reinforcement, social reinforcement-problem-solving, problem-solving-social reinforcement, and problem-solving-problem-solving. Half of the subjects in the waiting-list condition were randomly assigned to an information control group while six remained in the no-treatment control. Treatment covered five sessions, 30 minutes per session for two weeks. The division provides a test for the effects of combined treatments and the order of treatments. A two-week follow-up was conducted and included in this paper while the results of a six-month follow-up are not included.

Subjects were compared on the basis of the difference scores on the Beck Inventory (Beck), the Hospital Adjustment Scale (HAS), and a self-rating of depressive behavior. Measures of activity and problem-solving ability were also assessed.

Treatments

Social reinforcement of activity. Twelve subjects who scored among the top 36 of those assessed on the Beck Inventory were randomly assigned to the condition receiving social reinforcement for participation in an activity during the first treatment week. These subjects were prompted to participate in either craft classes, collage class, or individual activities. These are activities which are held daily within the facility. The treatment process is broken down into five 30-minute sessions as follows:

Session 1: Pre-treatment assessment on the Hospital Adjustment Scale (HAS) and the subjective depression rating are given. The treatment rationale for the operant approach was then presented as follows:

> Many studies in the area of psychology have found that a person needs to keep occupied with an interesting task in order to keep from getting bored. Maintaining a fairly high level of activity, be it recreation, craft construction, reading, or playing games, is an extremely important factor in maintaining good physical and mental health.
>
> One of the things that may help is engaging in activities around the nursing home. But since you are not used to participating in the activities offered here, it might take a little time to get you started. Once you do participate, however, you will probably find that you are much happier than before.
>
> The treatment which we have selected for you is aimed at increasing your participation in your favorite activity here. It works extremely well like this. The two activity leaders and I will keep a record of your attendance and participation in the activity of your choice. This will also include how much you interact with others and your performance during the activity. If you stick with the activity program which you have chosen for a week or so, you will be rewarded by a friendly word or a gentle touch throughout the thirty minute a day activity. This should help to keep your enjoyment in the activity high. You might find, with time, that your appetite will pick up, that you will sleep better, and that you will just generally feel better. So how about giving this a try for awhile and see how it works. Okay, now let's pick an activity that you might enjoy.

The subject was then prompted to choose an ongoing activity on which to work.

Sessions 2-5: The activity of the subject's choice was set up for his/her participation at a convenient time. Two trained activity aides reinforced attendance, participation in the activity, interaction with other patients, and constant performance. A time sampling methodology was used

to record participation utilizing the record form presented in Appendix B. Each observation interval was two minutes. The two activities personnel were trained by the experimenter prior to the experiment on the use of this form.

The subject was considered on-task if he or she was either (a) in contact with their ceramic object or similar item or in contact with the appropriate tool (sandpaper, steel wool, paint brush, scissors, glue, etc.), (b) helping someone else as in "a", or (c) asking for advice, aid or feedback from the activity leader. The subject, in addition, had to be within one foot of the activities table without inappropriate verbalizations.

For each two-minute interval that the subject was on-task, the "Y" for that interval was marked. After every two continuous "Y's" were marked, a social reinforcer, such as "You're doing a nice job" or "That's good" was given and indicated on the form by a mark on the "R" in the second interval block. The data were summarized as the number of intervals in which on-task behavior occurred divided by the number of observed intervals. Reliability was calculated by comparing the experimenter's spot checks of active engagement to that of the trained staff member. The number of agreements to the total number of commonly observed intervals made up the reliability value. There were no problems observed or verbalized by the activities personnel with regard to any of the procedures.

After one week of activity participation, the Beck was administered to the subject and the HAS was filled out by a nursing staff member. The self-rating depression scale was administered three times during the week. Prior to the second week of treatment these twelve subjects were randomly divided into two groups of six subjects each. One group continued with the social reinforcement procedure (SR-SR) while the remainder received problem-solving training (SR-PS) as described below. At the end of this second treatment week another assessment took place for all twelve subjects using the Beck, HAS, and the self-rating scale.

Problem-solving training. The problem-solving program used with this population of elderly depressed residents follows that used by the behavioral researchers such as Goldfried and Davison (1968) and D'Zurilla and Goldfried (1971) and was aimed at the resolution of each client's problematic situations. The same two activities staff members, trained by the experimenter in problem-solving techniques, conducted the therapy along with the experimenter.

Twelve subjects who scored among the top 36 scores on the Beck Depression Inventory were randomly assigned to the problem-solving condition for the initial treatment week. The main goal of this problem-solving training is to provide a general coping strategy to deal more effectively with a variety of situational problems which may lead to depressive responses. This was done by training the subject to use the

problem-solving skills with existent problems. The problems generated by the subjects in the pilot study (with appropriate gender changes) were used in the training phase. These two problems are as follows:

> The patient is a 75-year-old man who lives in a nursing home much like this one. He lies in bed constantly, refuses to sit up in his bed or in the chair to socialize. Now Mr. B would like to have visitors, mainly his wife, but she drops in and tells him all of her problems and comments on how much worse he is looking since the last time she saw him. This results in Mr. B shunning all visitors, yelling at Mrs. B, and becoming more depressed. He loves his wife and needs her visits to keep in touch with life outside the nursing home. How should he go about handling this situation?
>
> The patient is a 52-year-old man who is confined to his bed and a geriatric chair. He is dependent upon the nursing staff to feed him and take him outside for fresh air and a change of scenery. When he needs something, he yells for attention and this disturbs the nurses and other patients on his wing of the building. The nurses, then, don't feel like helping him and, in fact, they are extremely busy most of the time. Mr. J feels badly because he knows that he is becoming a nuisance and that he cannot do much for himself. This irritates him more and he becomes even more objectionable and finds that he gets less and less of the things that he really needs. How should Mr. J handle things more appropriately?

After this training phase, problems generated by the subjects themselves were attacked by the problem-solving method on the last day of training. The treatment process was broken down into five 30-minute sessions as follows:

Session 1: Pre-treatment assessment on the HAS and the SRS occurred at the beginning of this session. The treatment rationale for the problem-solving condition was then presented.

Recently, an exciting new treatment for a variety of problems including depression and the blahs has been found. It is called problem-solving training and it works like this. Sometimes depression can be caused by the fact that a person feels overwhelmed by day-to-day problems. Now some folks have no difficulty in solving these little problems, but others often have difficulty in deciding just what course of action to take. Now, making decisions, choosing from alternative solutions and just recognizing what is the real problem can be extremely hard. What problem-solving training, which is what we will be doing, does is teach you how to go about solving your problems as easily as possible. It does this by teaching you how to deal with each of the steps involved in decision-making. These steps are: understanding that in real-life you are going to encounter problems all the time but that it is a skill to recognize problems as they arise. Second, once recognized, problems are solved better if they are defined properly and everything about the problem situation is known and organized in such a way as to help in the solution process.

Third, it is most important to state as many alternative solutions to the problem as possible no matter how crazy or impractical they may seem. It's best not even to question how crazy these alternatives are until later. The more possibilities the merrier.

Finally, you have to decide which alternative solution is the best. Best means which will benefit you and others the most and which is most beneficial, not only right now, but also in the long run.

We will, then, learn how to recognize problems, define them, come up with as many alternative solutions as possible, and then choose the best solution. Once you develop these skills we'll work on your own problems and hopefully find solutions which will make you feel a whole lot better. Okay? Any questions about what we'll be doing?

Session 2: General orientation regarding problem-solving training is the main focus of this session. This included discussion of the following topics. First, that problematic situations are normal in daily living and particularly in the situation in which the subject now finds him- or herself. Second, it was stressed that one can actively cope with these situations and need not sit passively by as

they occur. Third, it is essential that one be able to recognize these situations as they occur. Fourth, to efficiently solve the problem as presented it is necessary to inhibit the temptation to act impulsively when the situation arises. The process, in general terms, was then presented to the subjects in the following manner, similar to Siegel and Spivack's approach (1976, p. 369).

1. Recognition of problems.
   Problems are a part of real-life. Everybody has them. Some people are just better at solving them than others. The first step in successful problem-solving is to learn how to recognize problems. In this first step, you will be given two case problems to give you practice to be better at recognizing problems.

2. Definition of problems.
   After learning how to better recognize problems that exist with the sample cases, you will be given practice, with guidance, in how to define the problems clearly.

3. Alternative ways of solving problems.
   The third and possibly the most important step in problem-solving is looking at alternate ways of solving problems. There is usually more than one way to solve a problem and we will practice thinking about alternate ways.

4. Deciding which solution is best.
   The final step that you'll learn is how to evaluate different solutions to the problems and to try to make a decision about the appropriate course of action. You will look at the short- and long-term consequences of a particular solution and the consequences for you personally and for others if the solution were to be carried out.

Session 3: Problem definition and formulation was this session's focus. The subjects receiving problem-solving training were then given the two problematic situations. These situations were chosen since they would be most parallel

to the problems that face subjects included in this study and, thusly, should have been more easily assimilated than those derived by the experimenter. The therapist then helped to guide the subject in the direction of concrete problem definition and succinct conflict formulation.

Session 4: The subjects were then trained to generate alternative solutions. During this session it was stressed that the most efficient problem-solving results when a large number of alternative solutions are generated. This is the principle that quantity breeds quality. The second major principle that was stressed was that no judgments be made during this phase as to the relative efficacy of a particular alternative. These two principles were brought to bear in the brainstorming sessions. The subject, with guidance from the therapist, brainstormed for alternative solutions regardless of their relative merit.

Session 5: Decision making and verification are the final stages of problem-solving training. This stage included the assignment of values between -2 and +2 for each alternative generated. Three categories for the attachment of value were included: value of the consequences of that strategy for the subject, value of the consequences for others, and a category for the final outcome selected. Included during this session was also the generation of tactics, using the same brainstorming principles used during the generation of strategies. These tactics were the methods by which the

chosen strategy was to be carried out. These tactics were assigned values in the same manner as the strategies, and the highest valued tactics were chosen for implementation.

After the strategy and tactic(s) were chosen, the process of verification was undertaken. The subject was asked to imagine as vividly as possible carrying out the solution and to imagine the consequences of the implementation of such a strategy. If it was decided that the strategy was not likely to meet with positive results, the subject returned to the stage of generation of alternatives. This repetition occurred with only three subjects. If, however, it appeared that the solution was likely to produce positive consequences, the process of training was terminated. For all twelve subjects who received problem-solving training during the initial treatment week one of the two test cases was randomly chosen to be scored according to the scoring procedures presented as Appendix C. These test cases are presented as Appendix D.

Also, during this final session the subject's own problem situation was subjected to the same problem-solving process. The results of this procedure were entered on the problem-solving form presented as Appendix E. Some sample problems with their selected strategies and tactics are presented in Table 2. When a second week of problem-solving training was given (PS-PS) more practice took place and new problems were confronted.

Waiting-list control. The waiting-list control group consisted of 12 randomly selected subjects who were among

Table 2

Sample Strategies and Tactics
from Subjects Receiving Problem-Solving Training

Subject	Problem	Selected Strategies	Selected Tactics
1	Noisy roommate	1. Ask for room change.	1. Approach Director of Nursing.
2	No money for little things	1. Work in crafts, sell finished product.	1. Learn times for craft class. Observe class for a while. Participate.
		2. Help on ongoing paper route.	2. Ask present distributor. Keep savings in front office.
3	Unexciting food	1. Find and keep teeth.	1. Clean out drawers. Keep dentures clean.
		2. Speak to dietary.	2. Practice asking for food change. Pick foods now that you would like.
4	Noisy roommate (Radio too loud)	1. Get earplug for his radio.	1. Talk to roommate. Save money. Give earplug as gift.
5	No visitors	1. Write church groups.	1. Get stationery and stamps. Get addresses from activities personnel.
		2. Find friends from present setting.	2. Attend parties. Increase visitation.
6	Too many visitors	1. Set up times for privacy and post on door.	1. Choose private hours. Explain ahead of time to visitors. Check with nursing. Get materials for sign. Reinforce compliance on part of visitors.

the 36 highest scorers on the Beck Inventory. These subjects received the same assessment devices as the subjects in the two experimental conditions. This group was included to assess the extent of improvement due to spontaneous remission, expectancy of future treatment, and the assessment procedures themselves. The instructions to the waiting-list control subjects was as follows:

> I could tell from your score on that questionnaire that you are a bit depressed. We will be working on that shortly but we need to get a better idea just how down you really are. In a couple of weeks, we will begin a treatment which has been found to be effective with problems like yours. Just bear with me until we can get started. See you soon!

These subjects were divided randomly at the end of the second week. One group of six subjects will continue as the waiting-list control while the other six subjects will serve as an information-placebo group. After the two-week follow-up, all subjects in these two control groups were given the maximally effective treatment. Eight subjects were given treatment.

Information control. The six subjects who were randomly assigned to this group after the first treatment week served as a more realistic control than the waiting-list control subjects. The following rationale was given to these subjects:

> Thank you for your patience and for filling out all of those forms. What we are going to do today and the rest of the week as well is to talk about the aging process and I will provide you with the latest information regarding the normal process of getting older.

Maybe we can then see how your life has changed either in agreement with or in opposition to these latest findings.

Knowledge of transitions such as in normal development and aging may help you adapt to your own changes. There are a variety of areas affected by the passage of years, and we'll choose one to talk about each of the next five days.

1. intellectual changes
2. biological and physical changes
3. sensory and perceptual changes
4. memory and cognitive changes
5. social and economic changes

We'll also talk about a couple popular models or theories of aging, the disengagement and activity models, and see if you and your acquaintances fit into either model. If any time is left on any of the five days, we will read some passages from an excellent little book, Living Creatively as an Older Adult (Asquith, 1975). Do you have any questions before we begin?

Dependent Variables

The first dependent variable used in this study was the score on the Beck Depression Inventory (Beck, 1961). This scale is made up of 21 items in a multiple choice format. Split-half reliability was found to be 93% (Beck, 1961). The Beck Inventory (Beck) takes approximately five minutes to administer and score. The Beck was presented to each subject and read when necessary. The highest possible score, indicating maximal feelings of depression, is a 63. A copy of the Beck Inventory is given in Appendix F. The Beck was administered at the initial screening to the patients who met the criteria stated above. Those residents with the thirty-six highest scores were used in the study, including those kept in a subject pool for subsequent substitution. The Beck was also administered at the end of the first

treatment week, at the end of the second treatment week and at the two follow-ups.

The second dependent measure is the score on the Hospital Adjustment Scale (HAS; McReynolds & Ferguson, 1953). The HAS is a list of 90 statements related to the patient's general level of hospital adjustment and daily behavioral patterns. It was designed to indicate the extent of incapacitation within the institution as a function of illness. This scale, which takes approximately fifteen minutes to complete, yields four scores. The total score is based upon all 90 items. Normative data and percentiles are provided based upon the records of 518 patients. Inter-rater reliability was found to be .84 in one study, and the HAS separated hospitalized schizophrenics in remission from those not in remission at the 0.01 level (McReynolds & Ferguson, 1953, p. 8).

The rationale for the inclusion of the HAS in this study was twofold. First, the HAS acts as a measure of the patient's behavior based upon actual observations made by the nursing staff or aides. These personnel were blind as to the experimental condition of the subjects. Second, it would add clinical validity to this study if shown that adjustment to the environment was included as a dependent variable since this is an important and desirable end to any treatment approach with the institutionalized elderly.

The HAS was administered by the nursing home personnel knowledgeable as to the subject's behavior at the end of the baseline phase, the end of the first treatment week, the end of the second treatment week, and at the two follow-ups.

The third dependent measure employed was a self-rating scale of depression. This scale contained the following three items, each with ten possible responses. The first item involved the frequency of depressed feelings over the previous days. The second item addresses the intensity of these feelings and the third item involves the duration of these feelings of depression. This scale, which is presented as Appendix H, takes about ten minutes to administer and score. One composite score was used. The composite was determined by adding the three subscores and determining the mean self-rating score. The maximum score of 9.3 indicates the most severe depression rating. This scale was administered three times a week during baseline, the two treatment weeks, and at the two follow-ups.

Treatment Validity Rating

A rating of the subject's perceived feelings of validity and helpfulness was administered after the two-week follow-up. The rating form is presented as Appendix I.

General Survey

A two-item survey was given to the subjects who received either experimental manipulation. It was included to check

on the possible confound of shared components between the problem-solving and social reinforcement programs. Since the verification of problem-solving training may seem to be a reinforcement component, the five stages of problem-solving training are presented and the subject is asked to rank them in order of helpfulness. Since the social reinforcement program may lead to cognitive restructuring, the second-item asks the subject to comment on what he or she was thinking during the activity participation. The form is presented as Appendix J.

Experimenter/Therapist

The author served as the main therapist in the study. The author is a fourth-year graduate student in Clinical/ Experimental Psychology at the University of North Carolina at Greensboro. The author was familiar with operant procedures with the elderly through a two-year internship at the site of the experimentation and, through the pilot study, became efficient in problem-solving training.

Two staff members from the activities department served as trained recorders of the behavior while engaged in an activity. They were also trained by the experimenter in problem-solving training.

CHAPTER III

RESULTS

Activity Level

A comparison was made between the activity level of the subjects in the reinforcement condition and those undergoing problem-solving training. This comparison was made to validate the response enhancement aspects of the social reinforcement procedures. A two-tailed *t*-test for differences was calculated for the baseline period's activity level (pre-treatment) for both experimental conditions. Activity was measured as the number of two-minute intervals that the subject was on-task divided by the total number of intervals observed (usually fifteen). The results indicated that when presented with the opportunity to engage in activities without social reinforcement for participation (baseline condition) the groups did not differ significantly, t (22) = -0.049, df = 22, $p > 0.10$.

The subsequent comparison of the activity level of the subjects in the two experimental conditions conducted after the first treatment week showed a differential effect. There was a significant difference between the conditions after intervention, t (22) = -17.80, $p < 0.001$, w^2 = 92.9%. As predicted, the subjects whose performance was reinforced (SR) showed a significantly higher level of performance after the

initial therapy week than the problem-solving group. The group means are presented in Table 3.

Problem-solving Ability

A comparison was made between the two experimental conditions with regard to ability to solve sample problems before and after intervention. The criteria for scoring are presented in Appendix C.

Prior to the intervention there was no significant difference between the groups on their problem-solving ability, t (22) = 0.093, $p > 0.05$. After the first treatment week, however, the subjects who received problem-solving training showed significantly higher scores than the social reinforcement group, t (22) = 6.026, $p < 0.001$, w^2 = 60.6%. This finding indicates that the problem-solving training conducted during the first treatment week does, indeed, increase problem-solving ability. After the five sessions of the first treatment week all subjects in the PS condition had completed the final stage of problem-solving training.

The group mean problem-solving ability scores are presented in Table 3.

Pre-treatment

Although the 36 subjects were randomly assigned to one of the three conditions, a multivariate analysis of variance was conducted on the Beck, self-rating scale (SRS), and the Hospital Adjustment Scale (HAS) to insure initial equivalence

Table 3

Activity Level and Problem-Solving Ability: Group Mean Scores

Condition	Activity level[a]		Problem-solving ability[b]	
	Pre	Post	Pre	Post
Problem-solving training	.34	.48	88	208
Social reinforcement	.37	.84	86	85

[a]Activity level values determined by number of two-minute intervals subject was engaged in an activity divided by the total number of intervals observed.

[b]Problem-solving scores determined by the scoring system provided in Appendix C.

prior to the first treatment week. The pre-treatment means for each of the three groups are presented in Table 4 and are pictured in Figures 1, 2, and 3. Examination of these data suggests little pre-treatment difference between the groups. The MANOVA results, using Roy's Maximum root criterion, verified the equivalence, F (2, 33) = 1.209, $p > 0.05$.

Pre-treatment to Treatment Week One Differences

Difference scores were obtained on the Beck, SRS, and the HAS variables between the baseline week and the first week of treatment. The mean difference scores are presented in Table 4 and the group mean scores are presented in Figures 1, 2, and 3. Individual data are presented in Appendix K. The one-way fixed multivariate analysis of variance utilizing Roy's maximum root criterion on the three dependent variables yielded a significant F, F (2, 33) = 12.284, $p < 0.01$. Heck's modification was used to make this F more conservative (Harris, 1975, p. 300). The means of the discriminant function scores are presented in Table 5. The discriminant function mean scores show the amount of variability of the canonical variate determined by each treatment. As can be seen in the table, the order of magnitude of this mean function score is PS, SR, and WLC. The correlations between the canonical variate and the three dependent variables are presented in Table 6 for all multivariate analyses. These product-moment correlations indicate

Table 4

Group Difference Scores for Each Dependent Variable

Analysis	Condition	Beck	SRS	HAS[a]
Treatment Week One-Baseline	PS	6.58	2.39	-1.08
	SR	5.42	2.08	-1.00
	WLC	0.50	0.56	-0.83
Treatment	PS-PS	10.17	4.33	-2.00
	PS-SR	12.17	1.50	-2.83
	SR-SR	7.33	0.78	-0.67
	SR-PS	10.33	4.39	-1.00
	WLC-WLC	2.67	0.72	-0.67
	WLC-IC	1.17	0.72	0.00
Treatment Week One-Treatment Week Two	PS-PS	4.17	0.90	-2.00
	PS-SR	5.00	-0.67	-0.67
	SR-SR	2.67	-0.72	0.67
	SR-PS	4.17	1.72	-0.33
	WLC-WLC	1.17	-0.17	1.17
	WLC-IC	1.67	0.50	0.17
Follow-up	PS-PS	11.16	4.44	-3.33
	PS SR	12.20	1.13	-1.00
	SR-SR	2.20	0.73	-0.40
	SR-PS	10.00	3.67	-0.80
	WLC-WLC	-0.16	0.05	0.33
	WLC-IC	2.66	1.78	-1.17

[a]Negative values on the HAS indicate improvement.

[b]PS = Problem-solving training; SR = Social reinforcement for activity; WLC = Waiting-list control; IC = Information control

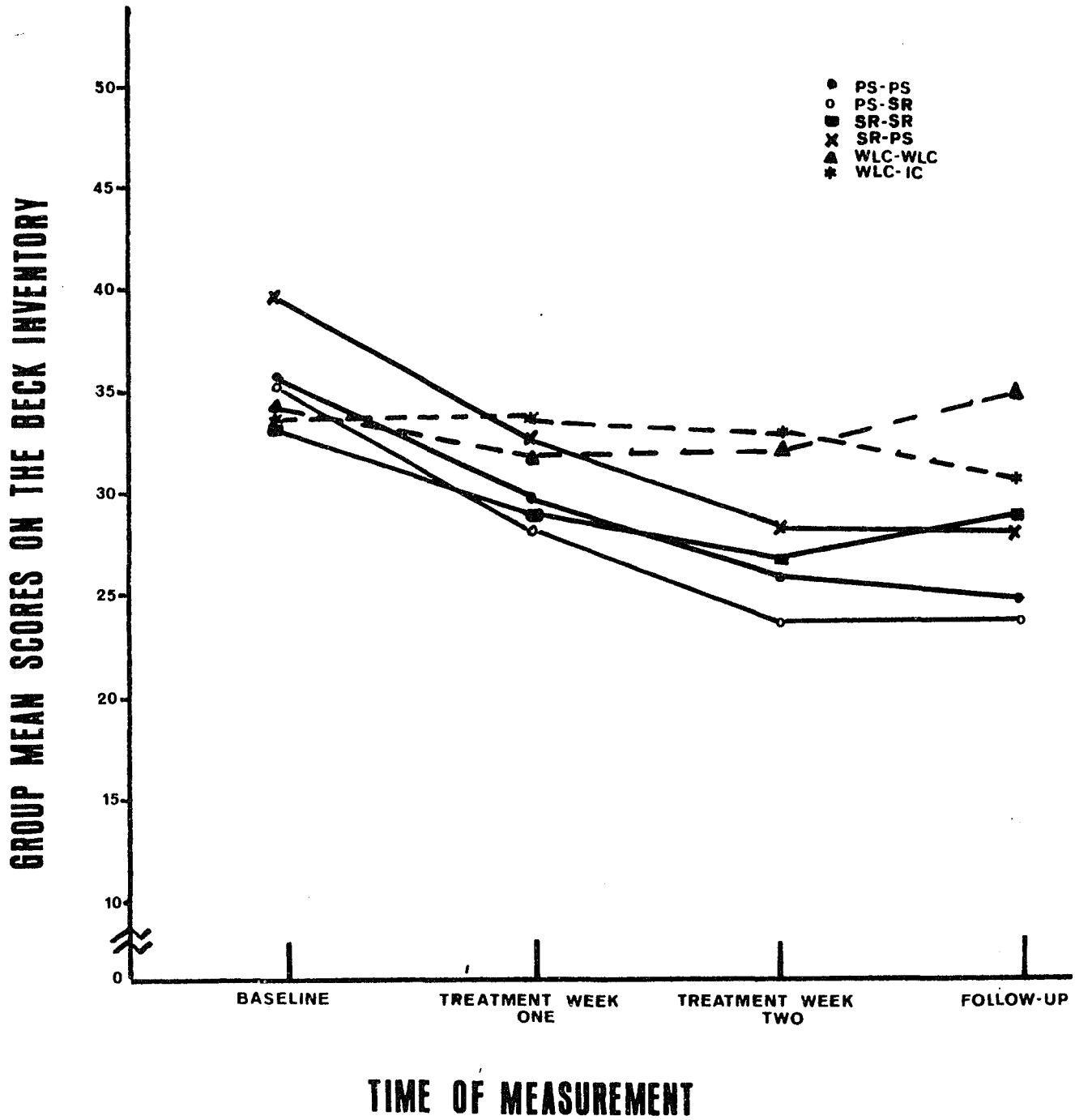

Figure 1. Group mean scores on the Beck Depression Inventory.

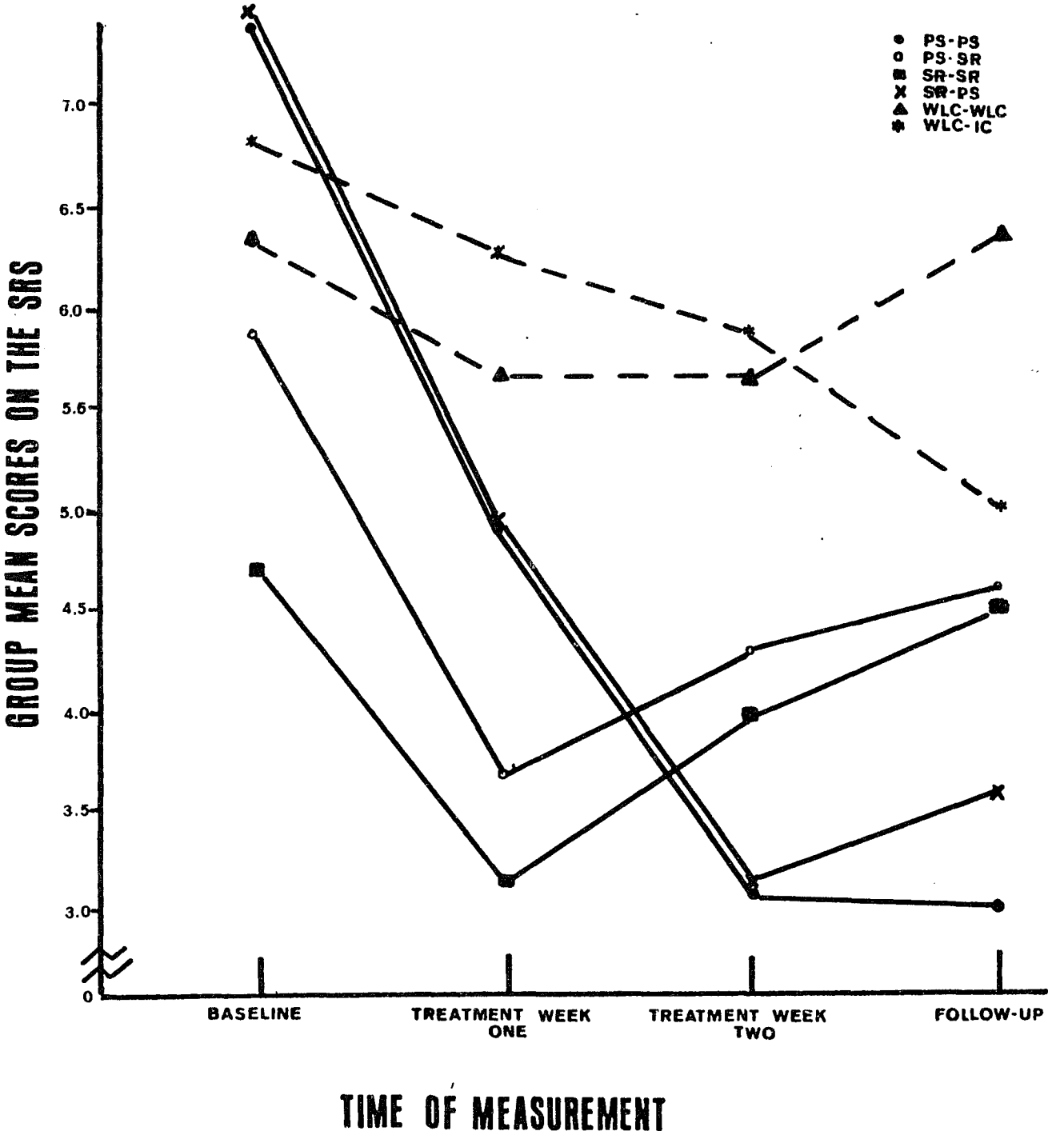

Figure 2. Group mean scores on the Self-Rating Scale.

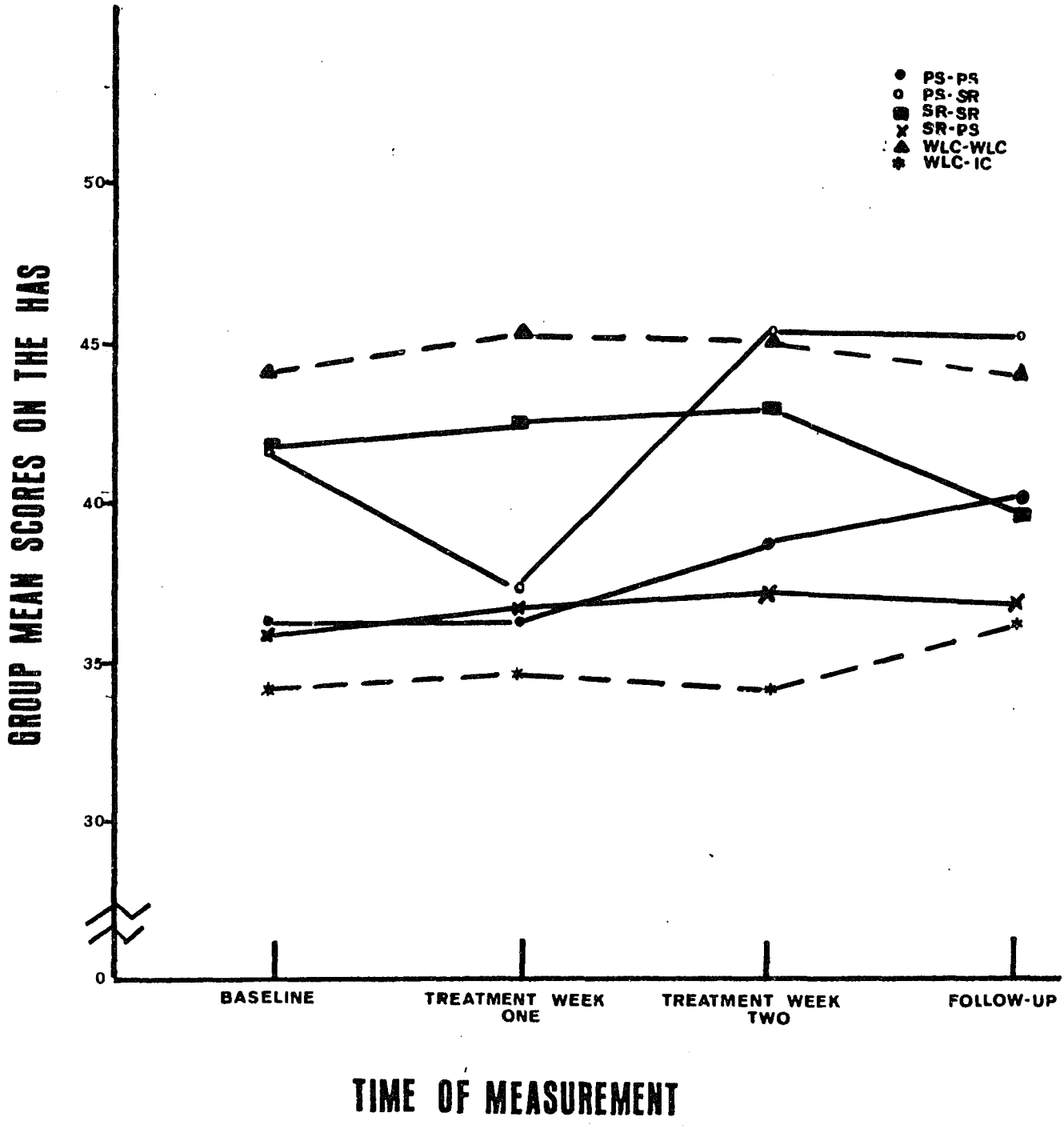

Figure 3. Group mean scores on the Hospital Adjustment Scale.

Table 5

Group Discriminant Function Mean Scores for Each Analysis

Analysis	Condition[a]	Mean Discriminant Function Score (First Variate)
Baseline	PS	-0.243
	SR	-0.318
	WLC	-0.211
Treatment Week One-Baseline	PS	0.402
	SR	0.341
	WLC	0.071
Treatment Week Two-Baseline	PS-PS	0.521
	PS-SR	0.555
	SR-SR	0.297
	SR-PS	0.495
	WLC-WLC	0.132
	WLC-IC	0.057
Treatment Week One-Treatment Week Two	PS-PS	-0.047
	PS-SR	-0.330
	SR-SR	-0.244
	SR-PS	0.040
	WLC-WLC	-0.100
	WLC-IC	-0.015
Follow-up	PS-PS	0.641
	PS-SR	0.324
	SR-SR	0.106
	SR-PS	0.473
	WLC-WLC	-0.011
	WLC-IC	0.220

[a]PS = Problem-solving training; SR = Social reinforcement for activity; WLC = Waiting-list control; IC = Information control

Table 6

Correlations Between the Canonical Variate and the Three Dependent Variables

Analysis	Canonical Variate	Beck	SRS	HAS
Baseline	0.073	-0.541**	0.429*	0.019
Treatment Week One-Baseline	0.744	0.839**	0.669**	-0.063
Treatment Week Two-Baseline	1.369	0.902**	0.552**	-0.351*
Treatment Week One-Treatment Week Two	0.608	-0.191	0.784**	-0.112
Follow-up	1.653	0.719**	0.762**	-0.385*

*$p < 0.05$

**$p < 0.01$

the strength of the relationship between the dependent variables and the combined canonical variate. These correlations, then, show the relative importance of the dependent variable in the overall combination on which the analysis is made. As can be seen in this table, the Beck and SRS scores are more closely related to the final canonical variate thus indicating more relative importance in the analyses than the HAS.

Although the ANOVA for the HAS was not significant, the Beck and SRS yielded significant results, F (2, 33) = 8.657, $p < 0.001$ and F (2, 33) = 5.496, $p < 0.008$, respectively. The Scheffé tests showed, for both variables, that the depressive ratings of the two experimental conditions were significantly less than those of the waiting-list control group. The problem-solving training condition did significantly better than the waiting-list control ($p < 0.01$) on the Beck and the SRS ($p < 0.05$). The social reinforcement group did better than the waiting-list control on the Beck ($p < 0.05$) and the SRS ($p < 0.05$) as well. The utility indices, computed with the main effect fixed from the computational formula derived by Gaebelein and Soderquist (1974, p. 10), showed that treatment accounted for 30% of the variance on the Beck and 20% on the SRS.

Pre-treatment to Treatment Week Two Differences

Difference scores between the pre-treatment week and the second week of treatment were analyzed as a check for

differential effects of the combination of treatments. This analysis was conducted on six groups of six subjects each. The MANOVA yielded a significant result, F (5, 30) = 8.216, $p < 0.01$, and the means of the discriminant function scores are presented in Table 5. The correlations presented in Table 6 show the relative importance of the Beck and the SRS. These means show the relative superiority of the PS-PS, PS-SR, and SR-PS groups.

The mean difference scores for the three dependent variables are presented in Table 4, and the group mean scores are pictured in Figures 1, 2, and 3. The ANOVA on the Beck revealed a significant result, F (5, 35) = 6.825, $p < 0.0004$, with the assigned treatment accounting for 44.7% of the total variance. The Scheffe' test showed that the group receiving two weeks of problem-solving training was superior to the combined waiting-list and information control group ($p < 0.05$). The six subjects who were switched from the problem-solving approach to the social reinforcement approach (PS-SR) had significantly higher Beck difference scores than either the waiting-list to information controls (WLC-IC; $p < 0.01$) or the continuous waiting-list group (WLC-WLC; $p < 0.01$). The subjects receiving the social reinforcement approach the first week and who were switched to the problem-solving approach (SR-PS) did better than the combined waiting-list and information controls (WLC-IC; $p < 0.05$). Those subjects receiving two weeks of the social reinforcement approach (SR-SR) did

not show significantly greater reductions on the Beck than either control combination.

The ANOVA on the SRS was significant, F (5, 35) = 4.950, $p < 0.002$, and the utility index indicated that 35.4% of the variance was accounted for by treatment. The Scheffe' post-hoc analysis did not yield any group differences, although there was a trend which indicated that the two groups who received problem-solving training the second week of treatment (PS-PS, SR-PS) showed the greatest reduction in self-rated depression.

Treatment Week One to Treatment Week Two Differences

Differences of treatment efficiency between the two weeks of therapy were included to show any order effects. Again, the analysis is based upon six groups of six subjects each. The MANOVA yielded a significant result, F (5, 30) = 3.649, $p < 0.01$, and the means of the discriminant function scores are presented in Table 5. These means do not reveal a strong difference between the conditions. Table 6 shows the relative importance of the SRS. The second highest correlation (Beck) is not reflected in the ANOVA's.

The mean difference scores for the three dependent variables are presented in Table 4. The comparison of the changes between the two treatment weeks did not result in differences on the Beck, F (5, 30) = 1.965, $p < 0.112$). However, a significant ANOVA was obtained on the SRS, F (5, 30) = 2.790, $p < 0.034$, and treatment accounted for 19.9% of the

variance. The Scheffe' analysis showed a significant difference between the SR-PS condition and the continuous social reinforcement condition (SR-SR; $p < 0.05$) and between the SR-PS condition and the problem-solving to the social reinforcement condition (PS-SR; $p < 0.05$).

For the first time, a significant ANOVA for the HAS was obtained, F (5, 30) = 3.041, $p < 0.024$), with a utility index of 22.1%. The only differences revealed by the Scheffe' analysis showed that the continuous problem-solving condition (PS-PS) was superior to both the continuous waiting-list condition (WLC-WLC; $p < 0.01$) and the continuous social reinforcement condition (SR-SR; $p < 0.05$).

Pre-treatment to Follow-up Differences

Analysis of the follow-up data yielded a significant MANOVA, F (5, 27) = 8.926, $p < 0.01$. The means of the canonical variate are presented in Table 5, and the group means are presented in Figures 1, 2, and 3. Table 6 again reveals the relative importance of the Beck and SRS over the HAS. Analyses of the Beck and SRS again yielded significant ANOVA's, F (5, 27) = 6.084, $p < 0.0009$ (UI = 43.5%) and F (5, 27) = 5.678, $p < 0.001$ (UI = 41.5%), respectively. The Scheffé analysis of the Beck means showed that the only differences which occurred at follow-up were between the problem-solving to social reinforcement condition (PS-SR) and the continuous waiting-list condition (WLC-WLC; $p < 0.05$) and between

the continuous problem-solving group (PS-PS) and the same waiting-list group ($p < 0.05$). The continuous problem-solving condition (PS-PS) did significantly better than either the WLC-WLC or SR-SR groups on the SRS ($p < 0.05$ for both comparisons). The lack of superiority of the treatment groups over the WLC-IC condition suggests a possible therapeutic effect for the information control procedures.

Correlations among the dependent variables are presented as Appendix L. These values are Pearson product-moment correlations.

According to the clinical cut-off scores provided by Beck et al. (1961) two subjects went from moderate or severe depression to mild or no depression in the PS-PS group; two in the PS-SR group; two in the SR-SR group; and none in the SR-PS, WLC-WLC or WLC-IC groups at follow-up.

Reliability

Reliability measures were taken when the subjects were exposed to the social reinforcement condition. This condition applied to 18 subjects (SR-SR, PS-SR, and SR-PS). Reliability was calculated as the number of two-minute intervals in which the observer and the experimenter agreed as to the participation of the subject divided by the total number of common intervals observed. Reliability scores for each week, in percent form, are presented in Table 7. The overall inter-observer reliability score was .935.

Table 7

Mean Reliability Scores Between Experimenter and Observers

Week	Observer 1	Observer 2
Baseline	.88[a]	.80
Treatment Week One	.95	.95
Treatment Week Two	1.00	.98
Follow-Up	.98	.96
Mean Reliability	.95	.92

[a]Pearson product-moment correlations.

Treatment Validity

The treatment validity form was administered following the assessment at the two-week follow-up. The results are presented as Appendix M as group means. The four treatment conditions and the WLC-IC were seen by the subjects as being equally helpful and valid.

General Survey

The general survey was administered following the follow-up assessment and the administration of the treatment validity rating. Each subject who received problem-solving training was asked to rank the five stages of problem-solving in order of helpfulness. Eighteen subjects had received this training. Sixteen subjects answered this question either fully or partially. These subjects ranked these stages, in order of helpfulness: decision-making, generation of alternatives, problem definition and formulation, verification, and general orientation. It is important to note that the verification stage was ranked fourth of the possible five alternatives. This low ranking supports the fact that the reinforcement aspects of problem-solving training were not crucial.

Fifteen subjects who had received the social reinforcement program (PS-SR, SR-SR, SR-PS) answered the second question. The most common response, "I was trying to do well," was followed by "I was trying to stick to it." Only two subjects

mentioned that they felt better about things by working on the activity.

In summary, the problem-solving component was shown to be important in the reduction of depression and, in fact, the continual problem-solving group showed the greatest maintenance at follow-up. Two weeks of the social reinforcement program did not result in relative depression reduction.

CHAPTER IV

DISCUSSION

As Beck (1976) has suggested, a combined behavioral-cognitive approach is optimal in the treatment of depression. Depression is thought to contain both behavioral and cognitive response elements and, thus, a treatment combining these two approaches should be superior to either one alone.

Problem-solving training and social reinforcement of activity were compared to a waiting-list control in the treatment of depression in an elderly sample. This manipulation was conducted in order to measure the relative effectiveness of an operant approach with a cognitive approach. These groups were subdivided in order to measure whether the order of treatments was important.

After one week of intervention, depression self-ratings and scores on a depression inventory showed significant decreases. After dividing the groups for the second treatment week, continual reductions occurred on the Beck for the original problem-solving group whether social reinforcement or another week of problem-solving was added. Slightly less significant reductions continued for the original social reinforcement group. On the self-rating scale (SRS), which measures frequency, intensity, and duration of depressive episodes, further reductions occurred for the continual

problem-solving group (PS-PS) but only for the social reinforcement group when problem-solving was added (SR-PS). On the HAS the original problem-solving group made slight improvements after an insignificant initial decrease. The continual social reinforcement group continued to show a slight increase in hospital adjustment.

In general, the order of treatments was of little importance as long as the treatment contained one week of problem-solving training. Since the time required to show efficacy was the same for both initial treatments (PS and SR), the hypothesis that the application of social reinforcement would result in quicker gains received no support.

As hypothesized, the application of the two methods of treatment resulted in significant reductions in depression. One week of intervention was sufficient to reduce subjective depression in this population of elderly nursing home residents. Unfortunately, there was no concomitant increase in hospital adjustment for either group. This nonsignificant finding may be due to either of two factors. First, one's adjustment to the hospital setting involves much more than the level of subjective depression, so that a reduction in depression would not be reflected in overall adjustment. In fact, the items on the HAS which might reflect symptomology of depression did appear to change more than the other items. These items included "The patient stays by himself," "The patient doesn't mix with other patients," "The patient is

interested in nothing," and "The patient would sit all day if not directed to an activity." Second, as indicated by the significant increase on the HAS between treatment week one and two for the continuous problem-solving group (PS-PS), the behavior which is sampled by the HAS may take longer to change significantly than depression ratings. The fact that the only significant change which occurred did not maintain for the follow-up may be due, in part, to the fact that about half of the subject population was relocated between the termination of treatment and the two-week follow-up period. The effects of relocation to a new facility among the elderly are well documented (e.g., Killian, 1970; Lawton & Yaffe, 1970; Pino, Rosica, & Carter, 1978). Adjustment may have been increasing in the old facility but this did not generalize to the new facility. This relocation and new adjustment process may well have erased the gains made by the continuous problem-solving group on follow-up analysis.

The most interesting aspect of this study is the comparison made after the groups were randomly divided. This division resulted in the following conditions: PS-PS, PS-SR, SR-SR, SR-PS, WLC-WLC, WLC-IC. The only differences that were revealed were on the Beck, although, as the group means in Figures 1, 2, and 3, and the difference scores in Table 4 indicate, the two groups that received problem-solving training the second week (PS-PS, SR-PS) tended to show larger reductions on the self-rating scale (SRS). On the Beck, only

those conditions which included problem-solving training (PS-PS, SR-PS, PS-SR) showed significant reductions over the waiting-list control. This suggests that this form of cognitive behavior modification is a beneficial component of the treatment of geriatric depression. It seems that, although selective social reinforcement of activity reduces depression more than no treatment, this approach when bolstered by problem-solving maintains the initial gains for more than one week.

The comparison between the first and second treatment weeks showed that self-rated depression was reduced significantly more for those subjects receiving problem-solving after social reinforcement (SR-PS) than either the continuous social reinforcement group or the PS-SR group. This result indicates that for the SRS, a combined social reinforcement problem-solving program, in that order, may be superior to social reinforcement following problem-solving (PS-SR) or a continuous reinforcement approach (SR-SR). It may be that the initial increase in activity brought about by the social reinforcement program made it easier for the subject to make use of the problem-solving training which followed. It may also be that the individualized attention of the problem-solving approach was found to be superior to the group activities when it immediately followed the initial week of group activities.

The superiority of the continual problem-solving approach (PS-PS) over the waiting-list control and continuous social

reinforcement groups on the hospital adjustment measure (HAS) is particularly striking. When the analysis for order of treatments is studied, first versus second treatment weeks, only those subjects who received two weeks of problem-solving training showed significant increases in their adjustment. Although this increase was not a significant change statistically, it may indicate that, given training of sufficient length, these very important skills may be increased to a clinically significant degree. The problem-solving approach was designed to teach the skill of problem-solving, which may then be applied to daily difficulties and newly occurring problems. It follows then that two weeks of continuous problem-solving training would result in better adjustment than would less problem-solving training, an increase in activity level, or no treatment.

The two-week follow-up supports the general trend that the inclusion of problem-solving training is a necessary and effective procedure. On the Beck, only the continual problem-solving condition (PS-PS) and the PS-SR condition faired better than the waiting-list control groups while on the SRS only the continuous problem-solving group (PS-PS) showed greater reductions in depression than the WLC-WLC condition. The superiority of the PS-PS group over the SR-SR group on the SRS at follow-up agrees with the hypothesis that a cognitive therapy is important for maintenance in the hospital setting. It appears that an increase in activity level alone

does not result in long-term reductions in depression. Even though activity level is related to depression and initially the increase in activity is concomitant with a decrease in depression, modification of this one behavior does not result in sustained reductions in depression among the elderly. This lack of maintenance occurred although the activity was still offered and participation by the elderly resident remained high. This result suggests that activity programs in nursing homes and long-term care facilities, while they may be useful initially, need to include a more problem-solving approach as well, to insure maintenance. In other words, it seems that active engagement with a part of the environment is not sufficient to reduce depression for a long period of time. However, the modification of cognitive behavior, in the form of problem-solving training, may itself lead to this goal. With regard to Beck's notion that a combined behavioral-cognitive approach is optimal in the treatment of depression (Beck, 1976), it appears that a combined approach tends to be superior to no treatment.

Compensatory Model

The results of this study fit nicely into the compensatory model as discussed in the first chapter. According to this model, the elderly individual experiences various physical, sensory, and perceptual changes as a result of normal aging. Intrinsic mutagenesis, along with possible

environmental and stochastic input, causes slight deterioration which may lead to the maladaptive behavioral responses often observed among the elderly such as rigidity, withdrawal and depression. Therefore, a possible point of intervention would be between the awareness of these physical developments and the negative adaptations which normally result. A problem-solving approach can be seen as a method of training of positive adaptive skills to increase the elderly individual's ability to compensate more appropriately to the changes which are occurring. This would be particularly true for elderly institutionalized individuals.

These adaptive skills probably include the learning of more rational strategies to handle systemic changes which accompany aging. Instead of passively or inappropriately dealing with memory impairment, slower reaction time, deficits in visual and auditory acuity, and changes in physical appearance, the individual can actively adapt to these changes in a more appropriate way. By being better able to define problems and come to decisions, the individual need not withdraw, become isolated or depressed when these normal changes occur. Active attack regarding one's acceptance of these natural systemic changes as well as external changes (e.g., loss of loved ones, retirement, decreased income) may create more complete acceptance on the part of the elderly individual. It is important to break the traditionally observed chain between loss of resources and negative responses to these losses and decrements.

According to the compensatory model, depression among the elderly is a response to the physical changes which are taking place in senescence. Awareness of the normal aging changes, deciding how to best handle these changes, and the implementation of these optimal decisions, may well be enough to reduce or eliminate the maladaptive response (depression). Engagement in activity, particularly the short periods included in this study, does not seem to be an adequate compensatory behavior. It may even be that participation in activities enhances the elderly individual's awareness of the decreases in performance ability which accompany aging. At any rate, a cognitive approach does appear to be better able to handle negative responses (depressive behavior) to senescence.

Given the superiority of the continuous problem-solving training condition, the superiority of the decision-making stage of the problem-solving training, and the possible therapeutic aspect of the information-control procedures, it could be argued that a rational, decision-making technique helps the elderly individual to adapt more appropriately to the natural changes which are taking place. The information control procedures can be seen as containing cognitive components and this aspect of the procedure may have produced the slight improvement for the WLC-IC group between the termination of treatment and follow-up.

Subject Population

Several special considerations must be reported with regard to this study. First, the nature of the subject population which was studied dictated the need for an additional subject pool for substitution purposes. Since many of the subjects in this study had major physical ailments subject mortality was a real problem. Five subjects died during the baseline phase and three more subjects died between the termination of treatment and the two-week follow-up. These three subjects were in the PS-SR, SR-SR, and SR-PS conditions. A pool of ten subjects who scored similarly to the original subjects on the Beck was held in reserve and used to replace the subjects who died during baseline. If this procedure is not followed in research with similar subjects or even non-institutionalized elderly subjects, one may easily be left with unequal groups and small numbers of subjects per cell. This would lead to difficulties in interpretation and an overly conservative MANOVA analysis. The loss of the three subjects between the termination of treatment and the two-week follow-up did not appear to affect the analyses to a great extent.

Implementation of Treatment Procedures

Second, the nature of the problem-solving procedure necessarily differed among those subjects receiving the training. Although it appears that problem-solving strategy is useful with older adults and, as Birren (1970) suggests,

the clinical utility of this approach may be more important than the level of component functioning, a great deal of variability in capability existed. Due to different educational backgrounds, levels of intellectual functioning, and physical illness, the actual problem-solving training itself varied somewhat among these subjects. The increased length of time to successfully solve problems found in the Lee and Pollack (1977) study did not appear to affect the outcome of the problem-solving training. However, due to the wide variability in assimilation during the process, special considerations were necessary. Some subjects required that the problem-solving rationale and prompts be delivered more than once. Once in a while, perhaps due to slight memory deficits, the stage of problem-solving training covered the previous day needed review before the new stage could be implemented. In particular, it was observed that the generation of alternatives stage was troublesome. Many subjects reported that they could not see the necessity for generating every possible alternative strategy or tactic when some were clearly impractical. Many subjects also reported that the verification stage would be more useful had it been conducted *in vivo* rather than imaginally. By increasing the preparation for the brainstorming process and by substituting actual behavioral rehearsal during the verification stage, the process and outcome of problem-solving training with the elderly may prove to be even more successful.

The post-treatment problem-solving ability scores for those who received the training during the first treatment week ranged from nine to 26, indicating a fairly wide range of accomplishment. This may be due, in part, to pre-treatment differences in the level of functioning which should be taken into consideration in the design of future experiments of this nature and in the design of applied problem-solving treatment plans.

Third, as the experimental data suggest, the operant/social reinforcement procedure encountered little difficulty. The change in activity level after one week was quite abrupt and, except for the necessity to speak loudly and directly to the subject when reinforcing participation, no special considerations need be undertaken in staff training. As found in the Ankus and Quarrington (1972) study, a fixed ratio yields normal responding among the elderly if the reinforcer is appropriate. Evidently, social reinforcement, in the form of verbal praise and tactile stimulation, is an appropriate reinforcer for elderly patients' behavior.

Fourth, some caution in the interpretation of the results should be suggested. In a sense, the problem-solving training procedure itself includes a "reinforcement" component in the verification stage. For purposes of experimental control, this possible "reinforcement" component was emphasized as little as possible without changing the nature of problem-solving training as it was initially proposed (D'Zurilla &

Goldfried, 1971). Also, it may be argued that the social reinforcement of participation in an activity contains a cognitive component as well. This cognitive component might take the form of self-statements with regard to the task at hand or more global restructuring of depressive thoughts and maladaptive strategies during participation in the activity. During engagement in an activity it is not unlikely that cognitive involvement does take place, so it may be that these two experimental manipulations contain some of the same elements. However, the 18 subjects who received social reinforcement at some stage in the experiment did not reliably state any such cognitive strategies and only two subjects mentioned having thought about "feeling better about themselves" during the activity. In addition, the changes in activity level and problem-solving ability shown in Table 3 clearly indicate the lack of overlap between these two procedures. In terms of clinical validity this overlap, should it actually exist, should not change the overall pattern of results nor the final conclusions based upon these results. Perhaps future comparisons between an operant procedure and a cognitive approach should include a DRH schedule to effectively eliminate any potential confound.

Fifth, the slight improvements for the WLC-IC condition between treatment week two and follow-up on all three measures suggest a possible therapeutic component. The treatment procedures might include some cognitive reappraisal or rational

restructuring. The subject may be taking the information gained during these discussions and applying it to his or her own situation. Gaining factual knowledge about the aging process in general may lead to self-directed appropriate statements of an individualized nature. This information may lead to a reduction in the feelings of helplessness which may be present as a natural consequence of the deleterious effects of aging. These subjects may have gained cognitive control over the internal and external events which were taking place. This control in turn may have led to a decrease in depression.

The information control procedure, which included information on aging and bodily systems as well as theories and models of aging may, indeed, share common elements with the problem-solving procedure. Theoretically, the person who receives problem solving training is learning appropriate responses to sample problems which are then applied to the individual's own situational problems. During the information control discussions, factual information was obtained regarding the general aging process which then might lead to his or her particular situation. Thus, more rational and appropriate thinking is encouraged in both procedures.

The superiority of the problem-solving groups over the WLC-WLC condition suggests a more structured and directive decision-making component than that of the information control. Future research should include, however, a more appropriate placebo

group to control for attention and subject-therapist interaction. One possible control would include an information control procedure dealing with a non-aging related topic.

Future Research

If one considers, as does this writer, that the skills which are sampled by the HAS are important behaviors to have in an institutionalized setting, one potential research area is to directly train institutionalized residents in the skills included in this survey. If the skills tapped by the HAS are indeed indicative of well-adjusted residents, then these skills may be the goal of a specific treatment program.

Second, given the frequent reliance on psychotropic regimens, particularly with depressive symptomology in the elderly, it may prove efficacious to compare drug therapy with a non-somatic approach such as problem-solving training. Both the problem-solving and social reinforcement approaches are free of the limitations inherent in psychotropic therapy such as side effects, possible drug interactions, and the inability to eat certain foods while on medication. Hopefully the non-somatic methods will be implemented before settling for a somatic approach by practitioners. When one considers titration time and onset of symptom reduction with antidepressants, it can no longer be argued that psychopharmacotherapy is the most expedient treatment of depression among the elderly.

A third line of potential research involves testing the efficacy of other cognitive procedures with elderly populations. Possible treatment outcomes to be studied might include covert reinforcement, stress inoculation training, or rational-emotive therapy. Since one method of cognitive therapy, problem-solving training, appeared to be most effective in this study with an elderly population, it would be interesting and useful to perform outcome and, ultimately, process studies with other cognitive therapies. As mentioned earlier in this paper, there is no experimental evidence which precludes a cognitive approach to therapy with the elderly with minor modifications.

Fourth, the efficacy of the continuous problem-solving training in this study at follow-up suggests more detailed study into the often-cited problems of maintenance and generalization of behavioral gains with the elderly (e.g., Berger & Rose, 1977). It would be interesting to discover whether the parameters of maintenance and generalization are the same for elderly populations as for younger samples. For example, would thinning the schedule of reinforcement contingent upon a certain desired behavior increase maintenance and if so, is the speed with which the schedule is thinned different for the two samples? Would training across settings or with multiple models increase generalization with an elderly sample as they do with other-age samples?

Since treatment consisted of only five sessions of thirty minutes each, it may be necessary to lengthen the

sessions or provide booster sessions periodically after treatment ends. Due to natural memory deficits among the elderly, booster training sessions might be extremely helpful in maintaining initial gains. These booster sessions might involve a brief description of the stages of problem-solving training and the actual application of the procedures to a sample case problem. Future research might be aimed at the relative efficacy of booster sessions, effective spacing of booster sessions, and more comprehensive training procedures.

Finally, it would prove interesting to study in depth various aspects of the problem-solving process with elderly subjects. For example, are sample problems which deal with aging-related material superior to non-age-related problems? The lack of superiority of the PS-PS approach over the WLC-IC group suggests that problems which contain information on aging may increase the efficacy of problem-solving training. It seems that the relevancy of the procedures to the elderly subject might be an important factor.

Another process variable to be studied would be the necessity of including all of the stages of problem-solving training. A boosted decision-making stage, where more practice is given in decision formulation, might be enough to offset the elimination of other stages. An optimal training format might then be suggested for clinical application. Research in these areas would go a long way in making up for the deficits now experienced in the literature on psychotherapy with the elderly individual.

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APPENDIX A

Patient Participation Form

The procedures of this study have been fully described to me and I am willing to participate in this research.

I understand that I have the right to withdraw from participation at any time, before or during the study if I so desire. I also understand that I am to be debriefed at the conclusion of this study.

I understand further that any and all responses which I make during the course of this treatment/research are to be confidential and any portion thereof may be placed on my chart only if I agree by signing the second blank below.

_____

I agree to participate under the stipulations above.

_____

I agree to participate and release information for my chart.

_____

I refuse to participate.

_____

Witness

APPENDIX B

Data Recording Form

Subject_____ Condition_____

Date_____ Session_____

Activity_____ Score_____

Observer_____ Reliability_____

Y N R	Y N R	Y N R	Y N R	Y N R	Y N R
Y N R	Y N R	Y N R	Y N R	Y N R	Y N R
Y N R	Y N R	Y N R	Y N R	Y N R	Y N R
Y N R	Y N R	Y N R	Y N R	Y N R	Y N R
Y N R	Y N R	Y N R	Y N R	Y N R	Y N R
Y N R	Y N R	Y N R	Y N R	Y N R	Y N R
Y N R	Y N R	Y N R	Y N R	Y N R	Y N R
Y N R	Y N R	Y N R	Y N R	Y N R	Y N R
Y N R	Y N R	Y N R	Y N R	Y N R	Y N R
Y N R	Y N R	Y N R	Y N R	Y N R	Y N R

Y = On task N = Off task R = Reinforce

APPENDIX C

Problem-Solving Competence Measure
(From Wilkinson, 1976, pp. 246-250)

The areas of fluency, flexibility, originality, and structure will be assessed and the total score based upon these four areas will be the measure of problem-solving competency. The definitions of each area are as follows:

Fluency: Total number of separate ideas generated as to what one should do in the problematic situation. Even "do nothing" is an idea. Each item receives one point.

Flexibility: The kinds or categories of responses. Some categories are responses in the areas of self-improvement or self-betterment; using peers as means of a solution; using spouses or relatives in the solution; using groups to help; suggesting changes in the physical environment, suggesting more effective utilization of the environment as it is; using fantasy; doing nothing; avoidance; emotional release; or suggesting a change in medication.

Each category receives one point.

Originality: Weighted scores are used to value more highly those responses which are given by fewer number of subjects in the problem-solving condition. Therefore, a score of 3 would be given to a response if only one subject mentions it, a score of 2 if 2-4 subjects mention the same alternative, one point is given if 5-8 subjects make the same response, and 0 points are awarded if more than 8 subjects make the same response.

Structural analysis: Three points will be given if the idea is clearly stated, and the courses of action are specified adequately as well as the tactics. Two points will be given if the main idea is clearly expressed but the strategies or tactics are not organized. One point will be given if one or more alternatives are listed, but no plan of action is suggested by the subject. No points will be awarded for no response or an irrelevant response.

APPENDIX D

Test Problems

1. A patient here, who is confined to his or her room, has found it impossible to deal with his/her roommate due to the large numbers of visitors who crowd into their room almost daily. Sometimes the overflow of the roommate's visitors blocks the television from the view of the first roommate and the visitors often sit right next to his/her bed. None of the visitors is particularly loud or offensive, but the sheer numbers are causing the patient to lose daytime rest and comfort. The patient is hesitant to inform the nursing staff because this is the first roommate with which the patient gets along, they have a lot to talk about and share common backgrounds. Using your problem-solving skills that we have talked about, how would you go about solving this situation?

2. Another resident here is extremely hard of hearing in his/her right ear but can hear reasonably well with the left ear. This resident really enjoys having visitors from the church and other volunteers who regularly visit the hospital. However, many of these visitors are not aware of this patient's hearing problem and much of the conversation with these people is lost. This patient feels a little hesitant to explain his/her problem for fear that the visitors will not come by anymore due to this handicap which is why the patient's few relatives no longer visit. How would you handle this situation if you were this patient?

APPENDIX E

Problem-Solving Checklist

Subject_____

1. Problem Definition and Formulation
   a. Definition of situation
      Background:

      Specific problem situation:

   b. Formulation of conflicts:

_____ vs. _____

_____ vs. _____

_____ vs. _____

2. Brainstorming (strategies):

3. Consequences of strategy:
   (+2 = very good;
   +1 = good;
   0 = neutral;
   -1 = bad;
   -2 = very bad)

	For self	For others	Final (check)
a.			
b.			
c.			
d.			
e.			
f.			
g.			
h.			

Subject_____

4. Brainstorming (tactics):

5. Consequences of tactic #___:
(+2 = very good;
+1 = good;
0 = neutral;
-1 = bad;
-2 = very bad)

	For self	For others	Final
a._____			
b._____			
c._____			
d._____			
e._____			
f._____			
g._____			
h._____			

- -

Consequences of tactic #___:

a._____			
b._____			
c._____			
d._____			
e._____			
f._____			
g._____			
h._____			

Comments:

APPENDIX F

Beck Inventory

Please indicate which statement from each group most closely describes how you feel.

A. 0. I do not feel sad.
1. I feel blue or sad.
2a. I am blue or sad all the time and I can't snap out of it.
2b. I am so sad or unhappy that it is very painful.
3. I am so sad or unhappy that I can't stand it.

B. 0. I am not particularly pessimistic or discouraged about the future.
1. I feel discouraged about the future.
2a. I feel I have nothing to look forward to.
2b. I feel that I won't ever get over my troubles.
3. I feel that the future is hopeless and that things cannot improve.

C. 0. I do not feel like a failure.
1. I feel I have failed more than the average person.
2a. I feel that I have accomplished very little that is worthwhile or that means anything.
2b. As I look back on my life all I can see is a lot of failures.
3. I feel I am a complete failure as a person (parent, husband, wife).

D. 0. I am not particularly dissatisfied.
1a. I feel bored most of the time.
1b. I don't enjoy things the way I used to.
2. I don't get satisfaction out of anything any more.
3. I am dissatisfied with everything.

E. 0. I don't feel particularly guilty.
1. I feel bad or unworthy a good part of the time.
2a. I feel quite guilty.
2b. I feel bad or unworthy practically all the time now.
3. I feel as though I am very bad or worthless.

F. 0. I don't feel I am being punished.
1. I have a feeling that something bad may happen to me.
2. I feel I am being punished or will be punished.
3a. I feel I deserve to be punished.
3b. I want to be punished.

G. 0. I don't feel disappointed in myself.
1a. I am disappointed in myself.
1b. I don't like myself.
2. I am disgusted with myself.
3. I hate myself.

H. 0. I don't feel I am any worse than anybody else.
1. I am critical of myself for my weaknesses or mistakes.
2. I blame myself for my faults.
3. I blame myself for everything bad that happens.

I. 0. I don't have any thoughts of harming myself.
1. I have thoughts of harming myself but I would not carry them out.
2a. I feel I would be better off dead.
2b. I feel my family would be better off if I were dead.
3a. I have definite plans about committing suicide.
3b. I would kill myself if I could.

J. 0. I don't cry any more than usual.
1. I cry more now than I used to.
2. I cry all the time now. I can't stop it.
3. I used to be able to cry but now I can't cry at all even though I want to.

K. 0. I am no more irritated now than I ever am.
1. I get annoyed or irritated more easily than I used to.
2. I feel irritated all the time.
3. I don't get irritated at all at the things that used to irritate me.

L. 0. I have not lost interest in other people.
1. I am less interested in other people now than I used to be.
2. I have lost most of my interest in other people and have little feeling for them.
3. I have lost all my interest in other people and don't care about them at all.

M. 0. I make decisions about as well as ever.
1. I try to put off making decisions.
2. I have great difficulty in making decisions.
3. I can't make any decisions at all any more.

N. 0. I don't feel I look any worse than I used to.
1. I am worried that I am looking old or unattractive.
2. I feel that there are permanent changes in my appearance and they make me look unattractive.
3. I feel that I am ugly or repulsive looking.

O. 0. I can work about as well as before.
1a. It takes extra effort to get started at doing something.
1b. I don't work as well as I used to.
2. I have to push myself very hard to do anything.
3. I can't do any work at all.

P. 0. I can sleep as well as usual.
1. I wake up more tired in the morning than I used to.
2. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3. I wake up early every day and can't get more than 5 hours sleep.

Q. 0. I don't get any more tired than usual.
1. I get tired more easily than I used to.
2. I get tired from doing anything.
3. I get too tired to do anything.

R. 0. My appetite is no worse than usual.
1. My appetite is not as good as it used to be.
2. My appetite is much worse now.
3. I have no appetite at all any more.

S. 0. I haven't lost much weight, if any, lately.
1. I have lost more than 5 pounds.
2. I have lost more than 10 pounds.
3. I have lost more than 15 pounds.

T. 0. I am no more concerned about my health than usual.
1. I am concerned about aches and pains or upset stomach or constipation.
2. I am so concerned with how I feel or what I feel that it's hard to think of much else.
3. I am completely absorbed in what I feel.

U. 0. I have not noticed any recent change in my interest in sex.
1. I am less interested in sex than I used to be.
2. I am much less interested in sex now.
3. I have lost interest in sex completely.

APPENDIX G

Hospital Adjustment Scale

1.	T	NT		The patient ignores the activities around him.
2.	T	NT	DA	The patient gets dressed up for visitors.
3.	T	NT	DA	The patient follows events in the daily paper.
4.	T	NT	DA	The patient laughs if he's kidded.
5.	T	NT	DA	The patient writes sensible and understandable letters.
6.	T	NT		The patient stays by himself.
7.	T	NT		The patient spends a lot of time talking to himself.
8.	T	NT		The patient doesn't mix with other patients.
9.	T	NT		The patient's talk is mostly not sensible.
10.	T	NT		The patient doesn't make distinctions between new and old personnel.
11.	T	NT		The patient chooses to talk either to the personnel or to patients who talk sensibly.
12.	T	NT	DA	The patient doesn't want social group contacts with other patients.
13.	T	NT		The patient never says more than 3 or 4 words at a time.
14.	T	NT	DA	The patient doesn't open letters unless someone tells him to.
15.	T	NT		The patient talks about sports with the aide.
16.	T	NT		The patient can tease another patient back into good humor.
17.	T	NT		The patient answers sensibly if talked to.
18.	T	NT	DA	The patient sometimes remarks when it's time for a family visit.
19.	T	NT		The patient doesn't have close friends on the ward.

20.	T	NT		The patient isn't backward about talking to you after he gets acquainted.
21.	T	NT		The patient can talk sensibly if you ask him to.
22.	T	NT		The patient won't discuss many subjects.
23.	T	NT	DA	The patient never asks for a pass (short stay away from hospital).
24.	T	NT		The patient talks about his family with the aide.
25.	T	NT	DA	The patient never writes a letter.
26.	T	NT		The patient seems to enjoy being talked to.
27.	T	NT		The patient doesn't take part in back and forth conversation.
28.	T	NT	DA	The patient plays ball with other patients.
29.	T	NT	DA	The patient is either silent or talks foolishly during visits.
30.	T	NT		The patient sometimes approaches the aide with dry humor about his situation in the hospital.
31.	T	NT		The patient is always chatting with someone.
32.	T	NT		The patient's words aren't understandable.
33.	T	NT	DA	The patient asks to leave the hospital to visit his family.
34.	T	NT		The patient resents it if he's asked a question.
35.	T	NT		The patient will always reply if you make some remark to him.
36.	T	NT		The patient talks over happenings on the ward with the aide.
37.	T	NT		The patient's talk is mostly straight, sensible talk.
38.	T	NT		The patient starts conversations with aides to become better acquainted.

39.	T	NT		The patient can take teasing.
40.	T	NT		The patient never volunteers any information about himself.
41.	T	NT		The patient knows the names of all the doctors, nurses, and aides.
42.	T	NT	DA	The patient maintains a correspondence.
43.	T	NT		The patient has to be pushed to follow routine.
44.	T	NT		The patient wants to do the right thing on the ward.
45.	T	NT	DA	The patient seldom dresses up.
46.	T	NT		The patient doesn't like to change his clothes.
47.	T	NT		The patient takes no pride in his personal appearance.
48.	T	NT	DA	The patient is very interested in his clothes.
49.	T	NT		The patient is making realistic plans for when he leaves the hospital.
50.	T	NT		The patient occasionally needs supervision with dressing.
51.	T	NT		The patient's clothes are unbuttoned.
52.	T	NT		The patient has to be reminded to attend to routine.
53.	T	NT	DA	The patient never combs his hair.
54.	T	NT		The patient yells at attendant when he's dissatisfied.
55.	T	NT		The patient stays neat and clean.
56.	T	NT		The patient never asks for anything; he waits for things to be given to him.
57.	T	NT		The patient has to be dressed.
58.	T	NT	DA	The patient behaves exceptionally well when taken off grounds.

59.	T	NT		The patient occasionally has to be reminded to change his clothes.
60.	T	NT	DA	The patient takes pleasure in fixing his hair.
61.	T	NT		The patient easily becomes upset if something doesn't suit him.
62.	T	NT		The patient is usually sloppy.
63.	T	NT	DA	The patient keeps his clothes cleaned and pressed.
64.	T	NT		The patient likes to do the opposite of what he's asked to do.
65.	T	NT	DA	The patient is so well dressed that he can't be distinguished from a "normal" person.
66.	T	NT	DA	The patient seems to manage his money.
67.	T	NT	DA	The patient is interested in looking well when he leaves the hospital on trips.
68.	T	NT	DA	The patient plays cards occasionally.
69.	T	NT	DA	The patient is a good worker in shop.
70.	T	NT		The patient asks if there's work for him to do.
71.	T	NT	DA	The patient doesn't take part in ward games.
72.	T	NT	DA	The patient always attends ward parties.
73.	T	NT	DA	The patient will do anything for recreation that comes up.
74.	T	NT		The patient reads newspapers and magazines.
75.	T	NT	DA	The patient won't do any assigned duties.
76.	T	NT	DA	The patient is willing to do any extra chore.
77.	T	NT		The patient is interested in nothing.
78.	T	NT	DA	The patient doesn't take part in recreation.
79.	T	NT	DA	The patient doesn't need supervision on a job.
80.	T	NT	DA	The patient has to be helped along to stick to any activity.

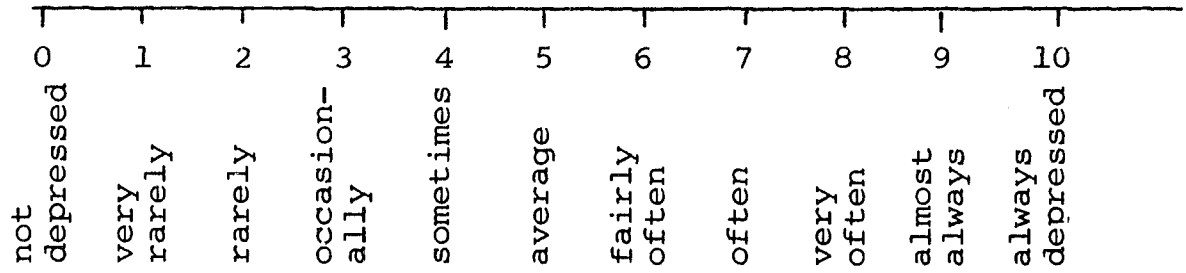
81.	T	NT	DA	The patient doesn't take part in athletics.
82.	T	NT	DA	The patient helps out when needed.
83.	T	NT	DA	The patient isn't capable of doing a good job at anything.
84.	T	NT		The patient shows no reaction to entertainment.
85.	T	NT	DA	The patient doesn't like to go out for exercise.
86.	T	NT	DA	The patient helps take care of the laundry.
87.	T	NT	DA	The patient would sit all day if not directed to an activity.
88.	T	NT	DA	The patient does a good job, once someone gets him started.
89.	T	NT	DA	The patient is very interested in O. T.
90.	T	NT	DA	The patient works well on the ward.

APPENDIX H

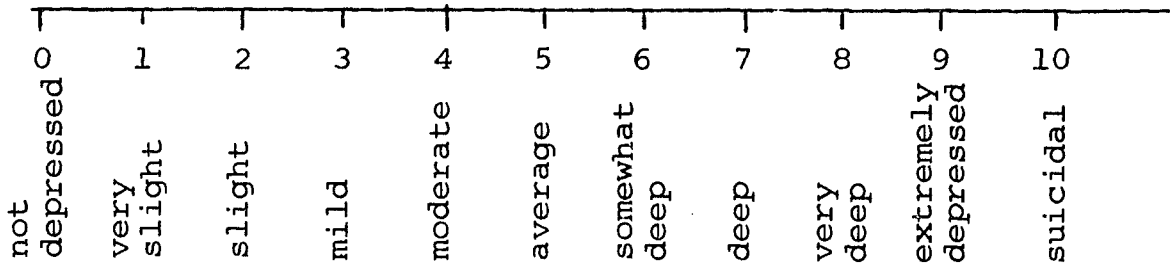
Self-Rating Scale

Please circle the number of each item below which most closely describes how you felt on the average today. These results are to be used in your treatment here so please answer as accurately as possible. Thank you for your time.

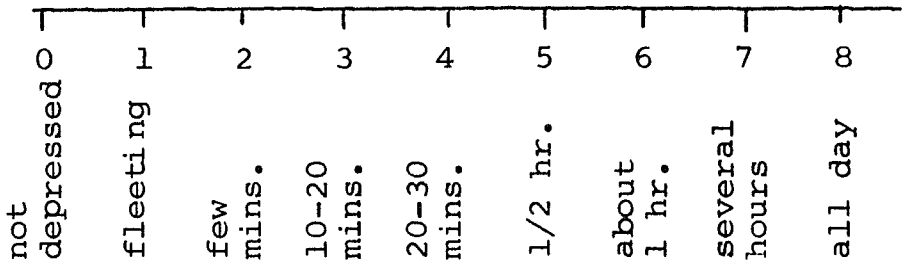
1. The frequency of my feelings of depression in the past week has been:



2. When I do feel depressed these feelings are of the following strength:



3. When I did get depressed today it usually lasted:



Patient_____ Score_____

APPENDIX I

Treatment Validity Rating

1. I feel that the treatment which I received was:

0	1	2	3	4	5
not at all helpful	a bit helpful	somewhat helpful	moderately helpful	very helpful	extremely helpful

2. The believability of the treatment which I received was:

0	1	2	3	4	5
not at all valid	slightly valid	somewhat valid	moderately valid	very valid	extremely valid

Patient_____

APPENDIX J

General Survey

1. The steps of problem-solving in order of helpfulness to me are:

   _____General orientation

   _____Problem definition and formulation

   _____Generation of alternatives

   _____Decision-making

   _____Verification

2. While participating in my activity I was thinking to myself:

APPENDIX K

Individual Data for All Subjects

		Beck				SRS				HAS			
Subject	Condition	B[a]	T_1	T_2	FU	B	T_1	T_2	FU	B	T_1	T_2	FU
1	PS-PS	27	19	15	12	7.0	5.0	3.0	4.0	34	36	37	39
2	PS-PS	32	28	26	24	7.0	6.3	3.3	3.0	41	42	40	42
3	PS-PS	44	43	30	19	8.0	4.3	0.0	0.0	30	28	33	36
4	PS-PS	42	35	31	34	6.7	2.4	2.0	4.7	40	40	44	43
5	PS-PS	29	20	21	24	7.7	6.0	6.7	3.3	36	37	39	40
6	PS-PS	42	35	32	36	8.3	5.0	3.7	3.0	39	37	39	40
7	PS-SR	35	33	31	32	6.7	3.0	5.7	4.3	43	45	48	48
8	PS-SR	40	24	22	23	6.7	3.3	4.3	5.0	54	55	54	54
9	PS-SR	37	32	25	29	3.0	2.0	2.0	5.0	58	60	59	56
10	PS-SR	33	29	24	*	6.	5.0	7.0	*	33	38	40	*
11	PS-SR	24	22	16	14	3.3	4.3	3.0	3.0	41	44	45	44
12	PS-SR	44	30	22	19	9.0	4.3	4.0	5.7	25	25	25	24
13	SR-SR	46	47	46	48	6.3	3.7	4.0	5.7	39	41	40	36
14	SR-SR	33	25	21	19	5.0	4.3	4.0	4.0	63	64	65	65
15	SR-SR	39	31	27	*	5.7	2.3	3.3	*	56	59	57	*
16	SR-SR	24	20	19	21	3.3	3.3	4.0	5.0	24	25	22	22
17	SR-SR	35	31	28	30	3.3	2.3	3.0	3.0	40	40	40	39
18	SR-SR	26	21	18	25	5.0	3.7	5.7	5.0	32	33	34	36
19	SR-PS	40	30	25	24	8.3	4.7	3.0	4.7	45	44	45	47
20	SR-PS	36	34	30	29	8.0	4.7	5.0	3.0	48	47	46	47

		Beck				SRS				HAS			
Subject	Condition	B^a	T_1	T_2	FU	B	T_1	T_2	FU	B	T_1	T_2	FU
21	SR-PS	39	30	24	26	9.0	6.0	1.0	3.0	46	48	49	45
22	SR-PS	48	39	35	*	9.0	7.0	5.3	*	37	38	39	*
23	SR-PS	36	30	28	29	3.7	4.0	4.7	4.0	13	17	15	17
24	SR-PS	40	39	35	33	7.3	3.0	0.0	3.3	28	27	29	28
25	WLC-WLC	45	43	47	44	8.7	8.0	910	7.7	38	40	39	38
26	WLC-WLC	44	45	43	46	5.3	5.0	4.7	7.0	53	51	50	51
27	WLC-WLC	36	30	30	32	5.7	6.7	5.0	6.0	41	43	42	41
28	WLC-WLC	27	21	24	28	7.0	7.0	6.7	4.3	40	45	43	40
29	WLC-WLC	29	31	31	30	5.0	5.0	5.0	5.0	39	39	38	39
30	WLC-WLC	26	24	20	28	6.3	3.3	4.3	4.3	55	57	58	55
31	WLC-IC	39	41	38	38	7.3	7.7	7.7	6.0	42	40	39	38
32	WLC-IC	31	30	30	24	7.0	7.0	6.0	7.0	38	39	39	42
33	WLC-IC	30	32	28	25	5.7	5.3	4.3	4.7	24	26	26	28
34	WLC-IC	26	24	23	24	7.0	7.0	6.7	4.3	47	45	46	45
35	WLC-IC	41	43	40	40	8.0	6.7	7.7	5.0	22	19	19	24
36	WLC-IC	38	38	39	36	5.7	4.7	3.0	3.0	33	34	32	35

B^a = Baseline; T_1 = Treatment Week One; T_2 = Treatment Week Two; FU = Follow-up.

*Data not attainable.

Note: Cut-off scores on the Beck are approximately: None = 11; Mild = 19; Moderate = 25; Severe = 30 and above (Beck et al., 1961).

APPENDIX L

Correlations Between the Dependent Measures

(Pearson Product-Moment Correlations)

Analysis		Beck	SRS	HAS
Baseline	Beck	1.000	0.500**	0.008
	SRS	-	1.000	-0.058
	HAS	-	-	1.000
Treatment Week One	Beck	1.000	0.428**	-0.182
	SRS	-	1.000	0.331*
	HAS	-	-	1.000
Treatment Week Two-Baseline	Beck	1.000	0.523**	-0.253
	SRS	-	1.000	-0.046
	HAS	-	-	1.000
Treatment Week Two-Treatment Week One	Beck	1.000	0.374*	-0.493**
	SRS	-	1.00	-0.046
	HAS	-	-	1.000
Follow-Up-Baseline	Beck	1.000	0.523**	-0.308
	SRS	-	1.000	-0.207
	HAS	-	-	1.000

*$p < 0.05$

**$p < 0.01$

APPENDIX M

Results of the Treatment Validity Rating in Group Mean Form

	Condition					
Question	PS-PS	PS-SR[a]	SR-SR[a]	SR-SR[a]	WLC-WLC	WLC-IC
1	3.833	3.600	3.400	3.800	2.000	2.833
2	3.667	3.600	3.400	3.600	1.167	3.333

[a]Five subjects completed the questionnaire.