

A Comparison of Appropriate Behavior Scores of Residents With Chronic Schizophrenia Participating in Therapeutic Recreation Services and Vocational Rehabilitation Services

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Researchers compared appropriate behavior scores of six residents with chronic schizophrenia participating in therapeutic recreation (TR) services and vocational rehabilitation (VR) services within a social-learning program. Paid observers used the Time-Sample Behavioral Checklist (TSBC) developed by Paul (1987a) to record data. Researchers then analyzed recorded data using a paired t-test. Results of the t-test indicated residents participating in TR sessions exhibited significantly ($p < .05$) higher appropriate behavior scores than when participating in VR sessions. Within the context of the social-learning program, TR was more effective than VR in aiding residents with chronic schizophrenia exhibit appropriate behavior.

KEY WORDS: *Therapeutic Recreation, Vocational Rehabilitation, Schizophrenia, Appropriate Behavior, Social-Learning*

Introduction

Residents in state mental hospitals are among the most severely impaired individuals of those with chronic schizophrenia (Paul & Menditto, 1992). These individuals

exhibited deficits in social and interpersonal functioning (Paul, 1984; Sneegeas, 1989). Even with deficits in functioning, individuals with chronic mental illness were discharged into the community; however, few remained

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in the community (Bachrach, Bergman, & Harris, 1986; Lawton, Lipton, & Fulcomer, 1977; Serban, 1975).

Individuals' failure to succeed outside an institution has been linked to a lack of functional skills and appropriate behaviors (Anthony, Cohen, & Vitalo, 1978; Bachrach, Bergman, & Harris, 1986; Lawton, Lipton, & Fulcomer, 1977; Serban, 1975). One documented technique for increasing skills and appropriate behavior is learning-based treatment (Glynn & Mueser, 1992; Liberman, 1988; Menditto, Baldwin, O'Neal, & Beck, 1991; Menditto, Valdes, & Beck, 1994; Paul & Menditto, 1992).

The state mental hospital under study offered learning-based treatment through the social-learning program. Two professions that provided treatment through the social-learning program were therapeutic recreation (TR) and vocational rehabilitation (VR). Menditto et al. (1994) and Paul and Lentz (1977) both indicate that TR and VR can help to improve skills and increase appropriate behavior; however, there exists little empirical evidence to support this claim.

Paul and Lentz (1977) speculated that when treatment included teaching appropriate behavior skills, individuals with chronic schizophrenia remained in the community. When provided with consistent skill training and positive reinforcement for appropriate behavior, the "revolving door" problem became less of a problem. However, no evidence existed to support the effects of TR services or VR services in the social-learning program. Furthermore, no studies exist which indicate whether TR or VR produced the most appropriate behavior. Therefore, the purpose of this study was to determine whether residents participating in TR sessions or in VR sessions exhibited higher appropriate behavior scores within the social-learning program.

Based on Paul and Lentz's (1977) structure of the social-learning program, employees at the hospital under study assumed that TR and VR sessions were effective in pro-

ducing appropriate behavior. Hospital employees also assumed VR appropriate behavior was higher than TR appropriate behavior; however, employees had no research to support the assumption. An important implication for this study relates to the nature of TR versus VR services. If residents have higher appropriate behavior scores in one service than the other service (both using a social-learning approach), professionals could concentrate on improving appropriate behavior within that service.

Review of Related Literature

The "Revolving Door" Problem

Remaining in the community is difficult for individuals with chronic schizophrenia. Many have been institutionalized for so long, they have lost or never developed basic living skills (Paul & Lentz, 1977). Farkas, Rogers, and Thurer (1987) discovered that individuals with the dual diagnosis of chronic schizophrenia and mental retardation who were discharged into the community functioned as they had in the institution; neither work performance nor level of independent living improved significantly. Over half the individuals with chronic mental illness Dickey, Gudeman, and Hellman (1981) studied had been rehospitalized since discharge four years earlier.

Christoff and Kelly (1985) found that to combat the "revolving door" problem, "intensive social skills in a number of specific areas may be needed" (pp. 364-365). Gordon and Gordon (1985) discussed areas for skill enhancement that include survival skills, basic living skills, personal and social skills, academic and vocational skills, leisure skills, cognitive skills, and integrative skills. However, Gordon and Gordon stated that skills must be taught in the treatment setting prior to discharging individuals. Paul and Lentz (1977) used skill training and positive reinforcement as the basis of the social-learning program.

Social-Learning Program

Skinner (1974) theorized that behavior results from learned responses, reinforced over time. In a social-learning program, behavior is taught and reinforced over time, using the behavior-based definition of social competence. In their definition, Odom and McConnell (1985) also state that emphasis is on the behavior instead of knowledge as in the cognitive-based definition. Cognitive-based outcomes have been shown to be effective with individuals with depression, panic disorder and social phobia (Beck, 1993; Beck, Emery, & Greenberg, 1985; Chambless & Gillis, 1993; Wright & Beck, 1995). In contrast, a good deal of research supports the social-learning program using the behavior-based definition for changing behavior with individuals with chronic schizophrenia (Baldwin, Menditto, Beck, Arms, & Cormier, 1992; Beck, Menditto, Baldwin, Angelone, & Maddox, 1991; Fucoco & Tyson, 1986; Glynn & Muesser, 1986; Liberman, 1988; Menditto et al., 1991; Menditto et al., 1994; Paul & Lentz, 1977; Paul & Menditto, 1992). The social-learning program was the "clear treatment of choice" for people with chronic schizophrenia (Glynn & Muesser, 1986, p. 656).

A token economy is one component of the social-learning program. Token economies are effective in shaping appropriate behavior for people with mental illness (Dickerson, Ringel, Parante, & Boronow, 1994; Glynn, 1990; Paul & Lentz, 1977). In the hospital under study, TR services and VR services used tokens as reinforcers. However, the effectiveness of those services using tokens was not known.

Effectiveness of TR and VR

No TR or VR published studies report the use of appropriate behavioral techniques reinforced with tokens within a social-learning program, specifically with individuals with chronic schizophrenia. However, several studies have documented lower rates of

inappropriate behavior when individuals participated in recreation activities. Liberman et al. (1986) found that inappropriate laughter and bizarre behaviors decreased when psychiatric patients participated in recreation activities. In a similar study, Wong et al. (1987) reduced repetitive and non-directed vocalizations in individuals with chronic schizophrenia by providing minimally supervised, independent recreation activities. A year later, Wong et al. (1988) studied reduction of bizarre verbalizations and inappropriate behaviors of individuals with chronic schizophrenia when involved in structured ward activities (i.e., team sports and art projects). Again, Wong et al. (1988) detected that participation in structured activities accounted for reductions in inappropriate behaviors. Wong et al. (1988) concluded that recreation was a natural setting in which to reduce inappropriate behaviors even though staff did not administer tokens.

Though Skalko (1990) did not study appropriate behavior directly, he did document discretionary time usage. Skalko found adults with mental illness residing in a group home and participating in TR services altered their discretionary time usage in a positive direction, adding support to the positive benefits of TR.

Two studies (Gimmestad, 1995; Vogler, Fenstermacher, & Bishop, 1982) focused on the effectiveness of behavior management techniques when positive reinforcement was used. Vogler et al. (1982) discussed the effectiveness of behavior management systems in controlling disruptive behavior in TR settings. Staff used praise for appropriate behavior to enhance the effectiveness of the activity. Disruptive behavior decreased due in part to positive reinforcement. Likewise, Gimmestad (1995) discussed the positive benefits of behavioral techniques on a patient with schizophrenia. The patient's behavioral plan focused on increasing social and independent functioning and included using gifts, snacks, money and positive verbal prompts to change behavior. Over a 15-month period,

the patient's appropriate behavior increased, partly due to TR interventions with positive reinforcement.

In contrast to Gimmestad's study, Corrigan, Liberman, and Wong (1993) studied behaviors of individuals in TR services who did not receive token reinforcement. As in the Wong et al. (1988) study, even without token reinforcement, inappropriate behaviors decreased, supporting recreation as a natural setting for changing behavior.

In VR, research has focused on increasing productivity (Bell, Milstein, & Lysaker, 1993a; Lysaker et al., 1993; Sauter & Nevid, 1991; Wallace et al., 1980; Wallace & Liberman, 1985), predicting successful employment within the community (Hursh, Rogers, & Anthony, 1988; Schultheis & Bond, 1993; Watts, 1978; Yankowitz, 1990) and increasing life satisfaction (Arns & Linney, 1993; Campbell, Converse, & Rodgers, 1976; Fabian, 1992; Rosenfield & Neese-Todd, 1993). There is a lack of research which deals with appropriate behavior social-learning programs within the context of VR. Studies closely related discussed the effects of work on negative symptoms and work behavior.

Bell, Milstein, and Lysaker (1993b) studied the effect of work on negative symptoms associated with schizophrenia or schizoaffective disorder. Over time, individuals in a work setting experienced fewer negative symptoms of the illness. The authors noted work reduced negative symptoms because of the requirement of active behavior, attention to reality, and enhancement of self esteem. No mention was made as to the effects of reinforcement.

Lysaker et al. (1993) identified vocational strengths and weaknesses and assessed work behaviors of individuals with schizophrenia. Subjects performed in the second quartile in social skills, suggesting the subjects had difficulty relating to others on the job. The authors stated that individuals with schizophrenia were as vocationally skilled as other disability groups, but the subjects had a

greater need to develop social skills. Lysaker et al. did not mention reinforcement.

Gordon and Gordon (1985) speculated that individuals with mental illness need enhancement in vocational and leisure skills to function successfully in the community. There is research which has attempted to establish the effectiveness of vocational services or TR services on community adjustment. Therefore, the researchers developed the following research question: Do residents participating in TR sessions or VR sessions exhibit significantly higher appropriate behavior scores?

Methods

Subjects

Subjects resided in a 28-bed ward at a large Midwestern state mental hospital. For inclusion in the study, subjects had to meet the following criteria: 1) Axis I diagnosis of schizophrenia or schizoaffective disorder [referred to as chronic schizophrenia], 2) participant in both TR and VR sessions within the social-learning program, 3) minimum of ten observation rounds in both TR and VR [Paul (1987a) noted that fewer than ten observation rounds were inadequate for data analysis.], and 4) be on standard doses of psychotropic medication. Out of the 26 residents living on the ward, six met the criteria.

Subjects included four males and two females who ranged in age from 37 to 58 with a mean age of 44. Two subjects were diagnosed with schizophrenia, undifferentiated type; three with schizophrenia, paranoid type; and one with schizoaffective disorder. One subject had been in the hospital less than one year and five subjects had been in the hospital more than a year with a mean length of six years. All subjects had previous admissions to the hospital. (Hospital records did not indicate admissions to other mental health facilities).

Social Learning Program

In the state hospital under study, the social-learning program included teaching recreation skills through TR sessions and teaching work skills through VR sessions. TR and VR were integral components of the social-learning program (Menditto et al., 1994; Paul & Lentz, 1977). The social-learning program was a replica of the Paul and Lentz (1977) model.

Attendance in social-learning TR and VR sessions was optional. By paying two tokens, a resident could "buy out" of a session and spend unscheduled time on the ward.

TR sessions were held in the hospital gymnasium and sessions averaged 11 residents. All sessions started with each resident receiving an attendance token. Sessions consisted of four, ten-minute targets. When residents displayed appropriate behavior during a ten-minute target, they received a shaping chip and verbal praise for participating in the activity. Residents also received prompts from staff about how to behave to earn the next shaping chip. Residents had to receive four shaping chips (four, ten-minute targets) to exchange the shaping chips for a token. Throughout each session, staff consistently praised residents for appropriate behavior.

Examples of TR activities included whiffle ball, kickball, volleyball, softball, and New Games. A Certified Therapeutic Recreation Specialist (CTRS) planned and conducted the TR sessions with the help of an activity aide.

Jobs in VR sessions were the same as one would see in most sheltered workshops in the community. Jobs included sorting and collating handouts and newsletters, making tokens, and doing piecework. Throughout the work period, staff circulated in the work area, offering assistance and verbal praise for appropriate behavior. However, staff delayed token reinforcement for appropriate behavior. At the end of every VR Friday session, residents received two tokens for each VR session attended for that week. If

a resident received six tokens in one week, he or she received one additional token. Token payments were delayed to approximate community work pay (Paul & Lentz, 1977).

VR sessions consisted of approximately 20 residents. A vocational psychologist planned and conducted the VR sessions and two aides assisted the psychologist.

Residents used tokens to "buy out" of sessions, to purchase items at the hospital store, and to attend outings. They also purchased privileges including passes on and off grounds, a later sleeping time, and single room assignment.

Instrument

Observers collected data using the Time-Sample Behavioral Checklist (TSBC) (Paul, 1987a). Paul developed the TSBC to measure behavior of adults with chronic schizophrenia while participating in a social-learning program. The TSBC measured each resident's behavior by using stratified, hourly observations from 6:15 a.m. until 10:00 p.m. in all areas of activity. For the purpose of this study, researchers used only those observations in TR and VR sessions.

Paul (1987a) divided the TSBC into seven categories—location, position, awake-asleep, facial expression, social orientation, concurrent activities, and crazy behavior. Total appropriate behavior scores included the categories of position, facial expression, and concurrent activities.

In the facial expression category, appropriate behavior included smiling/laughing with a stimulus, grimacing/frowning with a stimulus, and neutral with no stimulus. Facial expression behaviors were appropriate no matter the setting or activity. However, position and concurrent activity appropriate behaviors were dependent on the context of the activity.

Appropriate behaviors in the position category included sitting, standing, walking, running, and dancing. If the activity was volleyball and the resident was dancing, the behavior (dancing) was not appropriate. How-

ever, if the activity was dancing and the resident was dancing, the behavior (dancing) was appropriate.

The concurrent activity category included 17 behaviors. Examples of concurrent behaviors included watching, talking or listening to others, eating, grooming, playing a game, and singing. If the activity was volleyball and the resident was singing, then singing was not appropriate behavior. However, if the activity was singing and the resident was singing, the behavior was appropriate.

Total appropriate behavior scores were calculated by summing the number of appropriate behaviors in position, facial expression, and concurrent activities. The sum was divided by the number of observation rounds. This figure was the total appropriate behavior score. A total appropriate behavior score of 4.462, for example, indicated the resident performed $4\frac{1}{2}$ appropriate behaviors on the average during the period summarized. Zero was the lowest possible value, showing no appropriate behaviors. Whether the score was judged to be low, average or high was dependent on comparisons to large scale norms based on 815 residents in public institutions (Paul, 1987a).

The TSBC has been tested for reliability and validity in a variety of institutions with different populations and programs (Paul, 1987a). Average inter-observer agreement for all pairs of observers across all codes in a multi-institutional generalizability study exceeded $r = .98$ (Licht & Paul, 1987). For the total appropriate behavior score, reliability was $r = .98$ across observers. TSBC developers based inter-observer intraclass correlation coefficients on ten to 16 observation rounds per individual. Convergent validity included positive correlations with other measures of appropriate behavior and negative correlations with measures of inappropriate behavior (Mariotto, Paul, & Licht, 1987). Predictive validity for appropriate behavior showed appropriate behavior scores discriminated between patients released from institutions and those not released.

Those patients released were tested six months following discharge and appropriate behavior scores were positively correlated with the functioning level of the patients (Paul & Mariotto, 1987). Paul (1987b) stated that total appropriate behavior scores also had discriminant validity; scores discriminated between diagnostic groups and other clinically relevant variables. [See Paul (1987a) for a complete explanation of TSBC reliability and validity.]

Observers' Training

Observers who collected data for the study were paid hospital employees. The observer supervisor trained new observers over a five-week period. During the first training phase, trainees focused on reading and memorizing TSBC codes. The second training phase consisted of viewing training videos that were actual observational rounds. As trainees watched the videos, they recorded the TSBC codes as if conducting an observation. An observation lasted two seconds and trainees learned how to judge that amount of time. Trainees had to reach 90% accuracy before progressing to phase three. During phase three, trainees memorized every resident's name and then trainees accompanied an experienced observer on actual observation rounds. After each round, the experienced observer compared codings to the trainee's codings. A trainee had to achieve 100% accuracy in 200 observations before conducting independent observation rounds.

Following training, new observers were paired with experienced observers for weekly reliability checks to maintain high reliability levels. If a new observer did not achieve 95% accuracy over a week's period, the new observer conducted rounds with an experienced observer until the new observer achieved 100% inter-observer reliability. The inter-observer reliability during data collection for this study averaged 98.6%.

Data Collection

The observer supervisor assigned each observer a weekly schedule that listed the sessions and residents assigned to the sessions. An observer entered the session area and recorded residents who were absent. The observer then started the observations by finding the first resident on the list, observing that resident for two seconds and recording the resident's behaviors using TSBC codings. The process continued for each resident present at the session. Observations occurred on Wednesdays, Thursdays and Fridays during 40-minute sessions at 4:00 p.m. for TR and at 1:00 p.m. for VR. Observers collected data from July 1 to August 31, 1994.

Data Analysis

Researchers used SYSTAT v5 (1992) to compute all statistics. To determine if parametric statistics were appropriate, the researchers used the Kolmogorov-Smirnov test using Lilliefors probability for normality. The Lilliefors test automatically standardized the variables and tested whether the standardized versions were normally distributed (Wilkinson, Hill, Welna, & Birkenbeuel, 1992). The test showed normality in distribution so a paired t-test was conducted with $p < .05$. To verify that the number of observation rounds was not related to appropriate behavior scores in TR and VR, the researchers conducted a Bartlett chi-square statistic. The number of observation rounds and appropriate behavior scores were not significantly ($p < .431$) related. Table 1 shows the appropriate behavior scores and number of observation rounds.

Results

Description of Session Attendance

There were 25 TR sessions and 25 VR sessions during the study. Table 1 shows the number of sessions (observation rounds) attended by each subject. Subject 1 attended

Table 1.
Subjects' Mean (M) Appropriate Behavior Scores and Number of Observation Rounds (N) In TR Services and VR Services

Subject	TR		VR	
	M	N	M	N
1	3.900	10	3.600	10
2	4.833	12	3.786	14
3	4.462	13	3.778	18
4	4.429	14	4.154	13
5	4.818	11	4.000	13
6	4.385	13	3.929	14

ten TR and ten VR sessions. Subject 4 attended the most TR sessions and subject 3 attended the most VR sessions. Subject 3 had the highest overall attendance and subject 1 had the lowest overall attendance.

Table 2 illustrates the number of subjects observed during each session. In session 17, all subjects had observations. All subjects in seven TR sessions and two VR sessions had observations. Sessions 9 and 18 had no observations. In 11 TR sessions and five VR sessions there were no observations. Fourteen TR sessions had observations and 20 VR sessions had observations.

Comparison of Appropriate Behaviors in TR and VR Services

To answer the research question, researchers conducted a paired t-test. Subjects participating in TR sessions exhibited significantly higher appropriate behavior scores than the same subjects when participating in VR sessions ($t = 4.760$; $df = 5$; $p = .005$).

Table 1 illustrates total appropriate behavior scores of subjects for TR and VR. The overall mean total appropriate behavior score during TR was 4.464 ($SD = .348$) and 3.875 ($SD = 0.195$) during VR. All subjects

Table 2.
Number (N) of Subjects Observed During TR and VR Sessions

Session	N of Subjects		Session	N of Subjects	
	TR	VR		TR	VR
1	0	2	14	6	5
2	0	1	15	6	0
3	0	2	16	0	5
4	4	3	17	6	6
5	6	3	18	0	0
6	6	0	19	6	4
7	6	4	20	0	4
8	4	0	21	0	5
9	0	0	22	5	4
10	0	5	23	0	5
11	0	5	24	5	4
12	3	4	25	5	5
13	5	6			

scored higher during TR than VR. Subject 2 had the highest TR score (4.833) and subject 4 had the highest VR score (4.154). Subject 1 had the lowest TR score (3.9) and the lowest VR score (3.6). Subject 2 had the most difference between TR and VR scores (1.047) and subject 4 had the least (.275).

In the TSBC normative distribution table, the mean for total appropriate behavior scores was 2.714 (*SD* = .531) (Paul, 1987a). The mean total appropriate behavior scores for TR and VR in the current study were higher than the mean total appropriate behavior score in the norms table.

Discussion

When reviewing the results, we caution readers on several limitations inherent in the study. Residents were observed over a two-month period and findings did not show if differences continued over a longer time. Another limitation occurred due to constraints imposed by the hospital; we were not able to select subjects randomly or to use a control group in the design, limiting

generalizability of the results. We only included residents involved in the social-learning program because only those residents were observed using the TSBC. Thus, we caution generalizing results to TR sessions and VR sessions outside a social-learning program. Findings, however, indicated that residents in the social-learning program had significantly higher appropriate behavior scores in TR than VR and we draw several implications from this result.

Results add support regarding the effectiveness of the social-learning program on appropriate behavior. Unlike previous studies (Baldwin et al., 1992; Beck et al., 1991; Fuoco & Tyson, 1986; Glynn & Muesser, 1986; Liberman, 1988; Menditto et al., 1991; Menditto et al., 1994; Paul & Menditto, 1992) that examined the benefits of the entire social-learning program, the current study looked specifically at two programs in the social-learning program. TR and VR scores were above the norm, supporting the positive benefits of the social-learning program.

Why were TR appropriate behavior

scores significantly higher than VR scores? In any given week residents could earn six tokens for TR sessions and seven tokens for VR sessions. Yet little difference existed between the number of TR sessions ($M = 12.1$) and VR sessions ($M = 13.7$) attended; and no relationship existed between appropriate behavior scores and the number of sessions attended. Dickerson et al. (1994), Glynn (1990) and Paul and Lentz (1977) noted the effectiveness of token economies in shaping appropriate behavior. However, Vogler et al. (1982) used only verbal praise as a reinforcer and still found an increase in appropriate behavior. Tokens may not be as important in increasing appropriate behavior as recreation being a natural setting in which to display appropriate behavior (Corrigan et al., 1993; Wong et al., 1988).

Another possible reason for higher TR scores may be the way staff distributed tokens. VR sessions were the only sessions in the social-learning program where tokens were delayed. Did having to wait for reinforcement influence appropriate behavior scores? We suggest others examine this possibility.

Individuals with schizophrenia have difficulty with social aspects of work (Lysaker et al., 1993). The results of this study supported Lysaker et al. in that residents displayed more appropriate behavior in recreation than in work. Again, recreation was a natural setting for displaying appropriate behavior (Corrigan et al., 1993; Wong et al., 1988).

Individuals with chronic schizophrenia use appropriate behaviors displayed in recreation activities in many aspects of life. Therefore, appropriate behaviors learned and practiced in TR settings will ease residents' transition to community living more so than those learned in work. The best technique for this transition is within the context of the social-learning program where staff consistently use skills training and positive reinforcement.

Findings indicate the need for future re-

search to further explore TR's effect on appropriate behaviors of individuals with chronic schizophrenia. To control for the effects of the social-learning program, others should examine appropriate behavior outside social-learning programs. For instance, if residents participating in a hospital wide activity (e.g., holiday programs) or a community outing (e.g., playing on a softball team) exhibit high rates of appropriate behavior, one may conjecture appropriate behavior continues outside the context of the social-learning program. If appropriate behavior is lower in settings outside the social-learning program, CTRSs can target behaviors residents need before discharge. We also suggest that others replicate the study in similar types of programs that do not have a social-learning program to determine if TR appropriate behavior is greater than VR appropriate behavior outside the context of the social-learning program.

As a follow-up to Skalko's (1990) work, we urge others to observe residents during discretionary time to see if appropriate behavior continues outside TR sessions. We also suggest observing individuals in the community within the context of recreation and work, once they are discharged from an inpatient setting. If appropriate behavior is greater for TR than VR, CTRSs will assure their rightful place as a viable member of the inpatient treatment team.

We also urge CTRSs to encourage residents to attend TR sessions by using positive reinforcement (i.e., verbal praise, monetary rewards). Positive reinforcement is a viable means of increasing resident involvement (Gimmestad, 1995).

If individuals with chronic schizophrenia are to live successfully in the community, CTRSs must teach appropriate behaviors which include social skills. Learning social skills will aid in combatting the "revolving door" problem (Christoff & Kelly, 1985). Without appropriate behavior skills, individuals will not succeed in the community (Anthony et al., 1978; Bachrach et al., 1986;

Lawton et al., 1977; Serban, 1975). CTRSs have a unique opportunity to stand out as leaders in aiding individuals with chronic schizophrenia achieve successful community living.

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