

THE UNIVERSITY OF MANITOBA

SELF-MANAGEMENT PROCEDURES TO MAINTAIN INDEPENDENT
LIVING SKILLS WITH PERSONS WITH SCHIZOPHRENIA
LIVING IN THE COMMUNITY

by

Patricia González-Rankine

A Thesis

Submitted to the Faculty of Graduate Studies
In Partial Fulfillment of the Requirements for the
Degree of Doctor of Philosophy

Department of Psychology

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DOCTOR OF PHILOSOPHY

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ABSTRACT

This study examined self-management procedures for improving and maintaining independent living skills with persons with schizophrenia living in a community group home. Dependent measures were the outcome percentages of correct performance on bed making and room cleaning. In Part I, residents were taught, in a multiple-baseline design across skills, to use self-management procedures to improve skill performance. Training consisted of modelling, instructions, prompting, and feedback. The experimental procedures were implemented in the group home by the group home staff. In Part II, self-monitoring plus delayed feedback (SMDF) was compared to self-monitoring plus reinforcement (S-MAN) for maintaining the target skills. The results of Part I indicated that self-management training was an effective procedure for improving independent living skills of the subjects. Results of Part II indicated that both the SMDF and S-MAN were about equally effective in maintaining a high level of performance on the target skills with two out of the three residents who completed the study. The third subject, who had also improved in Part I, showed erratic and short-lived maintenance effects. The fourth subject showed a high level of performance on bed making in Part I prior to withdrawing from the study. Social validity data indicated that both the residents and staff found the SMDF and S-MAN useful and worthwhile. The research addressed several methodological limitations of prior studies in the area.

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INTRODUCTION

Over the last two decades a strong emphasis has been placed on the deinstitutionalization of chronic psychiatric patients. It was assumed that by placing them in the community they would develop the necessary skills to survive in the community and that they would obtain the benefits available to other citizens. Unfortunately, these goals have not been achieved. Most psychiatric patients living in the community depend on the social welfare system to meet their basic needs (Bellack & Mueser, 1986). More than 50% require supervision and many of them lack the appropriate skills to live independently (Golstrom & Manderscheid, 1981).

The present study focused on psychiatric patients that have been diagnosed as having schizophrenia. Persons with schizophrenia constitute about 50% of chronic psychiatric patients (Bellack & Mueser, 1986). The prevalence of schizophrenia worldwide appears to be slightly less than 1% of the overall population (Wyatt, Alexander, Egan, & Kirch, 1988). North (1989) indicated that "Because of its far-reaching effects on an individual's life and its associated disability, schizophrenia is considered one of the most serious psychiatric illnesses" (p. 8).

General Nature of Schizophrenia

Schizophrenia has been an enigma for clinicians and investigators. Great effort has been expended in trying to understand its causes, progress, and treatment. The first to introduce the term "schizophrenia" was the psychiatrist Eugene Bleuler. According to Bleuler (1950), "By the term 'dementia precox' or 'schizophrenia,' we designate a group of psychosis whose course is at times

chronic, at times marked by intermittent attacks, and which can stop or retrograde at any stage, but does not permit a full restitutio ad integrum. The disease is characterized by a special type of alteration of thinking, feeling, and relation to the external world which appears nowhere else in this particular fashion" (cited in World Health Organization, 1979, p. 11).

Bleuler conceptualized schizophrenia as a disease. Schizophrenia has also been conceptualized in the literature as a learned social role (e.g., Scheff, 1966) which enables an individual to cope with a problematic life situation; as a group of responses that evolve and are maintained by reinforcement from the individual's environments (Ullman & Krasner, 1968); and as a scientific construct which pays attention to overt behavior but sees specific symptoms as manifestations of internal mediating variables such as cognitive or biological factors (Neale & Oltmanns, 1980).

One of the greatest sources of controversy among the experts on schizophrenia is its etiology. North (1989) concluded in his review of the literature that, "Although the specific etiology of schizophrenia is still unknown, the recent explosion in the technology of brain research has pointed to several lines of compelling evidence for biologic factors of causation." (p. 15).

Bellack (1986) conceded that there is a wide body of evidence indicating that biology and genetics play a major role in schizophrenia. He goes on to suggest that schizophrenia is not exclusively a biological disorder and cites as evidence the fact that 90% of children with a schizophrenic parent do not develop schizophrenia.

Liberman, Marshall, Marder, Dawson, Nuechterlein, and Dawson (1984) suggested that biological and psychological factors operating in schizophrenia are in constant interaction with environmental factors. They stated, "The social

environment is the major source of inadequate learning of behavioral competencies and hence can be seen as making a contribution to the enduring vulnerability of individuals to a major mental disorder" (p. 21). These authors supported the stress/diathesis model (Zubin & Spring, 1977) which indicates that some people are biologically vulnerable to developing schizophrenia, and the reason some do develop the disorder is related to the level of stress in their environments. If the level of stress surpasses a certain threshold, symptoms related to schizophrenia will appear. Also, relapses will occur when the level of stress is above threshold. This view of schizophrenia appears to have become the framework for recent behavioral studies (e.g., social skills programs by Liberman and his colleagues; behavioral family therapy by Falloon and his colleagues).

Most of the early work of psychodynamically oriented clinicians was focused on styles of interaction within the family as major components in schizophrenia. They saw the parents' interaction with the child as the most important environmental element for the developing child and believed that the causes of abnormal behavior could be found within the family system (Fromm-Reichmann, 1948; Lidz, Heck, & Connelison, 1965).

Over the last decade, the role of the family in contributing to the exacerbation of the symptoms of schizophrenia (and not as the direct cause) has received great attention in the literature. The main focus has been placed on the role of expressed emotion (EE) (Vaughn & Leff, 1976). The EE view is based on findings that persons with schizophrenia who live with relatives who exhibit a high level of EE (e.g., highly critical, hostile, etc.), have a greater probability of relapsing than persons with schizophrenia who live with relatives who exhibit a low level of EE (e.g., supportive).

Strauss and Carpenter (1981) summed up the current understanding of the causes of and contributors to schizophrenia in the following manner: ". . . there is increasing information on genetics, social, family interaction, biochemical and psychophysiological factors in schizophrenia. But how these variables relate to etiology, course, prevention, and treatment is just being unraveled, and no area of inquiry is so complete at this time as to provide the definite answer to the puzzle of schizophrenia" (pp. 1-2).

Clinical manifestations of schizophrenia. Schizophrenia affects individuals in most areas of functioning. Liberman et al. (1984) described in the following manner the extent to which persons with schizophrenia can be affected:

"Schizophrenia can first and foremost be delineated as a group of characteristic symptoms in the area of thought (delusions, passivity experiences, incoherence), perception (hallucinations), affect (anhedonia, flat or inappropriate), and motor activity (catatonia). Beyond symptoms, schizophrenia pervades almost all areas of an individual's personal and social functioning. There are impairments in social relationships (withdrawal, avoidance), work (distractability, apathy), cognitive processing (poor vigilance, sensory overload), and self-care (poor grooming, sleep disturbances). Schizophrenia can be viewed as a major mental illness because it produces major impairments and disruptions in so many domains of human experience." (p. 1)

Throughout the century great emphasis has been placed on classifying the symptoms of schizophrenia to aid in its diagnosis (e.g., Kraepelin, 1919; Bleuler, 1950; Schneider, 1959; Astrachan, Harrow, Adler, Braver, Schwartz, Schwartz, & Tucker, 1972; Carpenter, Strauss & Bartko, 1973). The introduction of the third

edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III, 1980) and the revised edition (DSM-III-R, 1987) by the American Psychiatric Association, has provided clinicians and researchers in the area of schizophrenia with more unifying diagnostic criteria. The DSM-III-R criteria for the diagnosis of schizophrenia are shown in Appendix A.

Management of schizophrenia. Two of the most commonly identified treatments with this population in the literature, especially in hospitals and mental health clinics, are pharmacological treatments and psychosocial treatments.

The use of antipsychotic medication is considered as "the cornerstone of effective treatment of schizophrenia" (North, 1989, p. 15). Since the introduction of antipsychotic medication many persons with schizophrenia are now able to live in the community (Davis & Gier, 1986). There is considerable evidence that antipsychotic medication is effective in controlling the acute symptoms of schizophrenia (Johnson, 1985). However, medication may only work with 50% of the persons suffering from schizophrenia (Gardos & Cole, 1976). Of those patients for whom the medication is effective, 20% relapse after a year and many exhibit very serious side effects (e.g., tardative dyskinesia). It is now well documented that antipsychotic medication is more effective on the positive symptoms of schizophrenia, which are exaggeration or exacerbation of normal functions (e.g., hallucinations, delusions, thought disorder, etc.) than on the negative symptoms of schizophrenia, which are loss of normal function (e.g., anhedonia, social withdrawal, poverty of speech) (Wyatt et al., 1988) (for a review of positive and negative symptoms see Andreasen, 1982, 1987).

Bellack (1986) suggested that neuroleptic medication is "necessary but not sufficient" (p. 204) for the treatment of schizophrenia because drug therapy does

not help the person to acquire the necessary skills to function well in the community. Drug therapy is usually combined with psychosocial treatments.

Among the two most common types of psychosocial therapies for the management of persons with schizophrenia are milieu therapy and behavioral treatments. Milieu therapy will only be described briefly. Behavioral treatments with this population will be described in more detail because of their relevance to the study.

Milieu programs are one of the most widely accepted treatments in psychiatric units (Agras, 1976). An example of a milieu program is contained in a study by Paul and Lentz (1977). In their study, the milieu program was based on a community structure with focus on (a) communication of expectancies about specific behaviors, (b) involvement of the patients in problem solving and decision making, and (c) group cohesion. The major focus for change was based on group pressure exerted by the members. Along with the milieu therapy, medication is usually present. The two main objectives of milieu therapy are to set limits and to teach social skills (Abroms, 1969) by relying on decision-making process and feedback of information to both patients and staff through group meetings (Agras, 1976). Several studies have found milieu therapy helpful in the treatment of persons with schizophrenia (e.g., Mosher & Gunderson, 1972). Magaro, Talbott, and Glick (1984) concluded in a review of studies using some type of milieu therapy that this type of program was useful for acute patients but that more structured programs were needed for the most chronic patients. Paul and Lentz (1977) compared the effectiveness of milieu therapy and a behavioral program (described in more detail in the section of behavioral treatments with persons with schizophrenia). They found that the behavioral program (token economy) was

superior to the milieu therapy on most of the dependent measures used in the study.

Behavioral Strategies with Persons Having Schizophrenia

Behavioral approaches with this population have generally been used in two ways: (a) to establish and maintain desirable behavior (e.g., self-care, appropriate social behaviors); and (b) to decrease undesirable behavior (e.g., bizarre talk). Behavioral techniques applied with this population have ranged from operant conditioning, used with the rationale that schizophrenic behavior (i.e., delusions, hallucinations, response deficits, etc.) is maintained by environmental contingencies, to cognitive behavioral approaches, used with the purpose of developing more appropriate ways of thinking (Gomes-Schwartz, 1979).

This section will review several studies which have demonstrated successful behavioral interventions with persons with schizophrenia.

Development of appropriate behaviors. One of the first studies to demonstrate the effectiveness of the principles of operant conditioning in changing the behavior of persons with schizophrenia was a study by Ayllon and Haughton (1962). They used food as a reinforcer to establish motor behaviors (i.e., dropping a penny into a slot in order to have access to the dining room) and appropriate social behaviors (i.e., cooperating with other patients). In order to be able to use food as a reinforcer, the experimenters first had to shape the appropriate eating behaviors in the patients, who, prior to the study, had exhibited a long history of refusal to eat and had to be force-fed by the nurses. When social reinforcers for not eating were withdrawn, the patients started to eat on their own. The results indicated that all the patients learned the desired social and motor behaviors.

Hollander and Horner (1975) established chains of behavior—grooming, bed

making, and working—with 17 patients with schizophrenia living on a psychiatric ward. The reinforcer was a ticket that could be exchanged for meals. Integrated chains of behaviors which previously had a very low frequency were established successfully with these patients. A significant aspect of the study was the fact that the patients acquired behaviors similar to those of persons living in the community. However, food was used as a reinforcer in this study, and the ethics of depriving patients of their basic needs during the study would be questioned today.

Decreasing problem behaviors. Behavioral strategies have been used to decrease or eliminate bizarre and inappropriate behaviors. Agras (1967) eliminated glass breaking in a patient with schizophrenia by using aversive conditioning. A shock was made contingent upon visualizations of breaking glass. Klinge, Thrasher and Myers (1975) used bed-rest overcorrection contingent upon verbally and physically aggressive behaviors with a patient with schizophrenia. The patient showed a significant decrease in the frequency and duration of aggressive and agitated behaviors.

Aversive conditioning has also been used to decrease hallucinations (Turner, Hersen & Bellack, 1977), and hallucinations and delusions (Davis, Wallace, Liberman, & Finch, 1976). Davis et al. (1976) used a 15-minute time out contingent upon psychotic behavior with a chronic schizophrenic. Time out was effective in suppressing delusional and hallucinatory behaviors. However, the study failed to successfully fade continuous time out to an intermittent schedule, and the patient exhibited baseline levels of psychotic behavior while in time out. Turner et al. (1977) examined the effects of (a) social disruptions, which consisted of talking to the patient throughout the sessions about nonsymptom related topics; (b) stimulus interference, which consisted of the presentation of the sound of a bell

contingent upon the onset of hallucinations; and (c) aversive conditioning, which consisted of an electric shock administered contingent upon the onset of hallucinations. Stimulus interference and social disruption showed only temporary effects while aversive conditioning produced a more lasting decrement in hallucinatory behavior which was maintained at a 25-week follow-up check.

Behavioral contracts have been used with patients with schizophrenia to decrease self-injurious and paranoid behavior (Bergman, 1975) and suicide attempts (O'Farrell, Goodenough & Cutler, 1981). In both studies the behavioral contract specified a required alternative behavior to obtain privileges, and response cost for noncompliance. Bergman's (1975) study demonstrated the effectiveness of the behavioral contract in decreasing both inappropriate behaviors. In the case of the O'Farrell et al. (1981) study, the behavioral contract was effective in eliminating suicide attempts in the short term, but 14 months after ending the contract the patient committed suicide. Both studies were conducted while the patients were living on a psychiatric ward.

Several studies have shown that positive reinforcement can be used to successfully modify psychotic behaviors such as hallucinations and delusions with persons having schizophrenia. Ayllon and Haughton (1964) demonstrated the controlling effect of social reinforcement from staff on psychotic verbal behaviors. When attention from staff was made contingent upon inappropriate verbal behaviors, these behaviors increased significantly. The removal of contingent attention resulted in a significant decrement in their frequency. Wincze, Leintenberg, and Agras (1972) compared the effects of feedback—different colored lights for correct (nonpsychotic) responses and for incorrect (psychotic responses)—and token reinforcement made contingent upon nondelusional verbal

behavior. Feedback was effective approximately half of the time while token reinforcement significantly reduced the percentage of delusional verbal behavior compared to feedback alone. A drawback of the study was the fact that the results did not generalize to nonexperimental settings. Reinforcement of appropriate social behaviors and in vivo desensitization were successfully used to decrease hallucinations and increase appropriate social behaviors with a person having schizophrenia (Weidner, 1970).

Token economy programs. Operant strategies have been used not only in improving or establishing specific appropriate behaviors and decreasing specific undesirable behaviors, but also in the more general management of individual patients who have exhibited long-term disabilities. These strategies, referred to as token economies, have been used to increase and maintain repertoires of behaviors with this population on hospital wards. Ayllon and Azrin (1965) developed a token economy where all of the patients' privileges (e.g., passes, cigarettes, etc.) were obtained with the exchange of tokens. The token reinforcers were given to the patients contingent upon desired behaviors (e.g., appropriate social behaviors, arriving for work on time, etc.). The token economy was shown to be effective in changing behaviors with this population, however, once the token economy was removed, the majority of the patients deteriorated. Paul and Lentz (1977) conducted one of the most well controlled and methodologically sound large-scale studies on token economies. They compared: (a) traditional hospital management which involved individual and group therapy, occupational therapy and medication; (b) milieu therapy based on a community model, involving group meetings emphasizing decision making; and (c) a social learning program which involved a token economy. The study lasted four and a half years. The results clearly

indicated the superiority of the behavioral program over the other two treatments as measured by improvements in interpersonal skills, ward-related activities, self-care and presence of bizarre behaviors. A very important aspect of the study concerns the successful community placement of the participating patients. All the patients who participated had been previously rejected for placement in the community. At the termination of the programs, 97.5% of the patients who participated in the behavioral program were successfully discharged. In the milieu program, 71% of the patients were discharged, and in the standard hospital program, 44.8% of the patients were discharged. After discharge, the majority of the patients in all three groups deteriorated. In spite of the lack of generalization of the results to a different setting, the study presents a very clear demonstration of the superiority of the behavioral program over the nonbehavioral programs for developing community-placement skills.

Social skills training programs. Persons having schizophrenia exhibit a very definite deficiency in their ability to function socially. Over the last few years, a great effort has been directed towards the enhancement of their social adjustment, using behavioral techniques as part of social skills training packages. Social skills training with persons having schizophrenia is mainly directed towards teaching them how to interact more effectively with others (Kelly & Lamparski, 1985). Commonly, social skills training involves instructions, modelling, behavioral rehearsal, feedback and practice outside the training situation (Morrison & Bellack, 1984). Frederiksen, Jenkins, Foy and Eisler (1976) used a standard social skills training program with two patients with schizophrenia who were verbally abusive. Results indicated that the patients increased their appropriate social behaviors (e.g., making appropriate requests) and decreased their inappropriate social behaviors

(e.g., making irrelevant and hostile comments and inappropriate requests). The results generalized to other confederates, to novel situations, and to interactions on the psychiatric ward where the patients lived.

The studies reviewed in this section demonstrate the effectiveness of using behavioral strategies to change behaviors with persons with schizophrenia. All of the studies were conducted in very structured environments (i.e., hospital settings). Although the interventions produced clear effects, the studies either did not report follow-up data or failed to maintain the desirable effects, especially once the patients were released to a less structured environment. These studies demonstrated that it is possible, with the use of behavioral technology, to help this population to decrease inappropriate behaviors and to establish more appropriate behaviors. The deinstitutionalization movement has made it necessary for persons with schizophrenia to develop and maintain skills that will allow them to function appropriately without the consistent external control provided by their caregivers once they move to the community. One possible way to ensure that these persons will be able to maintain the desired behaviors is through teaching them self-management skills.

Self-Management

The teaching of self-management procedures is considered important because they involve the individuals in their own behavior change (Browder and Shapiro, 1985). O'Leary and Dubey (1979) described some of the reasons why self-management has received a great deal of emphasis in work with children. The same points raised by these authors also apply in a broader context to the area of self-management: (a) society reinforces independent behavior; (b) it is not always

possible for caregivers to provide external control; (c) caregivers could spend more time in the teaching of other equally important skills if the trainee was able to control his/her own behavior; (d) the trainee using self-management may behave appropriately when the caregiver is not present; and (e) more permanent behavior changes may be produced when the trainee controls his/her own behavior in the absence of external control.

The terms "self-control" and "self-management" have been used interchangeably. Baer (1984) suggested that a distinction should be made between the two. He described individuals engaged in self-control as follows:

- "1. They acknowledge problems of their own as soon as these problems come into existence.
2. They translate these problems into sets of behaviors to be changed.
3. They find sets of natural reinforcement or punishment contingencies that should support those behavior changes, or failing that, contrive some contingencies that could support those behavior changes.
4. They re-arrange their environments so that those contingencies now support those behavior changes,
 - (a) either directly and immediately, which is how contingencies work best,
 - (b) or, if direct and immediate environment support seems impractical, then indirectly: Very likely, they use explicit self-monitoring, self-evaluation, or self-instruction techniques, so that the desired behavior changes can produce some direct and immediate results.

5. And self-controlling persons record the entire process, preferably quantitatively and daily" (p. 211).

Baer (1984) suggested the use of the term "self-management" instead of "self-control" when the clinician or researcher is the one who identifies the behavior problem, records the behavior, and delivers the contingencies. Therefore this paper will use the term "self-management."

Social learning theory considers self-management as an interlocking process among behavior, thought, personal factors, and environmental influences (Bandura, 1977). Operant theory considers self-managed behavior as behavior controlled by external contingencies, where the individual makes a controlling response that alters the probability of the occurrence of another controlled response (Skinner, 1953).

Commonly, self-management involves a three-stage sequence: (a) self-evaluation, (b) self-monitoring, and (c) self-administration of contingencies (Karoly, 1977). The individual first recognizes the target behavior, records the presence or absence of it, and then self-administers the contingencies. Other components seen in the literature associated with self-management are self-instruction and self-determination of goals. Self-instruction consists of statements that individuals make to themselves in order to guide their behavior (Rosenbaum & Drabman, 1979). In the self-determination of goals, the individual sets standards for his/her own behavior prior to engaging in that behavior. Once the goal is achieved, it is then compared to the preestablished goal, and if the criterion was reached, the individual engages in self-administration of positive contingencies (Hayes, Rosenfarb, Wulfert, Munt, Zorn & Zettle, 1985).

One of the components most commonly found in the self-management

literature is self-monitoring or self-recording. It refers to a two-stage process where the individual first identifies the target behavior and then records the presence or absence of that behavior (Nelson, 1977). The efficacy of self-monitoring has been attributed to its functioning as a discriminative stimulus (Martin & Pear, 1988).

Self-reinforcement has been the focus of much debate in the self-management literature. Kazdin (1977) defined self-reinforcement as the individual providing him/herself with some consequences contingent upon behavior. The reinforcer should be available at any time. Catania (1975), Goldiamond (1976), and Brihgham (1980) argued that self-reinforcement is not synonymous with positive reinforcement in that the increase in the behavior cannot be directly attributed to the self-administration of reinforcement since the individual can circumvent the contingencies by taking the reinforcer without emitting the appropriate response.

Self-management techniques have proven to be very effective with clinical and nonclinical populations, including changing the behavior of children in classrooms (Rosenbaum & Drabman, 1979); changing delinquent behavior with adolescents (Kimbles, 1973); reducing weight (Mahoney, 1974); and eliminating smoking (Bernard & Efran, 1972), to mention a few.

Sylph, Ross and Kedward (1977) indicated that persons having schizophrenia are more disabled in many areas than mentally handicapped persons living in similar environments. Nevertheless, Bellack (1986) suggested that some behavioral technologies that have already proven to be effective with mentally handicapped persons should be investigated with the schizophrenic population.

The following sections will review some relevant studies with mentally handicapped persons using self-management techniques to develop and maintain

appropriate independent living skills, as well as studies that have used self-management strategies with persons having schizophrenia.

Self-management procedures with mentally handicapped persons. Self-management procedures have been shown to be effective in developing and maintaining independent living skills with mentally handicapped persons. Studies have been conducted where antecedent stimuli in the form of picture cues and self-monitoring have been used to establish sequences of independent behaviors. Martin, Rusch, James, Decker, and Tvtal (1982) used picture cues to establish a sequence of self-management in the preparation of complex meals. Connis (1979) and Sowers, Verdi, Barbeau, and Sheehan (1985) used picture cues and self-monitoring for the completion of diverse tasks in a cafeteria (e.g., washing and drying pots, cleaning the floors, etc.).

Self-monitoring was combined with instructions, modelling, feedback, and social reinforcement to teach shopping skills to mentally handicapped persons (Matson, 1981). The subjects maintained the skills at a two-month follow-up check, and the skills also generalized to another store. Bauman and Iwata (1977) compared the effectiveness of self-monitoring plus self-scheduling with external contingencies to maintain housekeeping and meal preparation skills. The results showed that both self-management and external procedures were effective for the acquisition of the skills. Data from the maintenance phase showed that self-management alone was effective in maintaining the skills at an appropriate level. Self-reinforcement was combined with external contingencies to maintain fire escape skills (Haney & Jones, 1982) and to acquire and maintain exercise behavior (Coleman & Whitman, 1984).

Self-instructions combined with modelling, behavioral rehearsal, and

instructions were used by Matson and Adkins (1980) to teach two mentally handicapped persons appropriate social skills.

The studies reviewed demonstrate the effectiveness of self-management strategies used alone or in combination with other behavioral techniques to establish and maintain appropriate independent living skills with mentally handicapped individuals. It was mentioned previously that persons having schizophrenia are more deficient than mentally handicapped persons in some areas related to daily functioning (Sylph et al., 1977). Considering that self-management strategies have proven to be effective with mentally handicapped persons, perhaps they could also be effective with persons having schizophrenia. However, there has been a very limited amount of research conducted in the area of self-management with this population, and almost no studies at all in the area of independent living skills with persons with schizophrenia in community settings. Studies that have used self-management strategies with this population are reviewed in the following section.

Self-management with persons with schizophrenia. Self-monitoring has been used alone or in addition to other procedures to change the behavior of persons with schizophrenia. Rutner and Bugle (1969) reported one of the first studies to use self-monitoring to control hallucinations with a person with schizophrenia. The individual was first instructed to self-monitor her hallucinations for three days. Next, she was asked to publicly monitor the hallucinations on a chart placed behind the nursing station. She received social reinforcement from the staff contingent on reporting a reduction in hallucinations. Hallucinations were eliminated completely, and no remissions occurred at a six-month follow-up. It is possible that the patient reported no hallucinations when in fact she continued to experience them, since there were no objective measures of hallucinations.

Several studies have reported the control of hallucinations through the use of self-monitoring combined with other treatments, such as self-administration of shocks (Bucher & Fabricatore, 1970); aversive conditioning (Moser, 1974), and aversive conditioning and social interference (Alford & Turner, 1976; Alford, Fleece, & Rothbaum, 1982). Bucher and Fabricatore (1970) reported a case study where a person with schizophrenia was instructed to press a portable shock device contingent on the experience of hallucinations. He was also asked to record every time that he experienced hallucinations and when he self-administered the shock. The hallucinations in the form of distinguishable voices were eliminated and did not appear until the patient was discharged from the hospital. Hallucinations in the form of "background murmuring" were never eliminated. No baseline data were taken, and no objective measures were used. Moser (1974) instructed a patient with schizophrenia to self-monitor the presence of hallucinations on a daily basis in order to obtain a baseline of the frequency of hallucinations. During treatment the patient was asked to continue to monitor the hallucinations and to imagine being very sick upon the presence of hallucinations. The results indicated that hallucinations were completely eliminated and that other appropriate behaviors increased (e.g., the patient began to socialize, etc.). Alford and Turner (1976) reported a study where a patient was trained to self-monitor the presence of hallucinations by pressing a button which operated a digital counter whenever she experienced hallucinations during the experimental sessions. In Phase I, the subject continued pressing the button for as long as she heard the "voices." Self-monitoring was used throughout the experimental phases to obtain a measure for the frequency and duration of hallucinations. In Phase II, social interference was introduced which consisted of the therapist talking to the patient about nonsymptom

related topics throughout the sessions. Phase III consisted of a return to baseline (i.e., self-monitoring condition alone). In Phase IV the patient received a shock contingent upon her pressing the button. Phase V consisted of another reversal to baseline condition. Results indicated that self-monitoring alone produced no effect. Self-monitoring plus social interference temporarily stopped the hallucinations. Hallucinations were completely eliminated with the use of self-monitoring and aversive conditioning. A one-year follow-up indicated that no hallucinations were occurring. Alford et al. (1982) conducted a study with a female with schizophrenia which compared the effects of: (a) social interference which consisted of the patient and the therapist talking about topics irrelevant to the patient's delusional beliefs; (b) self-control phase, where the patient was instructed to stop the delusions during the session in any way that she could; (c) a second self-control phase which consisted of two segments: the first segment involved prompted self-control where the therapist instructed the patient to stop or inhibit the target behavior; the second segment involved "liberty" self-control where the patient was given the choice between stopping or continuing the target behavior; and (d) changing the "valence" of the hallucinatory-delusional behavior. In the last phase the therapist used verbal shaping to change the rewarding content of the target behavior to aversive content. Social interference and prompted self-control were effective in reducing the problem behaviors but the results did not generalize to nonexperimental situations until the "valence" of the delusions was changed. A four-month follow-up after discharge indicated that the results were not maintained. The study failed to describe the instructions used, and the patient could not explain what she did to stop the delusions during the self-control phase.

Self-monitoring combined with behavioral tailoring was used by

Boczkowski, Zeichner and DeSanto (1985) to increase neuroleptic medication compliance. Thirty-six patients with schizophrenia were assigned to three treatment groups: (a) a psychoeducational (PE) intervention which consisted of providing the subjects with information about schizophrenia and the reasons for taking neuroleptic medication; (b) a behavioral-tailoring (BT) intervention, where the subjects were told general reasons about the importance of complying with neuroleptics, the subjects' medication intake was paired with their routine behaviors, and a highly visible location was chosen to place the medications; the subjects were also instructed to use a self-monitoring spiral calendar and to tear off a slip every time that they took their medication; (c) the third group was the control group. The subjects in this group met with the investigators to discuss general topics nonrelated to medication or diagnosis. The results of the study indicated that the BT group increased compliance by 80%. The PE group did not differ from the control group in their level of compliance. A three-month follow-up assessment indicated that the gains were maintained.

Self-monitoring combined with instructions and external reinforcement were used by Robertshaw, Kelly, and Hiebert (1974) to increase verbal behavior with an adolescent having schizophrenia. The subject was told that he would be discharged from the treatment centre if he increased his verbal behaviors. The subject self-monitored his verbal behavior and whenever he met the criterion of 50 verbal responses a day he received half a day off from the predetermined dismissal date. In the next phase, the subject self-monitored his verbal behavior but did not receive the time off as a reward. An immediate decline in the verbal behavior resulted. The verbal behavior increased as did his interactions with his peers once the contingencies were reestablished.

Self-instructions have been successfully used with persons with schizophrenia (Meichenbaum & Cameron, 1973; Meyers, Mercatoris & Sirota, 1976; Haley, 1983; Gumaer & Headspeth, 1985; Bentall, Higson & Lowe, 1987). Meichenbaum and Cameron (1973) taught persons with schizophrenia to self-monitor their behaviors and thoughts that were bizarre, incoherent, or irrelevant. They were also trained to use the reactions of others as interpersonal cues which signaled them that they were exhibiting schizophrenic behavior. The subjects were instructed to use self-monitoring and the interpersonal signals as cues to instruct themselves to exhibit nonschizophrenic behavior. Self-instructions were also used to train the subjects to produce desirable task-relevant responses. Tasks used were Digit Symbol, Porteus Maze, proverb interpretation, and interviewing. The subjects were instructed to use self-reinforcing statements after emitting the appropriate behavior. The self-instruction group improved on most dependent measures compared to a yoked practice control group. A three-week follow-up indicated that the results were not only maintained but improved relative to the yoked group. Margolis and Shemberg (1976) failed to replicate Meichenbaum and Cameron's (1973) study, using similar tasks. Meyers et al. (1976) reported a case study where a person with schizophrenia was trained to use self-instructions (e.g., "I must stay on the topic") to prompt himself not to engage in psychotic speech. During the treatment sessions, the therapist modelled the appropriate way to use self-instructions to correctly answer questions about everyday life events (e.g., ward activities, family, etc.). The patient received social reinforcement contingent on correct use of self-instructions. During the last five treatment sessions, different staff members interviewed the patient to assess for generalization of appropriate verbal behaviors. His inappropriate verbal responses decreased from 65.5% to

16.5% during treatment and to 8.4% during the generalization sessions. The patient was discharged from the hospital because of the significant decrement in his inappropriate verbal responses and a follow-up assessment after six months showed no inappropriate responses. Haley (1983) taught self-instruction to an elderly patient with schizophrenia to help her decrease agitation behavior (i.e., outburst of anger, complaining, insulting staff members and other patients). The patient was instructed to use self-statements (e.g., "Stay calm and collected") to cope with stressful situations. Along with the self-instructions, the patient was taught assertive skills and progressive muscle relaxation to help her cope more effectively with situations that she found stressful. The results indicated that the agitation behavior decreased, and more appropriate behaviors were developed. The results were maintained at a three-month follow-up and the patient's medication dosage was decreased as a result of her behavior change. Gumaer and Headspeth (1985) used self-instructions with an adolescent with schizophrenia. The subject was trained to use self-statements (e.g., "I can handle this") to help himself to exhibit more appropriate behaviors whenever he was confronted with stressful situations (e.g., missing the school bus), instead of his commonly inappropriate behaviors (e.g., psychotic speech, mannerisms, body postures, etc.). Other behaviors targeted for treatment were his excessive use of the bathroom and his poor grooming skills. The results indicated that the problem behaviors decreased significantly and that his appropriate behaviors increased. The behavior changes were maintained at a one-week follow-up. Bentall et al. (1987) trained persons with chronic schizophrenia to use self-instructions with a series of tasks (i.e., short memory tasks, general and specific problem solving tasks). The results indicated that the self-instruction training improved the subjects' performance on the

experimental tasks. The results generalized only to those tasks that were similar in nature to the training tasks.

Self-administration of contingencies has been used with persons with schizophrenia in the form of self-reinforcement with social skills (Lieberman, Lillie, Fallon, Harpin, Hutchinson, & Stoute, 1984) and self-administration of aversive contingencies to control hallucinations (Weingaertner, 1971). Lieberman et al. (1984) evaluated a social skills training package with patients with schizophrenia. The social skills training involved a number of components. The first component was training in personal effectiveness for patients, and the second was training for the patients and their parents together. The training consisted of homework assignments, behavioral rehearsal, feedback, prompts, and posters. Self-reinforcement, covert rehearsal, and self-instructions were also used as "other strategic interventions" to facilitate cooperation. The third component was the education of patients and parents in the history of schizophrenia and its treatment. The fourth component was milieu activities which consisted of the patients' participation in the various activities on the ward. The fifth component was medication which was maintained at a fixed level during the study. A multiple-baseline design across settings indicated that the patients improved on most measures of social behavior. The authors failed to describe the self-management procedures, and they were used along with many other variables. Thus, conclusions about the effectiveness of self-management procedures with social skills cannot be drawn from this study. Weingaertner (1971) assigned 45 persons with schizophrenia to 3 different groups: (a) a self-shock group, in which the patients received instructions to self-administer a shock by pressing a button in a portable box upon experiencing hallucinations; (b) a placebo group, in which

patients were instructed to also press the button of the box when they experienced hallucinations but in this group the box did not deliver the shock; the patients in this group were told that even if they did not feel the shock, this would activate their nervous system; and (c) a no-treatment group, in which patients were only evaluated before and after treatment. Results indicated that there were no significant differences between groups and that the three groups showed significant decreases in hallucinations over a period of two weeks. The author attributed the improvement to the inducement of the patients' expectations for change. There were no special precautions taken to ensure that the shock box in the self-shock group delivered the shock consistently at the same level. There was also no way to ensure that the patients in the self-shock group did actually engage in self-administration of shock immediately upon the presence of hallucinations or whether they just reported that they did.

The studies reviewed suggest that self-management strategies can be used effectively to change behavior with persons with schizophrenia. However, most of the studies reviewed present methodological limitations. Six of the studies reviewed in this section were case studies and did not control for nonexperimental variables that could have accounted for the results. The studies conducted on hallucinations either failed to define hallucinations (Rutner & Bugle, 1969) or failed to use objective measures of hallucinations (Rutner & Bugle, 1969; Moser, 1974; Bucher & Fabricatore, 1970). Weingaertner (1971) used other measures along with the self-report only before and after treatment, but not during treatment. Some of the studies failed to describe the self-management procedures used (Alford et al., 1982; Liberman et al., 1984). Others either failed to maintain the results (Alford et al., 1982; Weingaertner, 1971), or to report follow-up data (Bucher & Fabricatore,

1970; Bentall et al., 1987), or follow-up was of a very short duration (i.e., one to three weeks) (Gumaer & Headspeith, 1985; Meichenbaum & Cameron, 1973). Only three studies reported reliability data (Alford et al., 1982; Liberman et al., 1984; and Meyers, 1976). Only Liberman et al. (1984) assessed the social validity of the behaviors targeted for change. None of the studies assessed the social validity of the procedures and there were no reports of procedural reliability data. All of the studies used short interventions and followed the subjects in treatment for short periods of time, and many of the studies had only short meetings once or twice a month, and thus did not track the progress of each patient closely. Most studies were conducted while the subjects were inpatients in psychiatric hospitals. With the exception of Gumaer and Headspeith (1985), the remaining studies were conducted in very structured environments like mental health clinics. However, in spite of the methodological drawbacks, the studies represent important attempts to demonstrate the effectiveness of self-management with this population.

Summary of the Literature Review

Two types of treatments for persons with schizophrenia were identified: drug therapy and psychosocial therapy. The most common psychosocial therapies used are the milieu therapy and behavioral treatments. Drug therapy and milieu therapy were only briefly described. Both treatments have benefited the schizophrenic population. Drug therapy has been found to be more effective in controlling positive symptoms than negative symptoms, and it is only effective with about 50% of the persons with schizophrenia. Many of the patients relapse after a year and the side effects of the medication are numerous and very debilitating. During the last

few years there has been a general consensus on the part of experts in the field that persons with schizophrenia require psychosocial treatments along with drug therapy to help them in areas where medication has not been effective.

Milieu therapy is commonly used in hospital settings with persons with schizophrenia. It is limited by a lack of objective measures and cannot be easily replicated. Milieu therapy is not very effective with chronic patients, and when compared to behavioral treatments, it has proven to be inferior (Paul & Lentz, 1979).

Behavioral treatments were reviewed in more detail because of their relevance to the present study. Data to date shows that behavioral technology has been used effectively in changing behavior with persons having schizophrenia. The studies reviewed demonstrated that operant techniques can be used to establish appropriate behaviors (e.g., motor, social, etc.). Behavioral techniques also have been used effectively to decrease problem behaviors (e.g., aggression, self-injurious and psychotic behaviors) with this population. Token economy programs have been shown to be effective in establishing and maintaining appropriate chains of behaviors as well as in the management of this population on psychiatric wards. All of the studies that used operant techniques with this population were conducted under very structured environments such as psychiatric wards, and did not program for generalization of the results to less structured environments. The studies reviewed either failed to report follow-up data or did not maintain the results. However, in spite of methodological problems, these studies showed that operant techniques can be used to change schizophrenic behavior.

Summary of the Literature Review on Self-Management Techniques. Fifteen

studies have been reviewed which describe application of various self-management strategies with persons with schizophrenia. While these studies suggest that it may be worthwhile to teach self-management techniques to persons with schizophrenia, the studies are deficient in several respects. Specifically:

1. Most of the studies were concerned with decreasing problem behaviors (e.g., hallucinations). Problem behaviors are a relevant area of concern. However, if persons with schizophrenia are to function effectively in community environments, they must learn to consistently perform a variety of activities associated with daily living. Only three studies examined self-management strategies for increasing practical skills (e.g., bed making).
2. The reliability of many of the studies was questionable in that: (a) only three studies obtained reliability on the dependent variable, and (b) none of the studies obtained procedural reliability assessments on the application of the treatment procedures.
3. None of the studies clearly separated the problem of teaching self-management skills from the problem of their maintenance. That is: (a) none of the studies separated training data from maintenance data; (b) several of the studies either failed to show maintenance of effects or to report follow-up data; and (c) follow-up data that was reported typically consisted of brief assessments at specific intervals (such as after one month) rather than ongoing daily follow-up assessments with reliability measures.

4. None of the studies followed acceptable social validity procedures (while one study socially validated the target behaviors, none of the studies socially validated the intervention strategies).

In spite of the limitations of the studies reviewed, their results suggest that self-management procedures may have potential for application with persons with schizophrenia.

STATEMENT OF THE PROBLEM

Four persons with schizophrenia who were living in a community group home were studied. The experimental procedures were implemented in the group home by the group home staff. The main purposes of the present study were to: (a) demonstrate that persons with schizophrenia could learn to apply self-management procedures to increase their performance of community living skills; (b) separate training of self-management procedures from maintenance effects; and (c) correct methodological limitations of previous studies in the areas of data reliability, procedural reliability, and social validity.

Another purpose was to provide a within-subject comparison of two self-management packages on the long-term maintenance of community living skills. One self-management package emphasized self-monitoring plus delayed feedback from a staff member later in the day, while the other self-management package included self-monitoring, self-administration of tokens, and fairly immediate cash-in of tokens for back-up reinforcers. While the first package is easier for staff to

implement, there are theoretical reasons to suggest that the second package may be more effective.

METHOD

Subjects

Four residents of a community group home were studied. Residents were accepted in the group home only if they did not exhibit aggression, acting out behavior, or suicidal ideation. The residents were selected for the study on the basis that they: (a) had received a diagnosis of schizophrenia; (b) did not exhibit acute symptoms of the active phase of schizophrenia as described by the DSM-III-R (i.e., delusions, hallucinations, marked illogical thinking); and (c) had a minimum of three years of being diagnosed as having schizophrenia. While the study was being conducted, two of the residents worked during the day in a sheltered workshop for persons who had a psychiatric illness, and the other two participated in a YMCA Basic Life Skills Training Program for persons with psychiatric illness. Resident 4 had to be taken out of the study during the second week of treatment because he started to exhibit psychotic symptoms. He indicated to staff that he did not want to continue with the program at the YMCA, to live in the group home, or to participate in the study. The staff of the group home indicated that he did not want to respond to them or to participate in any activity in the group home. His participation in the study was terminated two weeks before he stopped attending the program at the YMCA. The staff at the YMCA reported to the group home that he had become upset with them. In the group home, he indicated that the staff of the "Y" were against him. He continued to exhibit psychotic behavior for a month until he was finally admitted to a Crisis Stabilization Program in a community hospital.

The residents' medication intake was monitored throughout the study. A

summary of the background characteristics of the four residents is shown in Table 1.

Insert Table 1 about here

Setting

The study was conducted in a group home managed by a nonprofit organization in Winnipeg, Manitoba. The group home had six bedrooms (each resident had his/her own room), a livingroom, three bathrooms, two rooms used as offices for the staff, and a utility room. Part of the basement was used as a recreational area where the residents could play cards, watch television, etc. The house had a front and a back yard. It also had two eat-in kitchens, one used by all the residents and the other used independently by the resident who was preparing to graduate to a less supervised setting. Of the residents who participated in the study, Resident 1 was transferred to the semi-independent program while the study was ongoing, but he did not use the independent kitchen during the study. Throughout the study, the experimental data were collected in the residents' bedrooms once they had left for the day.

The group home accommodates 6 residents who require level IV-V care (i.e., 24-hour supervision from caregivers) as defined by the Office of Residential Care for the Province of Manitoba. The objectives of the group home were to: (a) provide residential care for mentally ill persons between the ages of 18 and 45 who did not require hospital management; (b) provide intensive training in independent living skills; and (c) graduate residents to a more independent living situation.

TABLE 1
Summary of Residents' Background Characteristics*

Resident (R)	Sex	Age	Education	Diagnosis	Duration of Illness
R1	M	29	Grade XII	Schizophrenia Paranoid Type	4 years
R2	M	37	Grade XI	Schizophrenia Paranoid Type	17 years
R3	M	32	Grade XI	Schizophrenia Undifferentiated	14 years
R4	M	40	Grade XII	Schizophrenia Paranoid type	4 years

* Taken from the group home records

While the study was conducted, there were always a total of 6 residents at the home. Two of the residents were not included in the study because they did not meet the diagnostic criteria. The residents of the group home were responsible for grocery shopping, meal preparation, cleaning and maintenance of the house. These tasks were mostly performed under the supervision of the residential workers. The residents decided what to do during their free time and they were expected to return in the evening. The staff of the group home included a director, one counsellor, two residential workers and two night staff.

Personnel

Throughout the study, data was collected by the experimenter (a female graduate student in clinical psychology), one female undergraduate student (who had previously taken one semester of behavior modification), and two residential workers (a male and a female). Prior to data collection, the experimenter explained the data collection procedures to the observers. Next, the observers familiarized themselves with the target skills. The observers practiced using an observer checklist until they achieved a minimum of 80% agreement with the experimenter. A sample of the observer checklist is shown in Appendix B. The training package and self-management procedures were implemented by the counsellor of the group home who was responsible for monitoring the residents' progress and implementing programs. The counsellor was a female registered psychiatric nurse. Prior to implementing the training procedures, the counsellor was trained by the experimenter. Next, the counsellor practiced the implementation of the experimental procedures with a nonexperimental subject (a residential worker). The

counsellor was considered ready to train the residents when she reached a minimum of 80% of correct performance on a procedural reliability checklist. A sample of the procedural reliability checklist for training in the target skills and the self-management procedures is shown in Appendix C.

Target Skills and Experimental Checklist

It was common for the residents of the group home to receive training and help with their basic living skills. The group home had identified 10 groups of independent living skills that they considered to be necessary in order for a resident to graduate to a less structured environment (see Appendix D for a summary of the 10 groups of skills). The present experiment studied bedroom cleaning and bed making, which were considered part of routine cleaning listed under House Cleaning and Maintenance in Appendix D. The experimenter and the counsellor selected bedroom cleaning and bed making as the experimental skills for three reasons: (a) the residents were expected to perform these skills on a daily basis, which allowed for frequent data collection; (b) they were considered by the staff of the group home as necessary skills for the residents to have before they graduated to a less structured environment; and (c) the performance of these skills could be monitored on the basis of outcome data, which allowed the observers to be less intrusive during data collection.

After bedroom cleaning and bed making had been selected as the target skills, the experimenter and the counsellor familiarized themselves with the skills by practicing them until the room was cleaned and the bed was made. Next, a checklist was developed. The checklist included the necessary functional completed steps to clean a room and make a bed at a competent level. A residential worker

was asked to perform the target skills using the checklist and his feedback was incorporated in the final version of the checklist. The experimental checklist for bed making required the resident to check that the mattress protector covered the entire bed, to put on the bottom and top sheet, to cover the pillows with a pillow case and cover the bed with a quilt. The experimental checklist for bedroom cleaning required the resident to check that the floor, dresser, night table, and vanity were clean. The closet doors and drawers had to be closed. A sample of the checklists used by the residents to perform the target skills is shown in Appendix E.

Dependent Variables

The main dependent variable was the percentage of steps performed correctly on the experimental checklists. The observers collected data after the residents had left the house to go to work or to their community programs. In the event that a resident was still at home for any reason, data were not collected that day for that resident. The percentage of steps completed on an experimental checklist was calculated by dividing the number of correct steps by the total number of steps on that skill and multiplying by 100.

The residents were also evaluated for quality of performance on the target skills. Concerning bed making, data were collected on whether or not the mattress protector covered the entire bed and no part of the mattress was exposed. The bottom and top sheets had to be tucked in and have no folds (i.e., material should not overlap). The top sheet had to be folded back in an even line (i.e., 8 to 12 in.). The pillows had to be centered in the middle of the bed (i.e., same distance on both sides of the pillows from the edges of the bed). The pillow case had to be folded under the pillow. The quilt had to be straight (i.e., it had to hang the same distance

on both sides of the bed) and have no folds. Concerning the quality of room cleaning, the floor had to be clear of items except for a pair of slippers which had to be placed together under the edge of the bed. The garbage can could not be full (i.e., trash could not fill more than three quarters of the garbage can). The dresser, night table, and vanity had to be free of trash, and personal items had to be neat and tidy (i.e., lids on bottles, similar items had to be grouped together). The lights and radio had to be turned off, and the drawers and closet doors had to be closed tightly. These quality of performance criteria were established to ensure that the residents performed the skills at a competent level. The dependent variables were assessed throughout all phases of the study.

Experimental Phases

Baseline. Prior to the implementation of treatment procedures, baseline assessments were taken on the residents' performance of the target skills. The observers collected data on both skills at the same time using the observer's checklists (see Appendix A).

During the baseline phase, the residents were not informed about the study in order to control against reactive effects on the target skills. The presence of the experimenter was not seen as novel by the residents since they were used to seeing her in the group home for several months prior to the baseline phase. It was common for the group home to have people coming and going (e.g., social workers, community nurses, possible candidates, etc.), so it can be assumed that the presence of the second observer was also not seen as unusual by the residents. During the baseline phase, the staff were asked to interact with the residents in the same way that they normally did. Baseline data were collected on each skill with

the four residents until the data showed stability.

Prior to the introduction of the training package for the first skill, the counsellor asked each resident to complete a reinforcer survey on which they identified their preferred rewards (see Appendix F for a sample of the reinforcer survey). The residents were asked to complete the questionnaire and they were encouraged to ask any questions if they had problems with it. The counsellor told the residents, "(Name), I would like you to answer some of these points in this questionnaire so we can get an idea of the type of things that you enjoy, so in the future we can use them as rewards." Next, the counsellor asked the residents if they wanted to participate in a study that was going to be conducted in the group home. A general explanation was provided but no specifics about the procedures were given. The counsellor said to the resident, "We are looking at ways to help the residents with their independent living skills. We hope that everybody in the group home participates. Would you like to be part of this?" If the resident agreed to participate then the counsellor asked him to sign a release of information form required by the group home to allow the experimenter access to the necessary background information.

Training in target skills and self-monitoring procedures. After the residents had agreed to participate in the study, the counsellor asked the residents if they wanted to improve their performance on their independent living skills starting with bedroom cleaning or bed making (the counsellor mentioned only the first skill that was going to be targeted for intervention, which varied across residents). Next, the counsellor gave a general explanation about the importance of performing that skill at a competent level. She said: "(Name), it is important for you to know how to clean up your room (or make your bed). When your room (or bed) is nice and tidy

it reflects how organized you are." The four residents agreed to participate in the study and to learn the target skills.

After the resident had agreed to learn the target skill the counsellor then made the following introductory statement about the steps on the checklist: "I am going to go over the steps on this checklist. It includes all the steps that you should follow to make your bed (or clean your room) properly." Next, the counsellor explained to the resident the self-monitoring procedure. The counsellor showed the checklist to the resident. The counsellor then demonstrated, step by step, the appropriate way for the resident to self-monitor performance with the checklist. The counsellor said to the resident, "The first thing that you should do is read the first step on the checklist." She then demonstrated to the resident how to perform every step on the checklist while describing verbally what she was doing. For example, she said, "I make sure that the mattress protector covers the four corners of the mattress, then I make a check mark beside that step on the checklist. Next, I read the following step to use it as a guide to continue to make the bed." Subsequently, the counsellor asked the resident to demonstrate if he could do the steps on the checklist and self-monitor his performance. After the resident performed a step correctly, the counsellor said "that's right" or "that's good" or "good." If the resident stopped at any step, the counsellor encouraged him to continue, by saying, "(Name), what's next?" If the resident failed to respond or performed any step incorrectly, the counsellor provided specific instructions about how to perform that step(s) correctly. She provided corrective feedback when the resident made a check beside a step that had not been completed or failed to make a check for a step that had been completed. After the resident had correctly completed and made a check beside all the steps, the counsellor asked the resident to leave the

room for a few minutes so that she could undo what the resident had just done to enable him to start over again. If the resident incorrectly performed more than one step, he was asked to perform the target skill again until he was able to correctly perform 100% of the steps on the checklist on 2 of 3 consecutive trials. The resident was allowed 87% (i.e., one mistake) or correct performance on 1 of the 3 trials. This criterion defined competency on the target skill and the self-monitoring procedures. The resident was given a break of 5 minutes between each trial if he requested it. The training sessions were conducted between 1 and 5 p.m. to avoid interfering with the residents' supper time and their plans after supper. The implementation of the training package was completed on the same day that it began.

Self-monitoring and delayed feedback implementation (SMDF). After a resident had reached the competency level on the target skill, the resident was given either SMDF implementation or training on the self-management package (S-MAN). If a resident was to receive SMDF implementation, then the counsellor said, "(Name), I think that you pretty well know all the steps on the checklist. Don't forget to use the checklist every morning to clean your room (or make your bed)." The counsellor asked the resident to come to her office to get a clean checklist to use for the next day and suggested that he post the checklist on his bulletin board (Residents 1, 3 and 4 agreed to keep their checklist on their bulletin board; Resident 2 posted his checklist on the mirror of his vanity because he indicated that it was easier for him to see it when he got up). The resident was also asked to bring the completed checklist to the office and give it to the residential worker on duty before 9 a.m. (which was the group home's established time for the residents to have their rooms clean and their beds made). The residential

workers had been previously instructed to thank the resident and talk to the resident about issues nonrelated to the checklist. If the resident asked the residential worker something about the checklist, the residential worker told the resident to "ask the counsellor" when she arrived at work (the residential worker told the resident to come back for another checklist between 1 p.m. and 8 p.m. which was the time that the counsellor was in the group home). When the resident went to the counsellor's office for a new checklist, she showed the resident the checklist that he had returned that morning and gave the resident specific feedback about the accuracy of self-monitoring and about his performance on the target skill. She said, "(Name), you correctly completed all the steps on the checklist and you made a check beside every step," "that's good" or "keep up the good work." In the event that the resident had incorrectly performed a step(s) on the checklist and had made a check beside that step, the counsellor said, "You correctly completed these steps (pointing at the steps on the checklist) but (for example) the quilt on your bed did not cover one of the corners. Don't forget tomorrow to check every step on your checklist when you make your bed." The counsellor then gave the resident a new checklist to use the next day.

Booster training on task performance and SMDF. The counsellor gave booster training sessions to a resident when he incorrectly performed or missed the same step(s) on 3 consecutive occasions, or had stopped using the checklist, or when the resident's accuracy on the self-monitoring procedures fell below 50% on 3 consecutive days. Resident 1 also received a booster training session when he was moved to a different room to ensure that he knew all of the steps on both tasks. Booster training sessions occurred after the counsellor had given them feedback on their performance for that day. After the counsellor had given feedback to the

resident, she asked the resident to name a time for that day when he would be available to review the steps on the checklist with her. The counsellor told the resident, "(Name), over the last few days you have missed this step(s) when you cleaned your room (or made your bed). Why don't we review the steps on the checklist to make sure that you know how to (mentioned the step)." If the resident refused to do it the same day, a time for the next day was set.

During the booster training sessions, a shortened version of the training package was used (see Appendix B for a sample of the steps followed by the counsellor). The counsellor demonstrated to the resident how to correctly perform the steps on the checklist and to engage in self-monitoring. Next, the resident was asked to demonstrate the correct performance of the steps on the checklist. If the resident did not achieve 100% correct performance on the first trial, the counsellor asked him to repeat the steps that he had performed incorrectly until he was able to perform them correctly and without prompts. The resident was considered to know the steps if he performed them correctly and without prompts. Once the resident had demonstrated competency on the steps on the checklist, the counsellor gave him a new checklist to use the next morning.

Training in target skills and self-management procedures (S-MAN). When the first experimental treatment phase was the S-MAN, the counsellor demonstrated to the resident how to perform the target skill using the checklist and how to self-monitor their performance on the checklist (see the previous section for a description of the training procedures). She then demonstrated to the resident how to self-administer a sticker after the completion of all the steps on the checklist and explained the meaning of the sticker to the resident. She said, "After I complete all the steps on the checklist and have made a check beside every step, I put this green

sticker beside the sentence—I HAVE COMPLETED ALL THE STEPS ON THE CHECKLIST. The checklist with the green sticker can be exchanged for rewards." Next, she explained to the resident how to exchange the checklist with the sticker for a back-up reinforcer. The counsellor then asked the resident to perform the target skill and to engage in self-monitoring, self-administration of a sticker, and to exchange it for a back-up reinforcer. The rewards used were those that the resident had identified as preferred on the reinforcement survey. As in self-monitoring training, the counsellor provided positive feedback for correct performance on the target skill, correct self-monitoring, and correct self-administration of a sticker. The counsellor provided corrective feedback when the resident placed a checkmark beside a step that had not been completed or failed to check a step that had been completed. As well, she provided corrective feedback when the resident self-administered a sticker when a step(s) on the checklist had not been completed correctly, or if the resident failed to self-administer a sticker when all the steps on the checklist had been completed. Once the resident had completed all the steps on the checklist and had made a check beside every step and self-administered a sticker, the resident gave the checklist with the sticker to the counsellor who in turn showed the resident his list of rewards. The resident selected one reward from the list, and the counsellor gave him the back-up reinforcer that had been selected. The counsellor looked after the store of reinforcers which were kept in her office. In the event that the reinforcer selected by the resident was not available at that moment, the counsellor asked the resident to select another back-up reinforcer from his list. The resident received one back-up reinforcer for each checklist with a sticker. When the resident was able to perform the target skill, self-monitor, self-administer the sticker, and exchange the checklist with the sticker for a back-up reinforcer on

three consecutive trials without prompts, he was considered as having competency on the target skill and the self-management procedures. The resident was allowed to perform one of the three trials correctly on 87% of the steps and the other two at 100% correct performance.

Self-management package implementation. The S-MAN package consisted of self-monitoring, self-administration of a sticker, delayed feedback, and a back-up reinforcer. Once a resident had mastered the self-management procedures, the counsellor asked him to use the checklist on the target skill and to engage in self-monitoring and self-administration of a sticker when he performed the targeted skill. The counsellor asked him to post the checklist on his bulletin board. He was provided with a copy of the checklist and a sheet with green stickers. He was asked, as in the self-monitoring phase, to return the completed checklist before 9 a.m., and to return between 1 and 8 p.m. for a clean checklist and to exchange the checklist with the green sticker for a back-up reinforcer.

During the S-MAN phase, a resident returned the completed checklist before 9 a.m. As in the SMDF phase, he gave it to the residential worker who thanked him and talked to him about issues nonrelated to the checklist. The resident returned to the counsellor's office between 1 p.m. and 8 p.m. to see the counsellor, and at that time the counsellor gave him feedback about his performance on the target skill and his accuracy in self-monitoring in the same way as described above for the self-monitoring phase. In addition, she gave him feedback about his accuracy in self-administering the sticker. For example, she would say, "(Name), you correctly completed all the steps on the checklist, and you made a check beside every step, and as well, you put a green sticker on the checklist," "that's great" or "keep up the good work" or "that's good." In the event that the resident had placed the green

sticker on the checklist when a step(s) was not completed correctly the counsellor gave corrective feedback. For example, "You put on a green sticker but there is one step on the checklist that was not completed, so you shouldn't put on a green sticker. Don't forget to check (she described the step) tomorrow when you clean your room (or make your bed)." If the resident had correctly completed all the steps on the checklist, then the counsellor showed the resident his list of reinforcers. The resident then selected a reinforcer and told the counsellor what his choice was. The counsellor then gave the resident the reinforcer. The reinforcers were kept in her office. In the case that the reinforcer selected by the resident was not available at that moment, she asked the resident to select another reinforcer from the list. The counsellor then gave the resident a clean checklist to use the next day.

Booster training on task performance and S-MAN. Booster training sessions were conducted in the same way as during the SMDF phase. In addition, the self-administration of a sticker and back-up reinforcers were also practiced during the booster training. As was the case during the booster training sessions in the self-monitoring phase, the resident was considered to know the steps once he had correctly performed the steps without prompts. After he demonstrated competency on the steps, the counsellor gave him a clean checklist to use the next day. If the resident did not achieve a 100% performance on the first trial, the counsellor asked him to repeat the steps that he had performed incorrectly until he was able to perform them correctly and without prompts.

Experimental Design

In the first part of the research, in order to demonstrate the effects of the training on the target skills and the self-management procedures, a multiple-baseline

design across skills was used within each subject (for a discussion of this design, see Kazdin, 1980; Martin & Pear, 1988). That is, within each subject, a baseline was taken of the performance of two tasks (bed making and room cleaning). Clients were then taught to perform the tasks properly, and to self-monitor their performance. Training was introduced to the first task, while the second task continued on baseline. When performance reached criterion on the first task, training was then introduced to the second task. In addition to the staggered introduction of training across the two tasks for each subject, the tasks were counterbalanced across subjects. That is, two subjects received training on bed making first, and room cleaning second. The other two subjects received training on room cleaning first, and bed making second. This experimental design was used because it has strong internal validity for evaluating the effects of a treatment (Kazdin, 1980; Martin & Pear, 1988).

In the second part of the research, an ABCA reversal, within-subject design was used to compare the two self-management packages for their effects in maintaining the community living tasks of bed making and room cleaning. This design was chosen, in part, because a between-groups comparison of the two procedures was practically impossible (a sufficient number of appropriately matched subjects was simply not available). Although a within-subject comparison of treatments in an ABCA design presents the problem of multiple treatment interference or carry-over effects, these effects can be assessed by counterbalancing the two treatments across tasks within a subject and/or across subjects (Kazdin, 1980). Both of these strategies were followed. In addition, a replication of the most effective treatment was conducted in order to strengthen the internal validity of

this design for the second part of the research. The actual order of treatments and phases for subjects is shown in Table 2.

Insert Table 2 about here

Social Validation

The three residents who completed the study were asked to complete a social validation questionnaire to determine their personal preferences for, and acceptance of, experimental procedures. In addition, the residents' informal comments about the experimental procedures were monitored throughout the treatment phases. The director of the group home, the counsellor, and a residential worker were asked at the end of the study to complete a questionnaire to determine their views concerning the target skills, the effectiveness and usefulness of the experimental procedures, and the degree of behavioral change which occurred in the residents' performance on the target skills. The social validation questionnaires for the residents and the staff are provided in Appendix G.

Reliability Assessments

The experimenter and one of the observers performed interobserver reliability (IOR) checks. The experimenter and one observer simultaneously and independently recorded the outcome of the residents' performance on the target skills during baseline and treatment phases. Precautions were taken so that neither observer could determine what the other had recorded. During the training phase,

TABLE 2

Order of the Treatment Phases for the Four Residents

Resident 1		Resident 2		Resident 3		Resident 4	
RC	BM	RC	BM	RC	BM	RC	BM
BL	BL	BL	BL	BL	BL	BL	BL
T	T	T	T	T	T	T	
SMDF	S-MAN	S-MAN	SMDF	S-MAN	SMDF	SMDF	
S-MAN	SMDF	SMDF	S-MAN	SMDF	S-MAN		
BL	BL	BL	BL	BL	BL		
	SMDF		SMDF	S-MAN			
	S-MAN		BL	BL			
	BL		SMDF				
	SMDF						

- RC = Room Cleaning
 BM = Bed Making
 BL = Baseline
 T = Training
 SMDF = Self-Monitoring plus Delayed Feedback
 S-MAN = Self-Management Package

the observers recorded the residents' performance while they were completing the target skills. The IOR scores were calculated by dividing the total number of agreements by the total number of agreements plus disagreements and multiplying this result by 100.

RESULTS

Figure 1 presents the percentage of correct outcome performance for Resident 1.

Insert Figure 1 about here

As can be seen in Figure 1, performance on both tasks did not improve until a treatment was implemented. Resident 1's performance on room cleaning was maintained at near perfect performance level during both the SMDF phase and the S-MAN phase. There appeared to be no significant difference in the effect produced by the two treatments when they were first introduced to room cleaning. During room cleaning, there was no need for replication of either the SMDF or the S-MAN because the subsequent baseline performance was quite high throughout, with 44% of observation days at 100% correct performance. Performance during the reversal to baseline never fell lower than 75% correct.

With bed making, there was a small difference in the effects produced by the two treatments, favoring the S-MAN package. Performance on bed making dropped significantly during the reversal to baseline phase. This coincided with the resident being moved to a different room that had a double bed which was closer to the wall than the single bed used in the previous phases, and had a board on the bottom. When the SMDF phase and S-MAN phase were replicated they each produced a similar increase from baseline but the effects were not as great as during

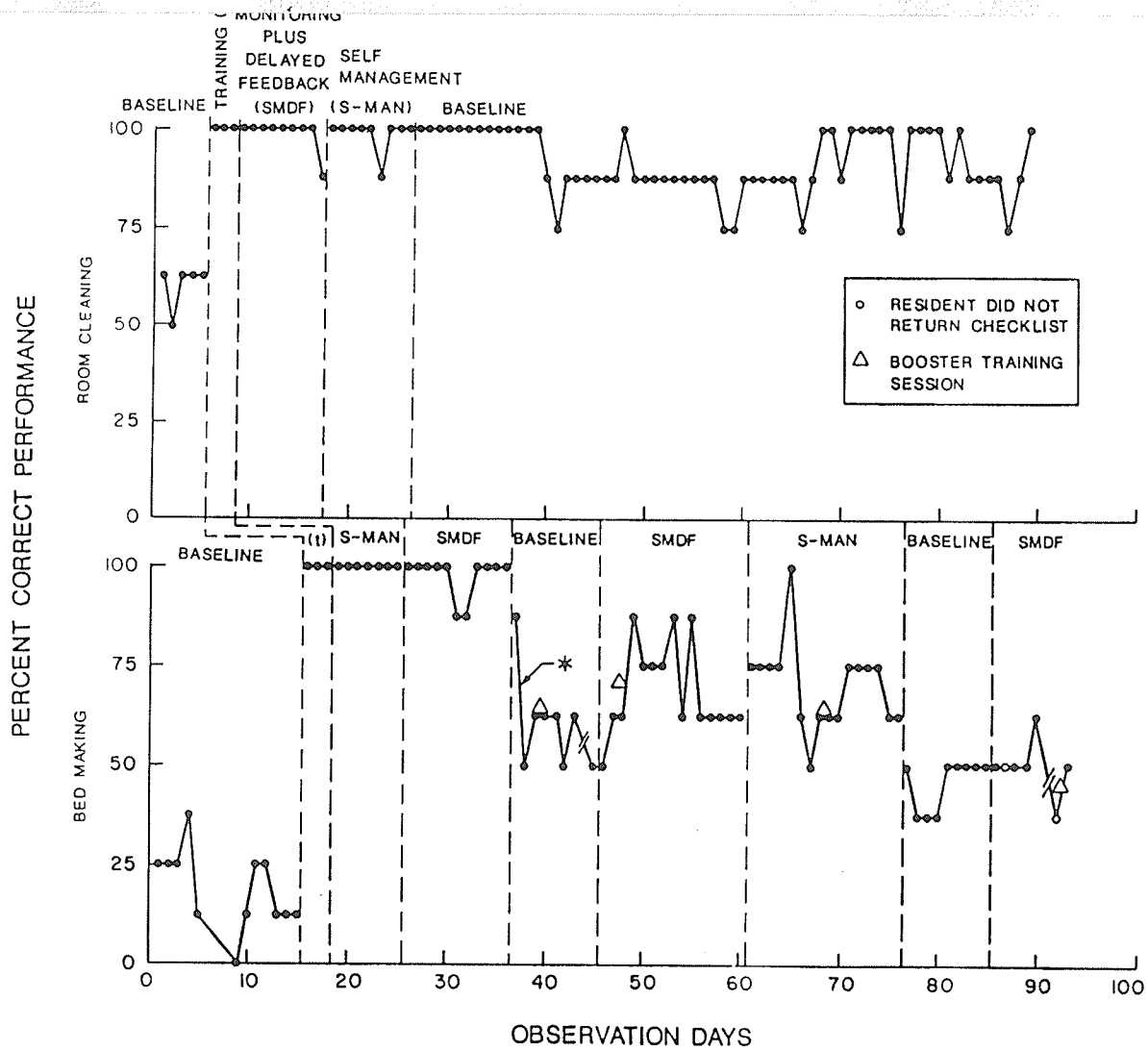


Figure 1. Percent correct performance of components of bed making and room cleaning for resident 1, across experimental phases.

* The resident changed from a single to a double bed.

the first application of the treatments. The performance decreased again during the third return to baseline phase. The final application of SMDF had no effect. This final phase coincided with Resident 1's parents going on holidays for two weeks. Reports from the group home staff indicated that he appeared upset at this since he normally spent every weekend with his parents. Resident 1 received a total of 4 booster training sessions on bed making.

Results for Resident 2 are shown in Figure 2.

Insert Figure 2 about here

As can be seen in Figure 2, performance on both skills did not improve until a treatment was introduced. For room cleaning, performance was maintained at a very high level when the S-MAN package was introduced with only one score less than 100% correct performance. The SMDF treatment produced a slightly better effect with 100% correct performance during the entire phase. On the room cleaning task, performance during the return to baseline phase was maintained at a very high level, with 40% of the observation days at 100% correct performance. Performance during the second baseline phase never fell below 75% correct.

During bed making, the SMDF phase showed slightly better effects than the S-MAN package. Performance during S-MAN decreased on two consecutive occasions to 50% of correct performance. On the first occasion, the resident had to go out of town, and he left very early in the morning. When he returned the

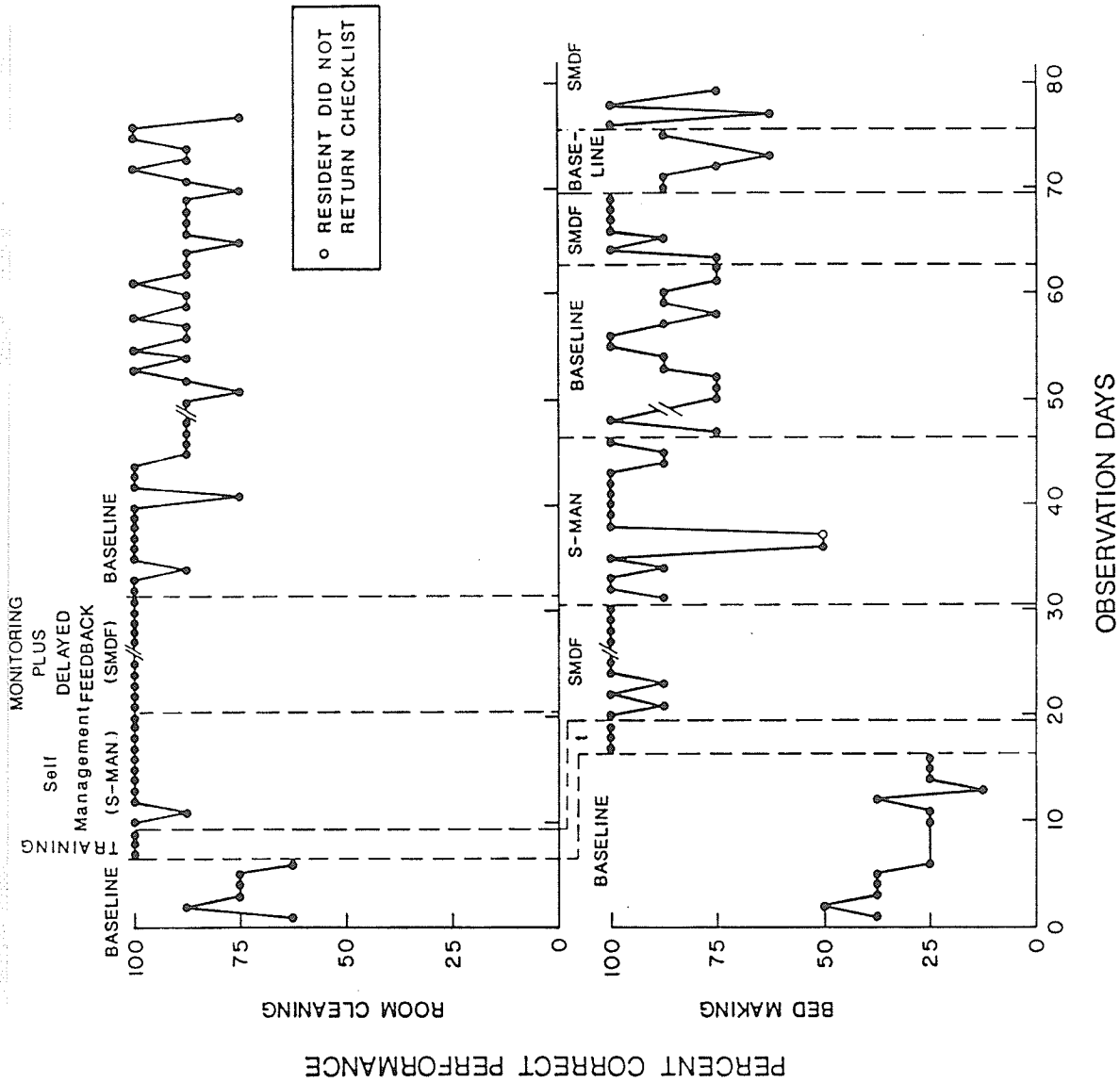


Figure 2. Percent correct performance of components of bed making and room cleaning for resident 2, across experimental phases.

counsellor had left and another staff member gave him the new checklist and gave him feedback about his performance that day on bed making (the staff member had written instructions from the counsellor about what he should say to the resident). The next morning the resident did not return the checklist, and his performance was also 50% of correct performance. The remaining data points during S-MAN were at a perfect or near perfect level.

During the first return to Baseline, performance decreased somewhat, but remained much higher than during the original Baseline. SMDF was chosen for replication because it had shown a slightly better effect than S-MAN and because it was the easier treatment to implement, and therefore the one preferred by the staff. Performance again increased to a very high level during SMDF. In a subsequent return to Baseline, performance again decreased somewhat. When the SMDF was introduced during the final phase for four sessions, performance was perfect for two of those sessions. During the final phase, the resident was told his parents were moving to another city. According to the staff in the group home, this event affected the resident a great deal to the point where he started to stay up all night. Resident 2 did not receive any booster training sessions on either skill.

Results for Resident 3 are shown in Figure 3.

Insert Figure 3 about here

As can be seen in Figure 3, performance on both skills did not improve until a

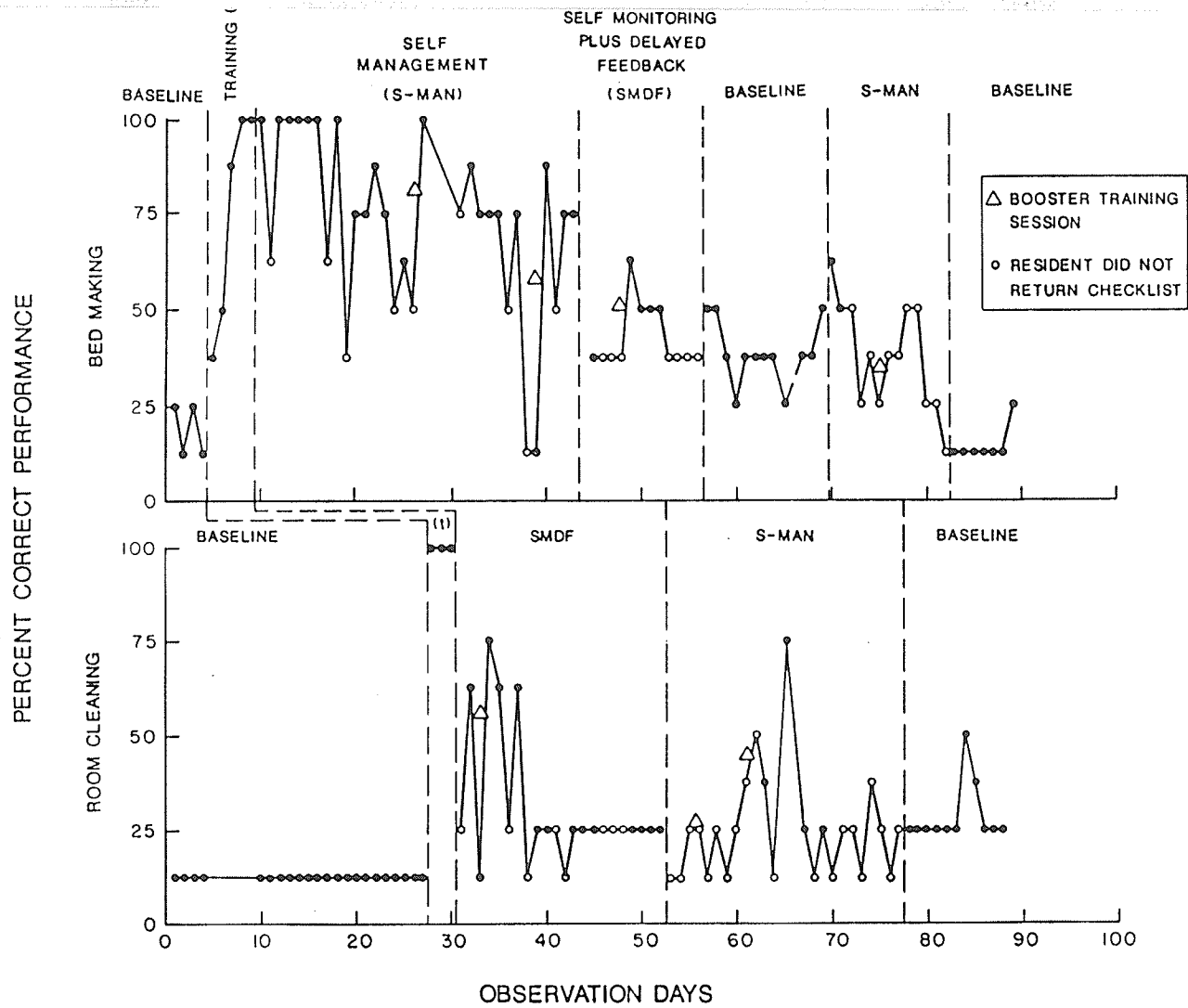


Figure 3. Percent correct performance of components of bed making and room cleaning for resident 3, across experimental phases.

treatment was implemented. When the S-MAN package was first introduced to bed making following training, performance was maintained at a high level. However, this effect decreased gradually and appeared to stabilize at approximately 75% with considerable variability. When SMDF was introduced, performance decreased immediately to a lower level, but stabilized at a level above the original Baseline. This level was maintained during the second Baseline and during a replication of the S-MAN phase. Overall, during bed making, there was a decrease after the initial effect of the S-MAN package. The overall decrease appeared to be insensitive to phase changes. This suggests that after the initial effect, the Resident's performance was controlled by factors other than the experimental treatments.

During room cleaning, following training, performance during SMDF showed an immediate decrease, but was maintained well above Baseline for one week. Performance then decreased to a level only slightly above Baseline. Performance remained at that low level during subsequent S-MAN and Baseline phases, except for a temporary increase during four days of S-MAN. Resident 3 received a total of four booster training sessions on bed making and a total of three booster training sessions with room cleaning.

Results for Resident 4 are shown in Figure 4.

Insert Figure 4 about here

As can be seen in Figure 4, performance in bed making did not improve until a

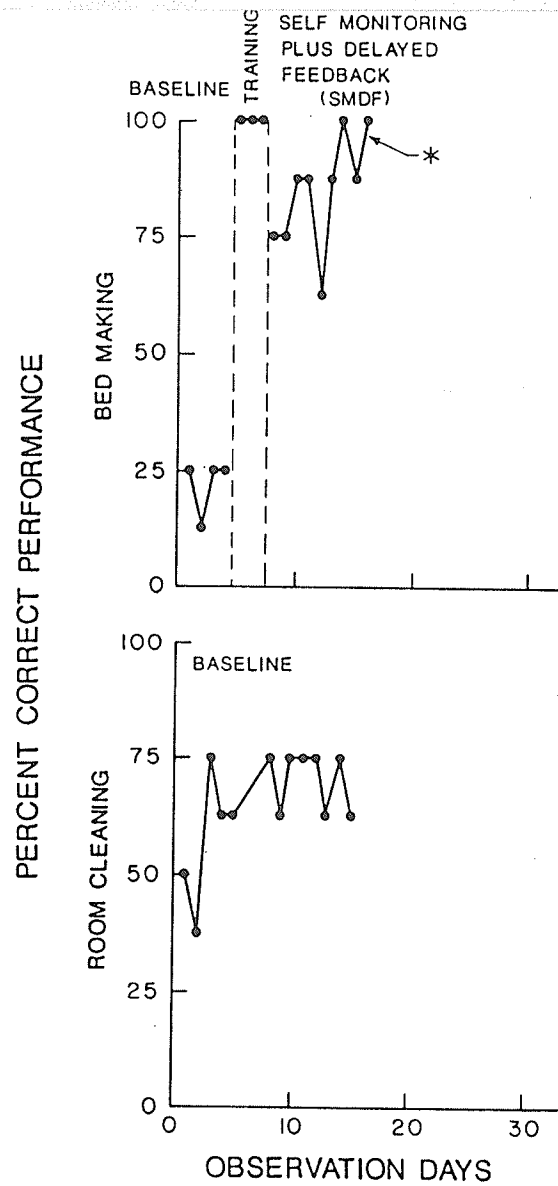


Figure 4. Percent correct performance of components of bed making and room cleaning for resident 4, across experimental phases.
 * The resident was taken out of the study because he started to exhibit psychotic symptoms.

treatment was implemented. During SMDF, performance was maintained at a high level. Intervention with room cleaning did not take place because a day before he was scheduled to receive training on the S-MAN procedures (of which he was not aware), he started to exhibit psychotic symptoms such as paranoid ideation and agitation. Resident 4 refused to continue in the community program and would not respond to the group home staff. The SMDF phase was removed. Because the resident spent most of his time for the next few weeks lying on his bed in his room, his performance on both skills was not followed.

Overall Results

The results of the three residents who completed the study showed that the S-MAN and SMDF treatments were effective with the two residents who used the experimental checklists more consistently and with a high level of accuracy. The SMDF and the S-MAN were about equally effective. Resident 1 showed no significant difference between the effects of either treatment with room cleaning and a very small difference between effects with bed making favoring the S-MAN package. Resident 2 showed a slightly better effect during SMDF than S-MAN with room cleaning. Residents 1 and 2 showed a high level of maintenance after the treatments were withdrawn from room cleaning, and considerable maintenance when treatments were withdrawn from bed making. Resident 3 showed an effect during approximately one month of the S-MAN phase during bed making. During subsequent phases, performance decreased. This resident was also the one who did not use the checklist often, and when he used it his accuracy was very poor.

Table 3 presents the percentage of the average mean of the outcome

performance on the components of bed making and room cleaning across phases for the four residents.

Insert Table 3 about here

The study was terminated for the following reasons: (a) the residents were going to leave for camp shortly after the last data point; (b) the counsellor was going to be on a different shift for the following weeks; (c) the experimenter had a prior understanding with the group home staff about the length of the study, which had lasted approximately five months.

Reliability Assessments

The mean accuracy on the use of the self-monitoring procedure was 75.60% for Resident 1; 94.05% for Resident 2; 37.7% for Resident 3; and 84.44% for Resident 4. The mean accuracy on the use of the self-monitoring plus self-administration of stickers was 87.07% for Resident 1; 93.26% for Resident 2; and 21.26% for Resident 3.

During experimental phases with the four residents, interobserver reliability assessments (IORs) were taken during: an average of 36.37% of the observation days during Baseline; all training sessions; an average of 30.69% of the observation days during the SMDF phase; and an average of 23.92% of the observation days during the S-MAN phase. Table 4 describes the average agreement across observers on the outcome performance of bed making and room cleaning for each

TABLE 3

**Average Percentage of the Outcome Performance on the Components
of Bed Making and Room Cleaning Across Phases for the Four Residents**

R	SK	BL1	SMDF1	S-MAN1	BL2	SMDF2	S-MAN2	BL3	SMDF3
R1	BM	18.5	97.63	100	60.62	68.8	70.31	45.66	44
	RC	59.6	98.55	98.55	90.04	-	-	-	-
R2	BM	30.53	97.4	90.5	84.64	94.57	-	78.83	84.25
	RC	72.6	100	98.81	90.86	-	-	-	-
R3	BM	18.5	42.33	72.83	38.25	-	37.30	13.85	-
	RC	12	30.54	24.75	28.36				
R4	BM	21.75	84.44						
	RC	65.15							

R = Resident
 SK = Skill
 BM = Bed Making
 RC = Room Cleaning
 BL = Baseline
 SMDF = Self-Monitoring plus Delayed Feedback
 S-MAN = Self-Management Package

phase for the 4 residents.

Insert Table 4 about here

Mean agreement for procedural reliability across residents was: 96% (range = 92-100) for the counsellor's implementation of the SMDF; 95.33% (range = 90-100) for the implementation of the S-MAN package; 95.85% (range = 86-100) for the implementation of the booster training sessions; 100% for the counsellor's feedback to the residents; and 100% for the residential workers' feedback to the residents.

Social Validation

The three residents who completed the study indicated that they thought that it was important to clean up their rooms and make their beds correctly on a regular basis. Residents 1 and 2 found it useful to use the checklist when they were cleaning their rooms and making their beds. Residents 1 and 3 said that they preferred to use the checklist with the green sticker. Resident 2 said that he preferred the checklist alone and the checklist with the green sticker about the same. The three residents indicated that the checklist had helped them to improve the way that they cleaned their rooms and made their beds. Only Resident 3 said that he would like to use the checklist in the future to clean up his room and to make his bed. Residents 2 and 3 said that they would like to use the checklist for other

TABLE 4

Average IORs for the Performance of Bed Making and Room Cleaning Across Phases

R	SK	T	BL	SMDF	S-MAN
1	BM	100%	100%	96.1% range = (87-100)	96.75% (87-100)
	RC	100%	93.5% range = (87-100)	100%	100%
2	BM	100%	93.5% range = (87-100)	98.37% (87-100)	95.66% (87-100)
	RC	100%	98.37% range = (87-100)	100%	100%
3	BM	100%	96.20% range = (87-100)	100%	100%
	RC	100%	92.2% range = (87-100)	95.66% (87-100)	96.87% (75-100)
4	BM	100%	93.5% range = (87-100)	96.75% (87-100)	
	RC		93.55% range = (87-100)		

R = Resident
 SK = Skill
 BM = Bed Making
 RC = Room Cleaning
 T = Training
 SMDF = Self-Monitoring plus Delayed Feedback
 S-MAN = Self-Management Package

tasks. Resident 3 said that he would like to use the checklist for all chores. Residents 1 and 2 said they always used the checklist when they had one, and Resident 3 said that on the days that he had not used the checklist, it was because he "could not get up" or "did not have enough time."

The counsellor and two staff members indicated that they considered room cleaning and bed making as somewhat necessary skills for the residents to have when they live on their own in the community. Two of them thought that the self-management skills learned during the study would be helpful for the residents in adjusting to living in the community. One staff member thought that these skills were very helpful. All three said that the SMDF and S-MAN procedures could be used with other tasks. One staff member added that the self-management skills could help the residents to organize their lives. All three thought that the SMDF and S-MAN procedures were effective in improving the quality and frequency of bed making and room cleaning with Residents 1 and 2. All three said that they thought that the S-MAN package was more effective than the SMDF treatment. All three staff members indicated that they thought that the residents liked to use the checklist. One staff member added that the checklist seemed "to get them motivated," and another staff member added that she knew that Resident 2 liked to use the checklist because he had openly said so. The counsellor indicated that she thought that Residents 1 and 2 liked to use the checklist. Two of the staff members indicated that in their opinion, Residents 1 and 2 preferred the S-MAN to the SMDF procedures. One of them was not sure which condition was preferred by Resident 3 and the counsellor indicated that she thought that Resident 3 did not appear to have a preference. One staff member indicated that she would use the SMDF and

S-MAN procedures in the future and another one said that she would "possibly" use them. The counsellor indicated that for her the easiest procedure to implement was the SMDF. None of the staff members suggested any changes for future implementation of SMDF or S-MAN. One staff member added that both procedures could be used with other life skills areas.

DISCUSSION

The results of this study suggest that self-management procedures can be effective in improving and maintaining performance on bed making and room cleaning with persons with schizophrenia living in a community group home. The SMDF and S-MAN treatments were about equally effective in improving and maintaining the performance on two out of the three subjects who completed the study. The third subject who completed the study also showed improvement but his results were very erratic and short-lived.

Consideration of Individual Residents

Looking more closely at each resident's performance, we find that Resident 1 showed a high level of performance on both skills during the SMDF and the S-MAN treatments. His performance decreased during bed making, but only after he was moved to a different room. This decrement could have been due to the resident having more difficulty in making the bed in his new room than he did in the previous one. It is possible that the inclusion of more steps in the checklist would have helped Resident 1 to make his bed at a "perfect" level. Also, when Resident 1 was moved to a different room he placed the checklist on his bulletin board, however, in his new room the bulletin board was behind the door, and it was more difficult to see the checklist, and it is possible that the checklist lost some of its stimulus control characteristics. As well, moving to a new room could have represented a source of stress because in the group home, being transferred to this room implied less supervision and the last step before being transferred to a less

structured environment. The resident could have felt pressure to "do well" in this semi-independent environment. Resident 1's performance on bed making increased once the SMDF and the S-MAN treatments were reintroduced. However, in the final phase during bed making, the effect was not replicated. The fact that Resident 1's parents had gone away for holidays without letting him know could have affected his performance on bed making. The group home staff reported that during this time he appeared very upset and anxious.

Resident 1 was able to perform at an acceptable level on bed making and at a high level on room cleaning when he was transferred to his new room, demonstrating good generalization of performance to a somewhat new environment.

Resident 2 exhibited good performance on bed making and room cleaning during both the SMDF and the S-MAN treatments. Resident 2's performance during the last treatment phase on bed making (which lasted only four days) was at a perfect level on two of those days and at an average level the other two. During this time the resident was told that his parents were moving to another province. This seemed to affect him a great deal in his general functioning in the group home and in the community program that he was attending. He had difficulty sleeping and appeared very anxious and depressed. It is highly possible that this event affected the resident's performance during bed making.

Both Resident 1 and Resident 2 exhibited a good level of performance during the SMDF and S-MAN treatments in both skills. Several factors could account for the similarity of the results with these two residents: (a) both residents used the self-management procedures on a regular basis; (b) they exhibited a high level of accuracy on the use of the self-management procedures; (c) both residents placed

the checklist in a highly visible location, and it is very likely that the checklist provided stimulus control for engaging in correct performance on bed making and room cleaning; and (d) overall, both residents appeared to function at an average level in other independent living skills.

Room cleaning may have been less difficult for both residents and that might explain why the effect of the SMDF and S-MAN treatments was somewhat poorer on bed making. Even on the occasions when Resident 1 and 2's performance decreased on bed making, their beds were made, and based on the comments of the group home staff, their beds appeared "tidy." It was because of the rigidity of the requirements of the checklist that the residents' performance was not considered as "perfect."

There is evidence in the literature which indicates that persons with schizophrenia are very vulnerable to stressful situations (Zubin & Spring, 1977). For Residents 1 and 2, the absence of their parents near the end of the study appeared to represent a great source of stress and to affect their performance in their daily functioning including the target skills.

Resident 3 exhibited very irregular results. Initially, S-MAN had a large effect on his performance on bed making. When he made his bed at a good level he usually came to the counsellor's office immediately after she arrived to get a new checklist and his medication (he usually had to be reminded to come and get his medication). However, his performance decreased over time. In spite of performing well during the booster training sessions, he did not use the checklists on a regular basis in the mornings before he left for work.

Several factors could account for the irregularity of Resident 3's performance during both treatments. First, he did not use the checklists on a regular basis, and

when he did his accuracy was very poor. On several occasions Resident 3 indicated that he had not used the checklist because he had lost it. Thus, it is very likely that the checklist never acquired stimulus control over bed making and room cleaning with this resident. Second, in the social validation questionnaire Resident 3 indicated that on the days that he did not use the checklist it was because he did not have enough time since he usually slept late. Sleeping late appeared to have great reinforcement value for Resident 3, which very likely competed with the contingencies for performance of the target skills, which included feedback several hours after the event. Third, Resident 3 was put on a money management program two weeks after the study began. The resident was only given money for essentials so he would not buy antihistamines over the counter, which he was known to abuse. Because of the money management program the resident was not allowed during the study to receive money as a back-up reinforcer, which limited his options. Fourth, Resident 3 only selected cigarettes and soft drinks as back-up reinforcers. These two items were available to him at any time, and he was allowed money for both, thus the reinforcement value of these items was likely not very high since he was not deprived of them. Fifth, while the experimenter was in the group home she observed that Resident 3 required several prompts before he engaged in any activity (e.g., cooking) and that he would not perform a task well unless a residential worker provided him with constant and specific instructions about how to perform the task. It was also the experimenter's impression that the staff of the group home did not expect a very high level of performance from him and that they were used to providing him with a great deal of structure. It is possible that Resident 3 received social reinforcement for seeking help and for performing a task at a less than average level, and that for him being more

"independent" may have been less attractive than being helped. This resident seemed to enjoy the presence of the counsellor and the observers, and the amount of time that they spent with him was partially contingent on poor performance. When he performed poorly, a booster training session was conducted which required more contact with the counsellor. Finally, it is possible that the following factors could have affected Resident 3's performance on the target skills and in his daily functioning: (a) the resident may have continued to abuse antihistamines during the course of the study; (b) he appeared to be responding to hallucinations when he was by himself; and (c) he was sick with the flu for several days during the study.

In spite of the fact that Resident 3 did not use the checklist often and showed poor accuracy when he used the self-management procedures, his performance overall was better than his original Baseline level for bed making.

In the future, for this type of intervention to be successful with Resident 3, it would be necessary to rearrange his environment so that the checklist could acquire stimulus control over correct performance. A sign above the checklist placed in a very visible place that said "Don't forget to use your checklist" might be helpful. It would also be important to help the resident to associate the use of the checklist with his routine behaviors so that it would become part of his daily schedule. It is also possible that immediate feedback initially would be more effective with Resident 3, and this could be faded until he received feedback several hours later (as was the case in this study).

Resident 4 showed a high level of performance during the SMDF treatment on bed making prior to being withdrawn from the study.

Of the three residents who completed the study, two said that they found it

helpful to use the checklist when they made their beds and cleaned their rooms. Two of the residents indicated that they preferred the S-MAN procedures while one resident said that he preferred both the SMDF and the S-MAN procedures about the same. The group home staff felt that both the SMDF and the S-MAN were effective in improving the residents' performance on the target skills but the S-MAN procedures were more effective and preferred by the residents. The counsellor commented that for her, the easiest treatment to implement was the SMDF. None of the staff members made any suggestions about possible changes in the self-management procedures for future implementations. One staff member suggested the use of the SMDF and S-MAN with other life skill areas.

Contributions of the Research

The present study addressed limitations of previous research and at the same time extended the findings of self-management studies with persons with schizophrenia in several ways.

First, the study demonstrated that self-management procedures can be used successfully with persons with schizophrenia in a noninstitutional setting, specifically:

- (a) in contrast with the studies reviewed which were conducted under structured conditions (e.g., hospital settings), this study was conducted in a group home which closely resembled the household of any citizen living in the community.
- (b) rather than the procedures being implemented by research assistants or highly trained professionals as was the case with the previous research, the experimental procedures in this study were implemented by the group

home staff and under common "everyday" conditions of a group home.

- (c) all of the dependent measures were in the form of outcome performance which made data collection less intrusive than those of the studies reviewed.

Second, the study addressed methodological limitations of previous studies by:

- (a) socially validating the target skills, experimental procedures and the results;
- (b) conducting interobserver reliability measures of the dependent variables;
- (c) conducting procedural reliability measures throughout the experimental phases, ensuring the quantification and integrity of the implementation of the treatments, which makes possible the replication of the study;
- (d) conducting continuous daily assessments of the dependent measures, as opposed to brief once or twice a month assessments. The daily assessments allowed for a closer follow-up of the residents' performance on the target skills for a prolonged period of time.

Third, the study supported the body of literature in self-management which has found self-monitoring procedures to be as effective as combined self-monitoring and self-reinforcement procedures (e.g., Castro & Rachlin, 1980; Chapman & Jeffrey, 1978; Rehm et al., 1981). The two subjects who showed a very high level of performance during both training and maintenance showed no difference in their performance between the two self-management procedures. This finding has important practical implications for the future implementation of self-management procedures with persons with schizophrenia who live in the

community, since the SMDF requires less time and effort from the caregivers to implement than the S-MAN procedures.

And finally, the majority of the previous studies focused on the decrement of inappropriate behaviors (e.g., hallucinations). This study focused on two target skills that are commonly considered to be part of the repertoire of independent living skills which persons with schizophrenia should possess before they are transferred to less structured conditions. It is reasonable to assume that self-management procedures could be used to improve a variety of other independent living skills, paving the way for faster integration of persons with schizophrenia back into the community.

Suggestions for Future Research

Originally, a final phase was planned for this study where the delivery of contingencies and feedback on the residents' performance would be faded from every day to feedback given on a similar basis to those persons with schizophrenia living independently in the community. This phase was only conducted with one skill (room cleaning) with Residents 1 and 2 because their performance was maintained at a good level once the treatments were withdrawn. Because of the time limitations and the fact that the residents were going to go to camp, it was not possible in this study to gradually fade out the experimental conditions with these two residents on bed making to ensure that a good level of performance was maintained. Future research in this area should include a final phase where the treatment conditions are faded to the point where the residents receive feedback only periodically as would be the case if they were transferred to less structured environments.

Further research might also investigate the possibility of persons with schizophrenia using self-control skills as defined by Baer (1985). This would involve the individuals selecting the target skills, measuring their own behavior, and self-administering the contingencies.

Another aspect which was partially explored in this study (when Resident 1 was moved to a new room) was the generalization of the behavior to a slightly different environment. Future research might explore the generalization of the self-management skills to different independent living skills (e.g., cooking, grocery shopping, etc.).

This study required performance to be "perfect" on the target skills to be considered as correct. If persons with schizophrenia are to adjust to the community, and their lives are to approximate as closely as possible the life style of any common citizen in the community, it is important that the same rules apply to both. Future studies in the area of independent living skills with this population might base training standards on the level at which a common citizen in the community performs the skills targeted for improvement. It is now well documented in the literature that persons with schizophrenia do not represent a heterogeneous group and that persons with schizophrenia who exhibit mostly negative symptoms are more impaired than persons with schizophrenia who exhibit mostly positive symptoms (Andreasen, 1982). It is possible that the type of self-management procedure used in this research is sufficient and effective with persons who do not exhibit severe deficiencies in their general functioning, which seemed to be the case with Residents 1 and 2. A more structured intervention may be needed with individuals like Resident 3, who exhibit greater deficiencies in their daily functioning. Some possibilities would be to: (a) shape the necessary skills such as

the correct use of the checklist; (b) include stronger stimulus control for correct performance; and (c) provide more immediate feedback, which could be faded out slowly to ensure that the behaviors acquired by the individual would be maintained under less structured conditions.

One of the major difficulties persons with schizophrenia undoubtedly will encounter as they attempt to adjust to living in the community is the fact that some of their behaviors will be considered abnormal or unusual by other members of the community. It is therefore particularly important that the study of self-management procedures with this population be rigorously pursued. Self-management offers a means of self-observation and control of one's behavior. The more similarity that exists between the behavior of a person with schizophrenia and so-called "normal" individuals living in the community, the greater the likelihood will be that an individual with schizophrenia will "blend" into the community successfully.

Summary

This study added to the body of literature in applied behavioral analysis, specifically to self-management procedures with persons having schizophrenia and living in the community. The study demonstrated that both the SMDF and the S-MAN treatments can be effective in maintaining performance when the procedures are used on a regular basis and with a high level of accuracy. The study found that both self-management treatments were about equally effective with the two residents who used the procedures with accuracy. Social validity data indicated that both the residents and the staff found the self-management procedures useful and effective. The SMDF was preferred by the staff member who was responsible for the implementation of the procedures, because it required less time to implement.

REFERENCES

- Abrams, G. (1969). Defining milieu therapy. *Archives of General Psychiatry*, 21, 553-560.
- Agras, W. (1967). Behavior therapy in the management of chronic schizophrenia. *American Journal of Psychiatry*, 124, 240-243.
- Agras, W. (1976). Behavior modification in the General Hospital psychiatric unit. In H. Leintenberg (Ed.), *Handbook of behavior modification and behavior therapy*. NJ: Prentice-Hall.
- Alford, G., Fleence, L., & Rothblum, E. (1982). Hallucinatory-delusional verbalizations: Modification in a chronic schizophrenic by self-control and cognitive restructuring. *Behavior Modification*, 6, 421-435.
- Alford, G., & Turner, S. (1976). Stimulus interference and conditioned inhibition of auditory hallucinations. *Journal of Behavior Therapy and Experimental Psychiatry*, 7, 155-160.
- American Psychiatric Association. (1980). *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.). Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (1987). *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed. rev.). Washington, DC: American Psychiatric Association.
- Andreasen, N. (1982). Negative symptoms in schizophrenia: Definition and reliability. *Archives of General Psychiatry*, 39, 784-788.
- Astrachan, B., Harrow, M., & Adler, D. (1972). A checklist for the diagnosis of schizophrenia. *British Journal of Psychiatry*, 121, 529.

- Ayllon, T., & Azrin, N. (1965). The measurement and reinforcement of behavior of psychotics. *Journal of Experimental Analysis of Behavior*, 8, 357-383.
- Ayllon, T., & Haughton, E. (1962). Control of the behavior of schizophrenic patients by food. *Journal of Experimental Analysis of Behavior*, 5, 343-352.
- Ayllon, T., & Haughton, E. (1964). Modification of symptomatic verbal behavior of mental patients. *Behavior Research and Therapy*, 2, 87-97.
- Baer, D. (1984). Does research on self-control need more control? *Analysis and Intervention in Developmental Disabilities*, 4, 211-218.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bauman, K., & Iwata, B. (1977). Maintenance of independent housing skills using scheduling plus self-recording procedures. *Behavior Therapy*, 8, 554-561.
- Bellack, A. (1976). A comparison of self-reinforcement and self-monitoring in a weight reduction program. *Behavior Therapy*, 7, 68-75.
- Bellack, A. (1986). Schizophrenia: Behavior therapy's forgotten child. *Behavior Therapy*, 17, 199-215.
- Bellack, A., & Mueser, K. (1986). A comprehensive treatment program for schizophrenia and chronic mental illness. *Community Mental Health Journal*, 22, 175-189.
- Bentall, R., Higson, P., & Lowe, C. (1987). Teaching self-instructions to chronic schizophrenia patients: Efficacy and generalization. *Behavioral Psychotherapy*, 15, 58-76.
- Bergman, R. (1975). Behavioral contracting with chronic schizophrenics. *Journal of Behavior Therapy and Experimental Psychiatry*, 6, 355-356.

- Bernard, H., & Efran, J. (1972). Eliminating vs. reducing smoking using pocket timers. *Behavior Research and Therapy*, *10*, 399-401.
- Bleuler, E. (1950). *Dementia praecox or the group of schizophrenias*. New York: International Universities.
- Boczkowski, J., Zeichner, A., & DeSanto, D. (1985). Neuroleptic compliance among chronic schizophrenic outpatients: An intervention outcome report. *Journal of Consulting and Clinical Psychology*, *53*, 666-671.
- Brihgham, T. (1980). Self-control revisited. Or why doesn't anyone actually read Skinner? (1953). *The Behavior Analyst*, *3*, 25-33.
- Browder, D., & Shapiro, E. (1985). Applications of self-management to individuals with severe handicaps: A review. *Journal of the Association for Severe Handicaps*, *10*, 200-208.
- Bucher, B., & Fabricatore, J. (1970). Use of patient-administered shock to suppress hallucinations. *Behavior Therapy*, *1*, 382-385.
- Carpenter, W., Strauss, J., & Bartko, J. (1973). A flexible system for the diagnosis of schizophrenia. *Science*, *182*, 1275-1278.
- Castro, L., & Rachlin, H. (1980). Self-reward, self-monitoring, and self-punishment as feedback in weight control. *Behavior Therapy*, *11*, 38-48.
- Catania, A. (1975). Self-reinforcement. *Behaviorism*, *3*, 157-162.
- Chapman, S., & Jeffrey, D. (1978). Situational management, standard setting, and self-reward in a behavior modification weight loss program. *Journal of Consulting and Clinical Psychology*, *46*, 1588-1589.
- Coleman, R., & Whitman, T. (1984). Developing, generalizing, and maintaining physical fitness in mentally retarded adults: Towards a self-directed

- program. *Analysis and Intervention in Developmental Disabilities, 1*, 109-127.
- Connis, R. (1979). The effects of sequential pictural cues, self-recording and praise on the job task sequencing of retarded adults. *Journal of Applied Behavior Analysis, 12*, 355-361.
- Davis, J., & Gierl, B. (1984). Pharmacological treatment in the care of schizophrenic patients. In A. Bellack (Ed.), *Schizophrenia: Treatment, management and rehabilitation* (pp. 133-174). New York: Grune & Stratton.
- Davis, J., Wallace, C., Liberman, R., & Finch, B. (1976). The use of brief isolation to suppress delusional and hallucinatory speech. *Journal of Behavior Therapy and Experimental Psychiatry, 7*, 269-275.
- Deffenbacher, J., & Simm, R. (1982). The self-control of anxiety. In P. Karoly & F. Kanfer (Eds.), *Self-management and behavior change: From theory to practice*. New York: Pergamon Press.
- Frederiksen, L., Jenkins, J., Foy, D., & Eisler, R. (1976). Social skills training to modify abusive verbal outbursts in adults. *Journal of Applied Behavior Analysis, 9*, 117-127.
- Fromm-Reichmann, F. (1948). Note on the development of treatment of schizophrenia by psychoanalytic psychotherapy. *Psychiatry, 11*, 265-273.
- Gardos, G., & Cole, J. (1976). Maintenance antipsychotic therapy: Is the cure worse than the disease? *American Journal of Psychiatry, 133*, 32-36.
- Goldiamond, I. (1976). Self-reinforcement. *Journal of Applied Behavior Analysis, 18*, 201-214.
- Goldstrom, I., & Manderscheid, R. (1981). The chronically mentally ill: A

- descriptive analysis from the uniform client data instrument. *Community Support Service Journal*, 11, 4-9.
- Gomes-Schwartz, B. (1979). The modification of schizophrenic behavior. *Behavior Modification*, 3, 439-469.
- Gumaer, J., & Headspeth, T. (1985). Self-instructional training with an adolescent schizophrenic. *School Counsellor*, 32, 371-380.
- Haley, W. (1983). Behavioral self-management application to a case of agitation in an elderly chronic psychiatric patient. *Clinical Gerontologist*, 13, 45-52.
- Haney, J., & Jones, R. (1982). Programming maintenance as a major component of a community-centered preventive effort: Escape from fire. *Behavior Therapy*, 13, 47-62.
- Hayes, S., Rosenfarb, I., Wulfert, E., Munt, E., Korn, Z., & Zettle, R. (1985). Self-reinforcement effects: An artifact of social standard setting? *Journal of Applied Behavior Analysis*, 18, 201-214.
- Hollander, M., & Horner, V. (1975). Using environmental assessment and operat procedures to build integrated behaviors in schizophrenics. *Journal of Behavior Therapy and Experimental Psychiatry*, 6, 289-294.
- Johnson, D. (1985). Antipsychotic medication: Clinical guidelines for maintenance therapy. *Journal of Clinical Psychiatry*, 46, 6-15.
- Karoly, P. (1977). Behavioral self-management in children: Concepts, methods, issues and directions. In M. Hensen, R. M. Eiler, & P. M. Miller (Eds.), *Progress in behavior modification, Vol. 5*. New York: Academic Press, Inc.
- Kazdin, A. (1977). Assessing the clinical or applied importance of behavior change through social validation. *Behavior modification, Vol. 5*. New

York: Academic Press, Inc.

- Kelly, J., & Lamparski, D. (1985). Outpatient treatment of schizophrenics: Social skills and problem-solving training. In M. Hersen & A. Bellack (Eds.), *Handbook of clinical behavior therapy with adults* (pp. 485-508). New York: Plenum.
- Kimbles, S. (1973). Behavior therapy and the black delinquent. In J. S. Stumphauzer (Ed.), *Behavior therapy with delinquents*.
- Klinge, V., Thrasher, P., & Mayers, S. (1975). Use of bed-rest overcorrection in a chronic schizophrenic. *Journal of Behavior Therapy and Experimental Psychiatry*, 6, 69-73.
- Kraepelin, E. (1919). *Dementia praecox and paraphrenia*. Reprinted in 1971, R. M. Barclay, & G. M. Robertson (Eds.). Huntington, NY. (Trans. by R. E. Krieger).
- Laing, R. (1967). *The politics of experience*. New York: Ballantine.
- Liberman, R., Lillie, F., Fallon, I., Harpin, R., Hutchinson, W., & Stoute, B. (1984). Social skills training with relapsing schizophrenics: An experimental analysis. *Behavior Modification*, 8, 155-179.
- Liberman, R., Marshall, B., Marder, S., Dawson, M., Nuechterlein, K., & Doane, J. (1984). The nature and problem of schizophrenia. In A. Bellack (Ed.), *Schizophrenia: Treatment, management, and rehabilitation* (pp. 1-34). New York: Grune & Stratton.
- Lidz, T., Fleck, S., & Cornelison, A. (1965). *Schizophrenia and the family*. New York: International Universities Press.
- Magaro, P., Talbott, J., & Glick, I. (1984). The inpatient care of chronic schizophrenia. In A. Bellack (Ed.), *Schizophrenia: Treatment,*

- management, and rehabilitation* (pp. 193-218). New York: Grune & Stratton.
- Mahoney, M. (1974). *Cognition and behavior modification*. Boston: Ballinger.
- Mahoney, M., Moura, N., & Wade, T. (1973). Relative efficacy of self-reward, self-punishment, and self-monitoring techniques for weight loss. *Journal of Consulting and Clinical Psychology, 40*, 404-407.
- Margolis, R., & Shemberg, K. (1976). Cognitive self-instruction in process and reactive schizophrenics: A failure to replicate. *Behavior Therapy, 7*, 668-671.
- Martin, G., & Pear, J. (1988). *Behavior modification: What it is and how to do it* (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Matson, J. (1981). Use of independent training to teach shopping skills to mildly mentally retarded adults. *American Journal of Mental Deficiency, 88*, 178-183.
- Matson, J., & Adkins, J. (1980). A self-instructional social skills training. *Mental Retardation, 18*, 245-248.
- Meichenbaum, D., & Cameron, R. (1973). Training schizophrenics to talk to themselves: A means of developing attentional controls. *Behavior Therapy, 4*, 515-534.
- Meyers, A., Mercatoris, M., & Sirota, A. (1976). Case study: Use of covert self-instruction for the elimination of psychotic speech. *Journal of Consulting and Clinical Psychology, 44*, 480-482.
- Morrison, R., & Bellack, A. (1984). Social skills training. In A. Bellack (Ed.), *Schizophrenia: Treatment, management, and rehabilitation* (pp. 247-280). New York: Grune & Stratton.
- Moser, A. (1974). Covert punishment of hallucinatory behavior in a psychotic

- male. *Journal of Behavior Therapy and Experimental Psychiatry*, 5, 297-299.
- Mosher, L., & Gunderson, J. (1975). Group, family, milieu, and community support systems for schizophrenia. In L. Bellack (Ed.), *Disorders of the schizophrenia syndrome*. New York: Basis Books.
- Neale, J., & Oltmanns, T. (1980). *Schizophrenia*. New York: Wiley.
- Nelson, R. (1977). Assessment and therapeutic functions of self-monitoring. In M. Hersen, R. Eiler, & P. Miller (Eds.), *Progress in behavior modification, Vol. 5* (pp. 263-307). New York: Academic Press.
- North, C. (1989). Current concepts of schizophrenia. *Comprehensive Therapy*, 15(3), 8-21.
- O'Farrell, T., Goodenough, D., & Cutter, H. (1981). Behavioral contracting for repeated suicide attempts. *Behavior Modification*, 5, 255-272.
- O'Leary, S., & Dubey, D. (1979). Applications of self-control procedures by children: A review. *Journal of Applied Behavior Analysis*, 12, 449-465.
- Paul, L., & Lentz, R. (1977). *Psychosocial treatment of chronic mental patients: Milieu versus social-training programs*. Cambridge, MA: Harvard University.
- Rehm, L., Kornblith, S., O'Hara, M., Lamparski, D., Romano, J., & Volkin. (1981). An evaluation of major components in a self-control therapy program for depression. *Behavior Modification*, 5, 459-489.
- Robertshaw, C., Kelly, T., & Hiebert, H. (1974). The use of self-monitoring and contingency management techniques to increase verbal responding of an emotionally disturbed adolescent. *School Applications of Learning Theory*, 7, 31-36.
- Rosenbaum, M., & Drabman, R. (1979). Self-control training in the classroom:

- A review and critique. *Journal of Applied Behavior Analysis*, 12, 467-485.
- Rutner, I., & Bugle, C. (1969). An experimental procedure for the modification of psychotic behavior. *Journal of Consulting and Clinical Psychology*, 33, 651-653.
- Scheff, T. (1966). *Being mentally ill: A sociological theory*. Chicago: Aldine.
- Schneider, K. (1959). *Clinical psychopathology*. Translated by M. Hamilton. New York: Grune & Stratton.
- Skinner, B.F. (1953). *Science and Human Behavior*. New York: Macmillan.
- Sowers, J., Verdi, M., & Bourbeau, S. (1985). Teaching job independence and flexibility to mentally retarded students through the use of a self-control package. *Journal of Applied Behavior Analysis*, 18, 81-85.
- Strauss, J., & Carpenter, W. (1981). *Schizophrenia*. New York: Plenum Medical Book Company.
- Sylph, J., Ross, H., & Kedword, H. (1977). Social disability in chronic psychiatric patients. *American Journal of Psychiatry*, 134, 1391-1394.
- Turner, S., Hersen, M., & Bellack, A. (1977). Effects of social disruption, stimulus interference and aversive conditioning on auditory hallucinations. *Behavior Modification*, 1, 249-258.
- Ullmann, L., & Krasner, L. (1968). *A psychological approach to abnormal behavior*. Englewood Cliffs, NJ: Prentice-Hall.
- Vaughn, C., & Leff, J. (1976). The measurement of expressed emotion in the families of psychiatric patients. *British Journal of Psychiatry*, 129, 125-137.
- Wall, S. (1982). Effects of systematic self-monitoring and self-reinforcement in

- children's management of test performances. *The Journal of Psychology*, *11*, 129-136.
- Walsh, M. (1985). *Schizophrenia: Straight talk for family and friends*. New York: William Morrow and Company, Inc.
- Weidner, F. (1970). In vivo desensitization of a paranoid schizophrenic. *Journal of Behavior Therapy and Experimental Psychiatry*, *1*, 79-81.
- Weingaertner, A. (1971). Self-administered aversive stimulation with hallucinating hospitalized schizophrenics. *Journal of Consulting and Clinical Psychology*, *36*, 442-429.
- Wincze, J., Leintenberg, H., & Agras, S. (1972). The effects of token reinforcement and feedback on the delusional verbal behavior of chronic paranoid schizophrenics. *Journal of Applied Behavior Analysis*, *5*, 247-262.
- World Health Organization. (1979). *Schizophrenia: An international follow-up study*. New York: J. Wiley & Sons.
- Wyatt, R., Alexander, R., Egan, M., & Kirch, D. (1988). Schizophrenia, just the facts: What do we know, how well do we know it? *Schizophrenia Research*, *1*, 3-18.
- Zubin, J., & Spring, B. (1977). Vulnerability—A new view of schizophrenia. *Journal of Abnormal Psychology*, *86*, 103-126.

APPENDIX A
DSM-III-R Criteria for the Diagnosis of Schizophrenia

- " A. Presence of characteristic psychotic symptoms in the active phase: either (1), (2), or (3) for at least one week (unless the symptoms are successfully treated):
- (1) two of the following:
 - (a) delusions
 - (b) prominent hallucinations (throughout the day for several days or several times a week for several weeks, each hallucinatory experience not being limited to a few brief moments)
 - (c) incoherence or marked loosening of associations
 - (d) catatonic behavior
 - (e) flat or grossly inappropriate affect
 - (2) bizarre delusions (i.e., involving a phenomenon that the person's culture would regard as totally implausible, e.g., thought broadcasting, being controlled by a dead person)
 - (3) prominent hallucinations [as defined in (1)(b) above] of a voice with content having no apparent relation to depression or elation, or a voice keeping up a running commentary on the person's behavior or thoughts, or two or more voices conversing with each other
- B. During the course of the disturbance, functioning in such areas as work, social relations, and self-care is markedly below the highest level achieved before onset of the disturbance (or, when the onset is in childhood or adolescence, failure to achieve expected level of social development).
- C. Schizoaffective Disorder and Mood Disorder with Psychotic Features have been ruled out, i.e., if a Major Depressive or Manic Syndrome has ever been present during an active phase of the disturbance, the total duration of all episodes of a mood syndrome has been brief relative to the total duration of the active and residual phases of the disturbance.
- D. Continuous signs of the disturbance for at least six months. The six-month period must include an active phase (of at least one week, or less if symptoms have been successfully treated) during which there were psychotic symptoms characteristic of Schizophrenia (symptoms in A), with or without a prodromal or residual phase, as defined below.

Prodromal phase: A clear deterioration in functioning before the active phase of the disturbance that is not due to a disturbance in mood or to a Psychoactive Substance Use Disorder and that involves at least two of the symptoms listed below.

Residual phase: Following the active phase of the disturbance, persistence of at least two of the symptoms noted below, these not being due to a disturbance in mood or to a Psychoactive Substance Use Disorder.

Prodromal or Residual Symptoms:

- (1) marked social isolation or withdrawal
- (2) marked impairment in role functioning as a wage-earner, student, or home-maker
- (3) markedly peculiar behavior (e.g., collecting garbage, talking to self in public, hoarding food)
- (4) marked impairment in personal hygiene and grooming
- (5) blunted or inappropriate affect
- (6) digressive, vague, overelaborate, or circumstantial speech, or poverty of speech, or poverty of content of speech
- (7) odd beliefs or magical thinking, influencing behavior and inconsistent with cultural norms, e.g., superstitiousness, belief in clairvoyance, telepathy, "sixth sense," "others can feel my feelings," overvalued ideas, ideas of reference
- (8) unusual perceptual experiences, e.g., recurrent illusions, sensing the presence of a force or person not actually present
- (9) marked lack of initiative, interests, or energy

Examples: Six months of prodromal symptoms with one week of symptoms from A; no prodromal symptoms with six months of symptoms from A; no prodromal symptoms with one week of symptoms from A and six months of residual symptoms.

- E. It cannot be established that an organic factor initiated and maintained the disturbance.
- F. If there is a history of Autistic Disorder, the additional diagnosis of Schizophrenia is made only if prominent delusions or hallucinations are also present."

APPENDIX B

Sample of Observers' Checklists for Bed Making and Room Cleaning

Observers' Checklist

Resident's name: _____ Word key
 Observer's name: _____ yes: ✓
 Date: _____ no: X
 Phase: _____
 % IOR: _____

***BED MAKING**

1. Quilt should be on the top of the bed. Quilt should cover the pillows. Quilt should be straight and with no folds (i.e. material should not overlap). Quilt should cover the mattress and hang evenly on the sides of the bed (i.e. quilt should hang the same length on the left and right side of the bed and cover the mattress on the bottom part of the bed).	
2. Pillows should be at the top of the bed and centered in the middle of the bed (i.e. edges of the pillow(s) should be equal distance from the sides of the bed. Opening of the pillow case(s) should be folded under the pillow(s)).	
3. Pillow protector should completely cover the entire pillow (i.e. no part of the pillow should be exposed), zipper of pillow protector should be closed. Pillow case should completely cover the pillow.	
4. Top sheet should be folded back in an even line (i.e. 8 to 12 inches).	
5. Top sheet should cover the entire mattress and have no folds (i.e. material should not overlap).	
6. Top sheet should be tucked in all around.	
7. Bottom sheet should cover all sides and corners of bed and be tucked in.	
8. Mattress protector should cover the entire bed (i.e. no part of the mattress should be exposed).	

Total number of correct responses: _____

Percentage of correct responses: _____

ROOM CLEANING

Phase: _____
 % IOR: _____

1. All shoes except a pair of slippers should be put away. Both slippers should be placed together under the bed.	
2. Floor should be free from all items except furniture, slippers and garbage can. Garbage can should not be full (i.e. no more than two thirds of the can).	
3. Dresser, night table and vanity should be free of trash (e.g. empty bottles, coffee cups, empty packages, etc.).	
4. Personal items should only be left on the dresser, night table and vanity. Personal items should be left neat and tidy (i.e. lids on bottles, similar items should be grouped together (e.g. brushes, money, books, etc.)).	
5. Room should be clear of all articles of clothing.	
6. Lights and radio should be turned off.	
7. Closet doors should be closed tightly.	
8. Drawers should be closed tightly.	

Total number of correct responses: _____

Percentage of correct responses: _____

Comments: _____

* Steps listed in opposite order to the residents' checklist to facilitate data collection.

APPENDIX C

**Procedural Reliability Checklist to Assess
the Counsellor's Implementation of the SMDF Training Procedures**

Procedural Reliability Checklist (SMDF)

	Yes	No
1. Counsellor asks the resident if he wants to improve his performance on his independent living skills starting with bedroom cleaning (or bed making).	_____	_____
2. Counsellor gives a general explanation about the importance of performing the above skill at a competent level ("It is important for you to know how to clean your room (or make your bed), and when your room (or bed) is nice and tidy it reflects how organized you are.").	_____	_____
3. After the resident has agreed to learn the target skills the counsellor makes an introductory statement about the steps on the checklist ("I'm going to go over the steps on this checklist. It includes all the steps that you should follow to clean your room (or make your bed) properly.").	_____	_____
4. Counsellor explains to the resident the self-monitoring procedure and shows the checklist to the resident. The counsellor demonstrates step by step the use of the checklist and the appropriate way for the resident to self-monitor his performance using the checklist ("The first thing that you should do is read the first step on the checklist."). The counsellor reads aloud the first step on the checklist.	_____	_____
<i>Insert here the resident's checklist on the skill to be trained.</i>		
5. Counsellor models to the resident how to perform every step on the checklist and describes verbally what she is doing. After every completed step she demonstrates to the resident how to self-monitor his performance (e.g. "I make sure that the mattress protector covers the four corners of the mattress, then I make a check mark beside that step on the checklist. Next, I read the following step on the checklist to use as a guide to continue to make the bed."). The counsellor repeats the same procedure with the eight steps on the resident's checklist.	_____	_____
6. After completing all of the steps on the checklist the counsellor undoes what she just did and asks the resident to demonstrate to her how to perform the skill that she modelled and how to self-monitor his performance using the checklist ("How about you doing it now? Just do what I just did so I know that I was clear in my explanation.").	_____	_____
7. Counsellor provides positive feedback after every step performed correctly (e.g. "That's right" or "That's good" or "Good.")	_____	_____
8. If the resident stops at any step or forgets to check the completed step the counsellor encourages him to continue ("What's next?").	_____	_____
9. If the resident fails to respond or performs any step incorrectly the counsellor provides specific instructions about how to perform that step correctly (e.g. "Don't forget to make sure that the mattress protector covers the four corners.").	_____	_____
10. If the resident forgets to check a step on the checklist that he completed, the counsellor reminds him that after he completes every step he should make a check beside the completed steps (Don't forget to check every step that you complete.").	_____	_____

	Yes	No
11. When the resident performs all the steps on the checklist correctly and without prompts and has made a check beside all the completed steps on the checklist, the counsellor asks him to perform the target skill again and to check the steps on the checklist so she is sure that he knows all the steps on the checklist ("Could you repeat what you just did so I make sure that you know all the steps on the checklist? I am going to have to undo what you just did so you can start from the beginning."). In the case of room cleaning, the counsellor asks the resident to leave the room for a few minutes so he does not see what changes she makes.	_____	_____
12. Counsellor asks the resident to clean his room (or make his bed) two more times. On the second trial the counsellor provides positive feedback after every other step correctly performed and after three or more steps on the third trial.	_____	_____
13. If the resident achieves 100% correct performance on two out of three consecutive trials and at least 87% correct performance on the other trial he will be considered as having competency on the target skill and the self-monitoring procedures. The counsellor asks the resident to use the checklist every time that he performs the target skill ("I think that you pretty well know how to clean your room (or make your bed). Remember to use the checklist every time that you clean your room (or make your bed).").	_____	_____
14. Counsellor takes the resident to her office and gives him a clean checklist to use the next time that he performs the target skill.	_____	_____
15. Counsellor tells the resident to post the new checklist on his bulletin board.	_____	_____
16. Counsellor asks the resident to return the completed checklist to the staff member on duty before 9 A.M. every morning and to pick up a new checklist from the counsellor at her office each day between 1 P.M. and 8 P.M.	_____	_____
17. In the event that the resident does not achieve the competency criteria on the first three trials, steps 7 to 11 are repeated until the resident achieves the competency criteria. If necessary the counsellor models all the steps on the checklist again.	_____	_____
18. In the event that the resident refuses to continue the training for that day, the counsellor arranges a meeting with him for the next day to complete the training.	_____	_____

APPENDIX C

**Procedural Reliability Checklist to Assess
the Counsellor's Implementation of the S-MAN Training Procedures**

Procedural Reliability Checklist (S-MAN)

	Yes	No
1. Counsellor asks the resident if he wants to improve his performance on his independent living skills starting with bedroom cleaning (or bed making).	_____	_____
2. Counsellor gives a general explanation about the importance of performing the above skill at a competent level ("It is important for you to know how to clean your room (or make your bed), and when your room (or bed) is nice and tidy it reflects how organized you are.").	_____	_____
3. After the resident has agreed to learn the target skills the counsellor makes an introductory statement about the steps on the checklist ("I'm going to go over the steps on this checklist. It includes all the steps that you should follow to clean your room (or make your bed) properly.").	_____	_____
4. Counsellor explains to the resident the self-monitoring procedure and shows the checklist to the resident. The counsellor demonstrates step by step the use of the checklist and the appropriate way for the resident to self-monitor his performance using the checklist ("The first thing that you should do is read the first step on the checklist."). The counsellor reads aloud the first step on the checklist.	_____	_____
<i>Insert here the resident's checklist on the skill to be trained.</i>		
5. Counsellor models to the resident how to perform every step on the checklist and describes verbally what she is doing. After every completed step she demonstrates to the resident how to self-monitor his performance (e.g. "I make sure that the mattress protector covers the four corners of the mattress, then I make a check mark beside that step on the checklist. Next, I read the following step on the checklist to use as a guide to continue to make the bed."). The counsellor repeats the same procedure with the eight steps on the resident's checklist.	_____	_____
6. After the resident completes all the steps on the checklist and has made a check beside every completed step the counsellor models to the resident how to self-administer a sticker ("After I complete all the steps on the checklist and have made a check beside every step, I put this green sticker beside the sentence — I HAVE COMPLETED ALL THE STEPS ON THE CHECKLIST.").	_____	_____
7. Counsellor explains to the resident the meaning of the checklist with the green sticker ("The checklist with the green sticker can be exchanged for rewards and it means that you can get something that you like when you come to see me to get a new checklist.").	_____	_____
8. Counsellor explains to the resident how he can exchange the checklist with the green sticker for a reward ("Do you remember the questionnaire that you filled out identifying the things and activities that you preferred? We have made a list of the things that you said you liked the most. You can exchange the checklist with the green sticker for one of those rewards.").	_____	_____
9. After completing all of the steps on the checklist the counsellor undoes what she just did and asks the resident to demonstrate to her how to perform the skill that she modelled and how to self-monitor his performance using the checklist ("How about you doing it now? Just do what I just did so I know that I was clear in my explanation.").	_____	_____
10. Counsellor provides positive feedback after every step performed correctly (e.g. "That's right" or "That's good" or "Good.").	_____	_____
11. If the resident stops at any step or forgets to check the completed step the counsellor encourages him to continue ("What's next?").	_____	_____

	Yes	No
12. If the resident fails to respond or performs any step incorrectly the counsellor provides specific instructions about how to perform that step correctly (e.g. "Don't forget to make sure that the mattress protector covers the four corners.").	_____	_____
13. If the resident forgets to check a step on the checklist that he completed, the counsellor reminds him that after he completes every step he should make a check beside the completed steps (Don't forget to check every step that you complete.").	_____	_____
14. If the resident forgets to put the green sticker on the checklist, the counsellor reminds him.	_____	_____
15. Once the resident completes all the steps on the checklist and has made a check beside every step and self-administered the "green sticker," the counsellor takes the resident to her office and shows the resident how to pick up a reward from the list of rewards. The counsellor gives to the resident the reward that he selects.	_____	_____
16. When the resident performs all the steps on the checklist correctly and without prompts, has made a check beside all the completed steps and has put on the green sticker and exchanged the checklist with the green sticker for a reward, the counsellor asks the resident to perform the target skill two more times ("Could you repeat what you just did so I make sure that you know all the steps on the checklist? I am going to have to undo what you just did so you can start from the beginning.").	_____	_____
In the case of room cleaning the counsellor asks the resident to leave the room for a few minutes so he does not see what changes she makes.		
17. Counsellor provides positive feedback after every other step correctly performed on the second trial and after three or more steps on the third trial.	_____	_____
18. If the resident achieves 100% correct performance on two out of three consecutive trials and at least 87% on the other trial he will be considered as having competency on the target skill and the self-management procedures. The counsellor asks the resident to use the checklist every time that he performs the target skill ("I think that you pretty well know how to clean your room (or make your bed). Remember to use the checklist every time that you clean your room (or make your bed).").	_____	_____
19. Counsellor provides the resident with a copy of the checklist and a sheet with green stickers to use the next time that he performs the target skill.	_____	_____
20. Counsellor asks the resident to post the checklist and sheet with green stickers on his bulletin board.	_____	_____
21. Counsellor asks the resident to return the completed checklist to the staff member on duty before 9 A.M. every morning and to pick up a new checklist from the counsellor at her office each day between 1 P.M. and 8 P.M.	_____	_____
22. In the event that the resident does not achieve the competency criteria on the first three trials, steps 7 to 11 are repeated until the resident achieves the competency criteria. If necessary the counsellor models all the steps on the checklist again.	_____	_____
23. In the event that the resident refuses to continue the training for that day, the counsellor arranges a meeting with him for the next day to complete the training.	_____	_____

APPENDIX C
Procedural Reliability Checklist to Assess
the Counsellor's Implementation of the Booster Training Sessions

Procedural Reliability Checklist for Booster Training Sessions

	Yes	No
1. Counsellor models for the resident how to perform every step on the target skill checklist and how to use the self-monitoring (or the self-management) procedures while she describes them verbally step by step.	_____	_____
<i>Insert here the resident's checklist on the skill that is being reviewed.</i>		
2. Counsellor asks the resident to demonstrate to her how to perform the skill that is being reviewed and to engage in self-monitoring or self-management procedures.	_____	_____
3. Counsellor provides positive feedback after every step is performed correctly and corrective feedback when the resident fails to respond or performs any step incorrectly.	_____	_____
4. If the resident forgets to make a check on the checklist beside the completed steps or to self-administer the green sticker and to exchange the checklist with the green sticker for a back-up reinforcer the counsellor reminds him.	_____	_____
5. If the resident performs all the steps correctly and without prompts the counsellor tells the resident ("I think that you pretty well know how to (name the skill). Remember to use the checklist the next time that you (mention the skill).").	_____	_____
6. In the event that the resident does not perform all of the steps correctly the counsellor asks the resident to repeat the step(s) where he had difficulty until he is able to perform the step(s) correctly and without prompts and to engage in the self-monitoring or self-management procedures. If the resident continues to exhibit difficulty with the step(s) on the second trial the counsellor models again for the resident the correct way to perform the steps.	_____	_____

APPENDIX C
Procedural Reliability Checklist to Assess
the Counsellor's Feedback to the Residents
During the SMDF and S-MAN Phases

Procedural Reliability Checklist for Counsellor's Feedback

	Yes	No
1. When the resident comes to see the counsellor she shows the resident the checklist that he had returned that day. She gives the resident feedback about which steps he completed correctly and his degree of accuracy on self-monitoring plus self-administration of the green sticker.	_____	_____
2. During the S-MAN, the counsellor shows the resident his list of reinforcers and asks him to pick one from the list.	_____	_____
3. After the resident has selected his backup reinforcer from the store of reinforcers the counsellor gives the reinforcer to the resident.	_____	_____
4. The counsellor gives the resident a clean checklist to use the next day.	_____	_____
5. In the event that the resident had incorrectly performed a step(s) on the checklist the counsellor first describes the steps that he performed correctly and next, she identifies the step(s) that were not performed correctly. The counsellor describes specifically what was not performed correctly. For this purpose she uses the observer's feedback on the checklist (e.g. "You performed correctly steps one to seven (shows the checklist to the resident) and made a check on those steps, however, in step eight you did not cover the right side corner on the bottom of the bed. Don't forget to make sure that the four corners of the bed are covered."). Next, the counsellor gives the resident a clean checklist to use the next day.	_____	_____
6. If the resident had performed a step incorrectly and had put on a green sticker, the counsellor tells him that the green sticker only goes at the bottom of the checklist when all the steps are performed correctly.	_____	_____
7. If the resident forgets to come to the counsellor's office for a new checklist the counsellor reminds him about the checklist.	_____	_____

APPENDIX D

Summary of Groups of Independent Living Skills

Money Management

1. Banking transactions
2. Budgeting
3. Paying bills
4. Handling money transactions with others
5. Income management procedures

Shopping and Consumer Education Grocery Shopping

1. Making grocery list and shopping for one week
2. Shopping for quality and best prices

Shopping for Clothes, Personal Items and Household Goods

1. Choosing the appropriate store and shopping for the best prices
2. Keeping receipts, instructions, and warranties

Meal Preparation and Storage

1. Using major kitchen appliances, organizing and maintaining order of kitchen
2. Meal planning
3. Using measuring and cooking utensils
4. Cooking for self and household
5. Meal serving
6. Meal clean-up
7. Food storage

House Cleaning and Maintenance

1. Dividing chore responsibilities
2. Routine cleaning
3. Major cleaning
4. Utility conservation
5. Understanding of thermostat, circuit breakers and fuses, plumbing and water heater

Personal Hygiene and Clothing Maintenance

1. Bathing and grooming
2. Dressing appropriately
3. Clothing maintenance

Medication Management and Health Care

1. Managing prescribed medication
2. Appropriate use of medication
3. Making and keeping medical appointments
4. Taking care of minor illnesses
5. Recognizing serious illnesses
6. Sleeping patterns
7. Engagement in physical activity
8. Knowledge of human sexuality

Community Resources and Transportation

1. Use of public transportation
2. Using a map
3. Knowledge of vehicle use
4. Use of phone book and directories
5. Awareness of recreation and leisure resources
6. Awareness of community laws, safety precautions and citizen responsibilities
7. Locating and securing housing

Communication and Interpersonal Relations

1. Communication with others
2. Conversation skills
3. Handling interpersonal conflicts
4. Initiating friendships
5. Maintaining friendships
6. Correspondence skills
7. Following directions
8. Table manners

Problem Solving and Decision-Making

1. Utilization of appropriate resources to assist in problem solving
2. Utilization of appropriate resources to assist in decision making
3. Problem solving process
4. Decision making process

APPENDIX E
Sample of the Checklist Used by the Residents
for Bed Making During the SMDF and S-MAN Phases

Checklist for Bed Making

Resident's name: _____ Date: _____

Please make a check mark (✓) beside every completed step.

1. Mattress protector should cover the entire bed (i.e. no part of the mattress should be exposed).	
2. Bottom sheet should cover all sides and corners of bed and be tucked in.	
3. Top sheet should cover the entire mattress and have no folds (i.e. material should not overlap).	
4. Top sheet should be folded back in an even line (i.e. 8 to 12 inches).	
5. Top sheet should be tucked in all around.	
6. Pillow protector should completely cover the entire pillow (no part of the pillow should be exposed), zipper should be closed. Pillow case should completely cover the pillow.	
7. Pillow should be at the top of the bed and centered in the middle of the bed (i.e. edges of the pillow should be equal distance from the sides of the bed). Opening of the pillow case should be folded under the pillow.	
8. Quilt should be on the top of the bed. Quilt should cover the pillows. Quilt should be straight and with no folds (i.e. material should not overlap). Quilt should cover the mattress and hang evenly on the sides of the bed (i.e. quilt should hang the same length on the left and right sides of the bed and cover the mattress on the bottom part of the bed).	
*I HAVE COMPLETED ALL THE STEPS ON THE CHECKLIST: (Administer a green sticker.)	

* This part was only present during the S-MAN phase.

APPENDIX E
Sample of the Checklist Used by the Residents
for Room Cleaning During the SMDF and S-MAN Phases

Checklist for Room Cleaning

Resident's name: _____ Date: _____

Please make a check mark (✓) beside every completed step.

1. All shoes but a pair of slippers should be put away. Both slippers should be placed together under the bed.	
2. Floor should be free of all items except furniture, slippers and garbage can. Garbage can should not be full (i.e. no more than two thirds of the garbage can should be full).	
3. Dresser, night table and vanity should be free of trash (e.g. empty bottles, coffee cups, empty packages, etc.).	
4. Personal items should only be left on the dresser, night table and vanity. Personal items should be left neat and tidy (i.e. lids on bottles, similar items should be grouped together, e.g. brushes, money, books, bottles, etc.).	
5. Room should be clear of all articles of clothing.	
6. Lights and radio should be turned off.	
7. Closet doors should be closed tightly.	
8. Drawers should be closed tightly.	
*I HAVE COMPLETED ALL THE STEPS ON THE CHECKLIST: (Administer a green sticker.)	

* This part was only present during the S-MAN phase.

APPENDIX F

Reinforcement Survey*

Name _____ Date _____

D.O.B. _____ Sex _____

Check the degree to which you like each of the following activities or things.

	Not at all	A little	A fair amount	Much	Very much	Would like to try
Section I						
1. Eating food						
a. meats						
b. donuts						
c. cake						
d. vegetables						
e. Italian food						
f. seafood						
g. poultry						
h. bread						
i. cereal						
j. fruit						
k. ice cream						
l. Chinese food						
m. candy						
n. eggs						
o. popcorn						
p. salads						
q. chips						
r. nuts						
s. Kosher food						
t. diet foods						
u. cookies						
v. cheese						
w. chewing gum						
2. Nonalcoholic beverages						
a. coffee						
b. malts						
c. tea						
d. milk						
e. soft drinks						

	Not at all	A little	A fair amount	Much	Very much	Would like to try
f. cocoa						
g. ice cream sodas						
j. juices						
i. Kool-Aid						
3. Smoking						
a. cigarettes						
b. pipe						
c. cigars						
Section II						
1. Visiting relatives						
2. Going home						
3. Having relatives visit						
4. Going out with relatives						
5. Helping others						
6. Talking with people						
a. counsellor						
b. residential worker						
c. community mental health worker						
d. family						
e. doctor						
f. visitor						
7. Eating out with						
a. staff						
b. a relative						
c. a friend						
8. Being with friends						
9. Being by oneself						
10. Being with others						
a. someone of the opposite sex						
b. someone my own age						
c. other residents						
11. Attending social clubs						
12. Going on picnics						
13. Going to parties or socials						
Section III						
1. Doing housekeeping						

	Not at all	A little	A fair amount	Much	Very much	Would like to try
2. Doing secretarial work						
3. Doing laundry						
4. Washing dishes						
5. Dusting						
6. Planning a bake sale						
7. Serving on committees						
Section IV						
1. Living areas						
a. private room						
b. a house						
c. apartment						
2. Recreational areas						
a. church						
b. museums						
c. the zoo						
d. restaurants						
e. the theater						
f. parks						
g. the beach						
h. the country						
i. downtown						
j. the movies						
Section V						
1. Physical activities						
a. gardening						
b. dancing						
c. walking						
d. swimming						
e. bowling						
f. playing basketball						
g. playing ping-pong						
h. playing other sports (specify)_____						
2. hobbies						
a. knitting						
b. sewing						
c. listening to music						
d. looking at art						

	Not at all	A little	A fair amount	Much	Very much	Would like to try
e. doing artistic things, for example (1)						
(2)						
(3)						
(4)						
f. collecting things						
3. Leisure activities						
a. playing cards/games						
b. visiting friends						
c. watching TV						
d. watching sports						
e. renting a video movie						
f. listening to the radio						
g. reading						
h. going on trips						
i. having a barbecue						
j. relaxing after work						
k. decorating your living quarters						
4. Learning activities						
a. attending a class on (1) good grooming						
(2) cooking						
(3) sewing						
(4) personal adjustment						
(5) using public transportation						
(6) shopping						
(7) budgeting						
(8) child care						
(9) applying for a job						
Section VI						
1. Taking naps						
2. Sleeping						
3. Sleeping late in the morning on weekends and holidays						
4. Being well dressed						
5. Taking care of clothes and personal belongings						

	Not at all	A little	A fair amount	Much	Very much	Would like to try
6. Taking baths						
7. Taking showers						
8. Being clean and neat						
9. Having a place to put your own things						
10. Having a choice in planning your own day						
11. Having peace and quiet						
12. Receiving rewards for good behaviour						
13. Making money						
14. Eating in someone's home						
15. Kissing						
16. Embracing						
17. Being in crowds						
18. Praise for						
a. your appearance						
b. your work						
c. your strength						
d. your athletic ability						
e. your intelligence						
f. your understanding of others						

* *Modified version of the Cautela's Psychiatric Survey Schedule*

APPENDIX G

Social Validation Questionnaire Administered to Staff

Social Validation Questionnaire

1. Do you consider bed making and bedroom cleaning as necessary skills for the residents to have when they are living on their own in the community?

Not necessary _____ Somewhat necessary _____ Very necessary _____

2. Do you think that the self-management skills learned by the residents would help them in adjusting to living in the community?

Not helpful _____ Somewhat helpful _____ Very helpful _____

3. Do you think that the self-management skills that the residents acquired during the study could be used with other tasks?

No _____ Yes _____

4. Do you think that the self-management procedures used in the study were effective in helping the residents to improve the quality and frequency of bed making and room cleaning?

	Frequency		Quality	
	No	Yes	No	Yes
R1	_____	_____	_____	_____
R2	_____	_____	_____	_____
R3	_____	_____	_____	_____

5. In your opinion which treatment was most effective, the SMDF or S-MAN?

SMDF (Self-Monitoring plus Delayed Feedback) _____
 S-MAN (Self-Management Package) _____
 Neither _____

6. Do you think that the residents liked to use the self-management procedures?

No _____ Yes _____

Please comment: _____

7. In your opinion which of the self-management procedures was preferred by the residents?

	SMDF	S-MAN
R1	_____	_____
R2	_____	_____
R3	_____	_____

8. Which of the procedures did you find easiest to implement?

SMDF _____ S-MAN _____

9. Would you use these procedures in the future?

No _____ Yes _____

10. Would you suggest any modifications for the future use of the SMDF and S-MAN procedures in group homes like this one?

No _____ Yes _____

Please comment: _____

11. Would you like to add any other comments? _____

Thank you very much for your cooperation.

Patricia.

APPENDIX G

Social Validation Questionnaire Administered to Residents

Social Validation Questionnaire

1. Do you think that it is important to clean up your room and make up your bed on a regular basis?

No _____

Yes _____

2. Did you find it helpful to use the checklist when you cleaned your room and made your bed?

No _____

Yes _____

3. Which do you prefer to use?

Checklist alone _____

Checklist with the green sticker _____

Neither _____

4. Do you think that using the checklist helped you to improve the way that you make your bed and clean up your room?

No _____

Yes _____

5. Would you like to use the checklist in the future when you clean your room and make your bed?

No _____

Yes _____

6. Would you like to use the checklist for other tasks?

No _____

Yes _____

If you said yes which tasks? _____

7. On the days that you did not use the checklist why did you not use it? _____

Thank you very much for your cooperation.

Patricia.