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RESEARCH

SHELTERED CARE RESIDENCE: Ten-Year Personal Outcomes

Steven P. Segal, Ph.D., and Pamela L. Kotler, Ph.D.

A ten-year follow-up study of 393 seriously mentally ill sheltered-care residents examined the type and degree of handicap characterizing the sample and estimated effects of ten-year residence. Results showed higher levels of helper-supported social functioning and of physical and mental health, accompanied by significant reductions in independent social functioning.

The sheltered-care system, the mental-hospital system, and the nursing-home industry are the three major providers of supervised residential care for the adult mentally ill in the United States *(National Institute of Mental Health, 1987)*. Sheltered-care facilities house 300,000 to 400,000 seriously mentally ill (SMI) adults *(Goldman, Gattozzi, & Taube, 1981)* and have become, either by default or by the principle of least restrictive alternative, the supervised residential placement of choice. For a substantial majority of the adult mentally ill, especially the indigent, sheltered-care residence has replaced state-hospital residence as a form of long-term or, more accurately, lifetime care. Our understanding of the lifetime experience of residents in these facilities, however, is extremely limited *(United States General Accounting Office, 1977)* and is based on a few cross-sectional surveys *(Ditmar, 1983; Nagy, Fisher, & Tessler, 1988)*, most of them confined to very restricted samples *(Blaustein & Viek, 1987; Lamb, 1980; Van Putten & Spar, 1979)*. If we are to establish a national policy that truly attends to the needs of the seriously and persistently mentally ill, we must determine whether the system of default—sheltered-care residence—is truly beneficial and, therefore, worthy of positive investment.

In 1973, Segal and Aviram completed a study of a probability sample of California's adult sheltered-care population *(Segal & Aviram, 1978)*. The present paper reports the results of a ten-year follow-up of that sample. In 1973, the researchers argued that the amount and type of handicap characterizing individuals in the subject population was so great that maintenance or improvement of their functional, health, and mental status required the continuous support of a protected living situation. If Segal and Aviram were correct about the serious and persistent nature of the problems evidenced by this population, and if sheltered-care facilities provide an adequate protected living arrangement, then we should expect that *1)* the handicaps characterizing

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the sample in 1973 would continue to characterize it ten years later, and *2)* those respondents spending greater amounts of time in the protected living environment provided by sheltered care would show greater improvements in personal outcomes—social function and mental and physical health—than those spending less time in these facilities.

Sheltered-care facilities include board-and-care homes, family-care homes, halfway houses, and psychosocial rehabilitation facilities—in short, all supervised living arrangements for the mentally ill except licensed hospitals. Board-and-care and family-care homes house 97% of the sheltered-care population and constitute 98% of available facilities *(Segal & Aviram, 1978)*. In theory, sheltered care offers several advantages over either direct community placement or placement in a state mental hospital. Compared to direct community placement, it allows for a relatively normal living environment that protects vulnerable ex-patients from the day-to-day crises they are prone to experience when out on their own. Compared with the hospital, it offers a variety of environments enabling individualized needs to be better met.

In most states, facilities are privately owned and operated. They vary in size from single-family homes with one resident to converted hotel-type settings with several hundred residents. Smaller facilities are often located in an operator's home under a foster-family-care model. Facilities with more than six residents may be located in expanded single-family dwellings. Rarely have the structures been built specifically to provide sheltered care to the mentally ill. Even larger facilities, although sometimes specially constructed, are more often converted apartment buildings, motels, hotels, or nursing homes. Residents normally pay for care with their Supplemental Security Income (SSI) stipends.

Facilities vary in their psychosocial therapeutic orientation, from organized treatment and rehabilitation programs, to a family-like orientation, to desolate social situations where the only thing for residents to do is watch TV. A majority of facilities have a "house" physician whose fees are covered by the residents' Medicaid or Medicare; most facilities have procedures to supervise psychoactive medication. Though facilities are licensed in several states, enforcement of licensing regulations has been limited.

Unfortunately, in most instances, the mental-health system does not take full responsibility for the care of mentally ill people in sheltered living arrangements. Unless they are discharged from a hospital into a particular living arrangement, the residents of these facilities are often unknown to mental-health agencies. In addition to the resulting infrequent or nonexistent service delivery, there is no centralized repository of information on these residents *(Ditmar, 1983)*. As a consequence, very little information is available on the characteristics of the mentally ill who are living in sheltered care.

While limited to residents of California, this study answers two questions of national concern regarding placement of residents in sheltered care: what were the personal outcomes in 1983 of people who lived in sheltered care in 1973, and how did the amount of time they spent in sheltered care over the ten-year period 1973–1983 contribute to these outcomes?

METHOD

Subjects

The study reported here is a ten-year longitudinal study that began with a first round of data collection in the summer of 1973 and ended with a second round of data collection beginning in the summer of 1983. Its sampling methodology is reported elsewhere *(Segal & Aviram, 1977)*. The final cohort of 393 sheltered-care residents was representative of all 18- to 65-year-old SMI sheltered-care residents in California. Both areas and facilities in which residents were interviewed were selected for the sample with probabilities proportionate to the size

of their estimated bed capacity. Residents were selected within facilities using systematic random sampling. Of the original cohort of 393, 360 (91.6%) were located in 16 states at follow-up *(Segal & Cohen, 1986)*, 270 (68.7%) of them were alive and 90 (22.9%) were dead. The other 33 (8.4%) could not be located. There were no significant demographic differences between those located and those not located. Blacks, however, were more likely to refuse to be interviewed ($\chi^2 = 10.3$, $p < .006$) or to be too ill to complete an interview ($\chi^2 = 10.9$, $p < .01$).

Data was collected from several sources falling into two main categories: *1)* face-to-face structured interviews with both residents and facility managers; and *2)* inpatient and outpatient mental health, SSI, and other archival records. Of the 270 people located alive, 17 (6.3%) refused and 253 (93.7%) agreed to be interviewed. Of the latter group, valid interviews were obtained from 234 people.

Of the 253 people who consented to be reinterviewed, 135 (53%) were male and 118 (47%) were women. The latter were significantly older than the men ($F = 12.23$, $p < .0005$), with a mean age of 54 in 1973, compared to a mean age of 43 for the men. The majority of the sample, 77.3%, were white, 10% were black, and 12.7% were from other ethnic groups, primarily Hispanic. Mean educational level in 1973 was 10.9 years, although 18.6% got additional schooling over the study interval.

This cohort's marital-status statistics indicated that, over the ten-year interval, 51% of the sample stayed single; 33% remained in the formerly married category; and only 16% were married at any time during the interval (of these, only 2.5% were married in both 1973 and 1983).

Three overlapping samples were used in this study. In considering cohort mortality as an outcome, the full cohort of 393 people was used. For outcomes dependent on demographics or records, the available sample was the 253 people who consented to be interviewed in 1983. For all self-report measures, the sample was the 234 people who consented to be interviewed and gave valid information. It is important to note that, since 1983, little has changed for this cohort by way of health care—most were Medicaid eligible as a result of their receipt of SSI support.

Analysis: Effects of Sheltered-Care Residence

To assess the effect of time in sheltered care on personal outcomes, four multivariate models were developed using multiple-regression procedures. The technique of multiple regression permitted determination of the amount of change predicted in a dependent variable for each unit change in an independent variable after all other independent variables in the equation were taken into account. Measures of four outcomes were selected as dependent variables: independent social functioning, assisted social functioning, physical health, and mental health. The primary independent variable chosen was time in sheltered care. Age, chronic patient status (two years of continuous hospitalization prior to 1973), SSI status at follow-up, substance abuse, and location in an institution at follow-up were used as control variables: age, chronic patient status, and substance abuse because they have demonstrated effects on the four criteria; SSI status because its receipt carries eligibility for Medicaid benefits and such services were thought to have a crucial impact on physical-health, social, and mental-health outcomes; and placement in an institution because it was believed to be a pervasive factor influencing personal outcomes. A seventh variable, included in each model as a further control, measured the resident's status on the equivalent criterion in 1973. Thus, seven predictors were included in each of the four models.

Measures: Personal Factors

Social functioning. During the 1973 and 1983 studies, both the independent and the

assisted social functioning of the residents of sheltered-care facilities were assessed using two separate measures particularly designed to measure social functioning differences among poorly functioning groups. The External Social Integration Scale (ESIS) measures "the extent to which an individual participated in and made use of the community in a self-initiated manner;" that is, independent of supportive service efforts. The Internal Social Integration Scale (ISIS) measures the same activities, but focused on assisted participation. The scales have been extensively described elsewhere *(Segal & Aviram, 1978)*. The internal consistency score on ESIS in the 1983 sample was Alpha = .955. In a construct validation study, scale scores effectively distinguished among former chronic mental patients, criminal justice halfway-house residents, and a sample of the general population. All differences observed occurred in the estimated direction, with patients scoring the lowest and the general population scoring the highest *(Segal, 1990)*. In the 1983 sample, ESIS scores were significantly related to having a driver's license or ID card ($\chi^2 = 14.4$, $p = .001$). Of the high-scoring individuals, 57% possessed such identification, compared to 40% of those in the middle-range, and 24% in the low-scoring group. Scores were also significantly related to being registered to vote: 57% of the high group, compared to 45% of the middle group and 23% of the low group, were registered to vote ($\chi^2 = 16.7$, $p = .0002$). The internal consistency of ISIS in 1983 was Alpha = .94.

Physical health status. Health status was assessed in both the 1973 and the 1983 studies using the Physical Symptom Scale (PSS) *(Langner, 1962; Seiler, 1973; Wells & Strickland, 1982)*. The PSS includes six symptoms: clogging or fullness in the head or nose, shortness of breath, trembling hands, sour stomach, headaches, and feeling weak all over *(Langner, 1962; Segal, 1990; Seiler, 1973)*. Over 50% of residents who reported having consulted a physician about these symptoms in 1983 indicated that the physician attributed the problem's cause to physical illness. In the 1983 survey high scores on the six-item PSS significantly distinguished those in the sample who reported increased bed days in the past two weeks, poor self-assessed health status, and the presence of nine major health problems in the past six months (i.e.: hardening of the arteries; high blood pressure; heart trouble; epilepsy, fits, or seizures; fainting or loss of consciousness; trouble controlling bowel movement or urination; other injury or chronic condition; trouble with teeth or gums; and a residual category of other injury or chronic conditions) from other sample members. While the PSS is clearly not the most desirable measure of health status given current measurement standards, its measurement properties show it to be adequate to the task, and it was the only measure available at the time of the 1973 data.

Psychopathology. Psychopathology was measured in 1973 and 1983 using the Brief Psychiatric Rating Scale (BPRS) *(Overall & Gorham, 1962; Rhoades & Overall, 1988)*. The 16 BPRS symptom ratings ("not present" to "very severe") were completed by experienced social workers (with one or more years working with the SMI) *immediately* following the interview in both the initial and the follow-up study *(Overall & Gorham, 1962; Wells & Strickland, 1982)*. To maintain the consistency of the ratings, the same training procedures (including the same training films and definitional anchors of each symptom) were followed in 1973 and 1983. The interrater reliability for the total BPRS score, based on joint interviews conducted by a psychiatrist and an interviewer in the 1973 study, was $r = .9$ *(Segal & Aviram, 1978)*. Internal consistencies of the total scale scores in 1973 and in 1983 were Alpha = .79 and Alpha = .86, respectively.

Archival Data

Discharge diagnoses from psychiatric hospital records were obtained from 119 facilities; details of the processing of this data

are reported elsewhere *(Segal, 1990)*. Of the 253 people who consented to be interviewed, records were obtained for 201 (79.4%), including primary diagnoses for 1038 (89.6%) of 1159 episodes of inpatient care they had experienced. Of these diagnoses, 31% were from *DSM-III*, 40% were from *DSM-II*, and 29% were from *DSM-I*; from them, a modal diagnosis was determined. Since inpatient records were not available for the entire sample, outpatient records were used to obtain primary diagnoses on an additional 14 people in the surviving cohort.

Death certificates were sought for all members of the original cohort (393). These were obtained for 90 (22.9%). Those who remained unlocated (8.4% of the sample) were assumed to be alive for purposes of this analysis. The underlying cause of death was coded from each death certificate. Problems arising from accuracy of diagnosis when using death certificates to identify cause of death *(Gittlesohn & Royston, 1982)* were assumed to be of no greater magnitude in this study than in others *(Feinstein & Horwitz, 1982)*. Further details of the mortality methodology are reported elsewhere *(Segal & Kotler, 1991)*.

RESULTS

Diagnosis

TABLE 1 shows the modal lifetime diagnosis (i.e., the most frequently reported discharge diagnosis in the individual's hospital records) for the 215 people for whom such information was available: 76% were diagnosed as schizophrenic, 28% of them as paranoid schizophrenic and the rest with other subtypes of schizophrenia. Harding and her colleagues *(Harding, Brooks, Ashikaga, Strauss, & Breier, 1987b)* observed, in their conversion of hospital-based diagnoses to *DSM-III-R* diagnoses, that only 54% of their schizophrenic cases could be considered schizophrenic under the more stringent criteria. The remaining cases were likely to be classified as schizo-affective disorder, atypical psychosis, and other conditions in the spectrum of schizophrenic disorders. Given the problems of reliability associated with hospital diagnosis, it is probably safest to assume that those 76% with schizophrenic diagnoses in the sheltered-care population also have actual diagnoses within the schizophrenia spectrum.

Table 1

MODAL LIFETIME DIAGNOSIS ($N = 215$)[a]

DIAGNOSIS	*N*	%
Paranoid schizophrenia	60	27.9
Other schizophrenia	104	48.4
Affective disorder	12	5.6
Organic	13	6.0
Alcohol/drug abuse	13	6.0
Other disorders	13	6.0

[a] 201 diagnoses obtained from inpatient records, 14 from outpatient files.

While only 6% of the population had a primary diagnosis of alcohol/drug abuse, 23% had such a secondary diagnosis.

Diagnoses in the sheltered-care population tended to be stable across time and hospitals. Ninety-five percent of those with an original diagnosis of schizophrenia had a final diagnosis of schizophrenia. Though this might be due partly to the tendency of clinicians to accept previous hospital diagnoses without conducting complete reevaluation, it does lend credibility to the assumption that the group's diagnoses fall primarily within the schizophrenia spectrum. Also consistent with this assumption of diagnostic stability is the fact that, as in Harding et al. *(1987b)*, only 5% of the schizophrenic group in the present sample were rediagnosed as having an affective disorder during their last inpatient episode.

While it is clear that the reliability of inpatient diagnosis is open to serious questions of clinical validity, these data provide the first, albeit gross, approximation of the diagnostic composition of the adult mentally ill population in sheltered care.

Psychiatric Hospitalization

Of the 201 cohort members for whom such records were available, 83 (41%) had

been hospitalized for psychiatric reasons since 1973 according to records obtained from 119 hospitals. Among those hospitalized, the average number of hospital episodes per person after 1973 ($\bar{x} = 5.6$) was greater than that before 1973 ($\bar{x} = 2.8$). However, the average length of stay in the hospital per episode ($\bar{x} = 37$ days) was shorter after than before 1973 ($\bar{x} = 788$ days). Paired *t*-tests based on the 72 people for whom both pre- and post-1973 records were available demonstrated that these differences were significant. Thus, consistent with changes in how hospitals were generally used, after 1973 people requiring it were hospitalized more often but for shorter periods of time.

Mortality

Because there have been a number of reports that people who are hospitalized in psychiatric facilities have a higher probability of dying, the mortality rates of the sample were examined. A standardized mortality ratio (SMR)—the ratio of general population death rate to the sample death rate (1:1 = equal)—was calculated.

Compared to the general California population for 1980, this sample showed an SMR of 2.85 ($\chi^2 = 107.88$, $df = 1$, $p < .05$), which means that people in the sheltered-care sample were dying at 2.85 times the rate of people in the general population (significantly elevated rates were found for all causes of death except malignant neoplasms). This is somewhat higher than the SMR of 2.3 reported *(Haugland, Craig, Goodman, & Siegel, 1983)* for 1033 public mental-hospital inpatients, and somewhat lower than the SMR of 3.4 found *(Amdur & Souchek, 1981)* for patients in a general psychiatric aftercare program.

When the age-specific rates found *(Berkman & Breslow, 1983)* for a poverty population in Alameda County, California, were applied to the present sample, the SMR was reduced to 1.82 ($\chi^2 = 33.0$, $df = 1$, $p < .05$). While this is still significantly higher than one, it is substantially less than 2.85, suggesting that at least some of the higher mortality in the sample is poverty-related. For people aged 45–64, the SMR decreased from 2.75 ($\chi^2 = 87.98$, $df = 1$, $p < .05$) compared to the general population and to 1.68 ($\chi^2 = 22.2$, $df = 1$, $p < .05$) compared to the poverty population. For younger people, the SMR was approximately 3.9 ($p < .05$) in both comparisons.

In TABLE 2, the SMRs for our sample are compared to those of the California general population and the poverty population by gender and diagnostic category. All diagnostic groupings except the 109 men with schizophrenic disorders showed significantly increased mortality relative to both the general and the poverty populations.

Personal Factors

Social functioning. Indicators of social functioning were employment status, the possession of socially functional identification, voter registration, and the two social integration scales, ESIS and ISIS.

At follow-up, only 7.7% of the population's members held any type of paid employment outside their residence, while another 5.6% were actively looking for work. Thus, in 1983 only 13.3% of the population were in the labor force, participation in which was strongly related to prior paid work experience ($\chi^2 = 21.9$, $p = .005$). Sixty-five percent of the sample were supported by SSI, and another 28% by Social

Table 2

STANDARDIZED MORTALITY RATIOS (SMR) BY DIAGNOSIS: CALIFORNIA SHELTERED-CARE SAMPLE, STATE POPULATION, AND POVERTY SAMPLE

DIAGNOSTIC GROUP (*N*)	SMR GEN. POP.	SMR POV. SAMPLE
Men		
Schizophrenic spectrum (109)	2.36*	1.55
All other diagnoses (54)	4.13*	2.30*
Women		
Schizophrenic spectrum (99)	2.68*	1.61*
All other diagnoses (33)	3.41*	2.02*

[a] Diagnostic data available for 295 subjects.
* $p < .05$.

Security. The majority (86.7%) were neither employed nor seeking work. Many (60.8%) said they were not looking for work because they were disabled (43%) or too old (17.8%). Another 12% said they had no desire to work, and 27% gave other reasons. Of the 86.7% not employed or seeking work, 41% said they would like to have a job; however, since it had been an average of 15 years since their last employment, it seemed unlikely that many of this group would ever be employed. Finally, it should be pointed out that 64.2% of those not gainfully employed nevertheless performed some chores around their current residence—primarily, cleaning their own rooms, cooking, and doing their own laundry; 22% received some reimbursement for this work.

Participation in society requires the ability to identify oneself, usually by possession of a driver's license or, for many poorer people, a California ID card; 80% of California's adult population can identify themselves in this manner *(California State Department of Finance, 1987)*. Of the 253 people in the follow-up sample, 17.4% had an active driver's license, 29% held a California ID card, 9.6% had both, and 63.2% possessed neither.

While 65% of California adults are registered to vote *(California Almanac, 1987)*, only 28% of the follow-up sample were registered to vote.

Considering self-initiated social interactions measured by ESIS scores, no significant change was found between 1973 and 1983. When the measures at both times were correlated, the resulting r value was .42 ($p<$ .0001). ESIS scores were negatively related to age ($\chi^2=21.4$, $p=.001$); only 10% of those aged 56–65 in 1973 were in the highest category in 1983, whereas 36% of those aged 18–35 in 1973 were in the highest group at follow-up. Measuring assisted social interactions, ISIS scores at the two times were correlated at $r=.16$ ($p<.01$). There was no statistically significant difference between ISIS scores in 1973 and those at follow-up.

Physical health status. The PSS scores of the 234 members of the self-report sample indicated that, on average, people were in poorer health and had more symptoms in 1983 than in 1973 ($p<.000$). The correlation between scores at both points in time was $r=.38$ ($p<.001$).

Psychopathology. The correlation between the total BPRS scores in 1973 and in 1983 was .16 ($p<.01$). There were no significant differences between either the means or the standard deviations in the two years. In 1973, 27.4% of sample members had no overt symptomatology at all, 64.1% had mild to moderate symptomatology, and 8.5% were considered to have severe symptomatology. In 1983, the comparable figures were 35.6%, 55.5%, and 8.9%. Over the study interval, 34.2% scored in the same category in both years and 37.2% improved their symptomatology; 28.6% showed worsened symptomatology, although only markedly so for the 9.4% who moved two levels down on the scale.

Effects of Sheltered-Care Residence

In 1983, more than half the 234 self-reporting sample members (56.5%) were still living in sheltered-care facilities (22.2% in the same facility as in 1973), 30.3% were living in the community, and 13.2% were institutionalized. On average, sample members spent 65% of the follow-up period living in a sheltered-care facility.

Sheltered-care residents have elsewhere *(Segal & Liese, 1991)* been shown to view these facilities as permanent residences and it therefore seems probable that they will remain in care if there is a good fit between person and environment. If so, those who stay longer might be expected to have better outcomes if the facilities offer beneficial environments.

To ascertain whether sheltered-care residence was beneficial to the sample members, the effect of ten years in sheltered care on social functioning, physical health, and mental health outcomes was statistically estimated (see TABLE 3). It must be

Table 3

ESTIMATED EFFECTS ON PERSONAL FACTORS OF 10 YEARS' SHELTERED CARE AND 10 YEARS' AGING

PERSONAL FACTORS	PERCENTAGE CHANGE: 10 YEARS' SHELTERED CARE	10 YEARS' AGING
Independent Social Functioning (ESIS Score)**	−4.46	−1.16
Assisted Social Functioning (ISIS Score)*	+5.51	−1.20
Physical Symptoms (PSS Score)	−4.13	+.64
Psychiatric Symptoms (BPRS Score)**	−5.29	−.14

* $p < .08$; ** $p < .001$.

emphasized that these are estimated effects for the whole population, whether or not an individual actually had spent ten years in sheltered care. (Results are based on models available from the authors on request.)

Sheltered care showed significant association with personal outcomes in all four models. Ten years' residence in sheltered care was associated with a reduction in an individual's independent social functioning (ESIS score) of 4.46% and an increase in assisted social functioning (ISIS score) of 5.51%. Further, physical and psychiatric symptoms showed associated decreases of 4.13% and 5.29%, respectively.

These results were compared to estimates of the effects of the ten-year increase in age on the sample (see TABLE 3). Results showed an expected decrement of 1.16% in independent social functioning—25% of the decrement estimated for sheltered care. Perhaps more interesting is the observation that, while ten years of aging was associated with a reduction of 1.2% in assisted social functioning, ten years in sheltered care was associated with a 5.51% increase in assisted social functioning. Sheltered-care residence thus appears to counter the loss of assisted functioning associated with increasing age. Ten years of aging produced an associated increase of .64% in physical symptoms (PSS scores). This, again, appeared to be countered by an associated 4.13% decrease attributable to ten years in sheltered care. Finally, as ten years of aging was associated with a .14% decrease in psychiatric symptom presentations (BPRS scores), ten years in sheltered care was associated with a 5.29% reduction in psychiatric symptom scores. Thus, in comparison with the effects of age, the effects associated with ten years in sheltered care appear to be relatively important. These positive outcomes, however, come at the cost of associated reductions in independent social functioning.

A second approach to evaluating the benefits or drawbacks of ten years of sheltered-care residence can be expressed in terms of the probability of changes in behavior evidenced by the average sample member. These changes are based upon results derived from the model used to estimate the effects of sheltered-care residence. The expected changes in the probability of the average sample member's participation in the seven different types of component behavior defining the ESIS measure of independent social functioning are presented in TABLE 4, while TABLE 5 shows estimated effects in hours spent on a subsample of types of behavior. Thus, for example, ten years in sheltered care is estimated to reduce the probability of the average resident's family contacts by 31% (TABLE 4), and such contacts during a two-week period are estimated to decrease by 5.64 hours (TABLE 5) after ten years in shel-

Table 4

ESTIMATED CHANGE IN INDEPENDENT SOCIAL FUNCTIONING AFTER 10 YEARS IN SHELTERED CARE

FUNCTION (ESIS SCALE)	CHANGE[a](%)
Taking care of own purchasing needs	−26
Access to community resources	−7
Access and involvement in friendship activities	−16
Using community facilities	−17
Access to basic and personal resources[b]	−30
Access to and participation with family	−31
Participation in community groups	No Change

[a] Estimated change = .36 standard deviation units.
[b] Meals, medical care, laundry services, clothing, toiletries, telephone, etc.

Table 5

AVERAGE RESIDENT: ESTIMATED CHANGES IN BEHAVIOR AFTER 10 YEARS IN SHELTERED CARE

BEHAVIOR	CHANGES IN HOURS SPENT
Watching TV (typical day)	−1.81
Reading (typical day)	+.93
Hobby (typical day))	0
Sleeping between 8 a.m. and 10 p.m. (typical day)	−.43
Sitting doing nothing (typical day)	−.21
Being with family (past two weeks)	−5.64
Being with close friend (past two weeks)	−.54

tered care. TABLE 6 shows the estimated increase in probability that the average resident will engage in each of the types of behavior defining the ISIS measure of assisted social functioning; thus, the probability of engaging in sponsored social contacts increases by 40%.

Physical symptom (PSS) changes can be understood in terms of the probability that the average resident will be asymptomatic at the time of assessment. Ten years in sheltered care is expected to increase that probability by 15%. It is also expected to reduce by 5% the probability that the average resident will present moderate to severe symptoms on the BPRS. The symptoms least likely to be affected are tension, hostility, and depressed mood.

DISCUSSION

The most striking feature of this cohort is the persistence and stability of its dysfunctional behavior. The population experiences substantial mental handicap, with 76% diagnosed with what might be considered schizophrenic-spectrum disorders. Hospital records indicate that 41% were hospitalized approximately six times between 1973 and 1983 for an average total inpatient time of approximately seven months. Their BPRS assessments indicated that 41% had some degree of conceptual disorganization, 25% had some degree of suspiciousness, and 20% had some degree of unusual thought content. These are the types of symptoms and psychiatric histories that would make it very difficult for such people to initiate and sustain relationships with others, to engage in stable employment and, in general, to move around American society with ease.

Table 6

AVERAGE RESIDENT: ESTIMATED CHANGE IN ASSISTED SOCIAL FUNCTIONING AFTER 10 YEARS IN SHELTERED CARE

FUNCTION (ISIS SCALE)	CHANGE (%)[a]
Obtaining help with	
Transportation to community resources	+3
Social activities	+40
Basic purchases[b]	+50
Socializing with other former patients or residents	−7

[a] Estimated change = .439 standard deviation units.
[b] Clothing, laundry service, etc.

Because this sample of individuals and facilities was limited to California, caution should be exercised in generalizing results. However, California is comparable to other states, such as New York, Illinois, and Florida, in the structure, staffing, and physical diversity of its sheltered-care facilities and, in fact, many residents were located at follow-up in such facilities in other states.

Their mental handicaps alone would limit full participation in society by members of this group; in addition, and perhaps as a consequence, this cohort is also socially disadvantaged.

Very few have ever been able or inclined to become involved in a marital relationship, and most of these marriages were of short duration. Although available research demonstrates that long-term marriages are uncommon among the chronically mentally ill, especially schizophrenics, the sheltered-care population has a particularly low rate of stable marriages. These results are comparable to those of others, which have shown persons returning to mental hospitals as primarily single or formerly married. For example, Harding, Brooks, Ashikaga, Strauss, and Breier *(1987a)* reported 51% single and 23% divorced or separated, and Tsuang, Woolson, and Fleming *(1979)* reported 67% of their schizophrenic sample as single and

12% as being divorced or separated. This suggests that the sheltered-care group comes from the same population.

In addition, 44.5% of the sample had less than a high school education in 1973. Thus, in a society that is becoming increasingly specialized and in which a high-school diploma is a minimum requirement for entry into the job market, it comes as no surprise that only 7.7% of the group held any paid employment outside their home and that 93% were supported by SSI or Social Security. In addition, many do not possess the most common papers by which people identify themselves, and even fewer are registered to vote.

This analysis has demonstrated that former psychiatric inpatients who once lived in sheltered-care facilities have a significantly higher risk of mortality than does the general population of California. However, a portion of this increased risk appeared to be due to the population's poverty status—indicating that previous studies may have overestimated the excess risk attributable specifically to psychiatric disorder.

Furthermore, the high natural death rates in the sheltered-care sample may be due to several other causes. It seems likely that people with coexisting physical and psychiatric illnesses are more likely to end up in sheltered care than are people with psychiatric illness alone. Also, the psychiatric illness may be causally related to the physical illness, through either poor health habits or direct psychological mechanisms. Although actual causes cannot be determined in this study, these results, combined with the significantly elevated mortality ratio for unnatural deaths and the overall high mortality rate observed in the sheltered-care population, add validity to the argument that this group requires special supervision.

The handicap argument must carry the caveat that continuance of personal problems among the sheltered-care population may, in some respects, be attributable to the setting itself. This point has been clearly argued in governmental reports *(California Commission on Health and the Economy, 1985; United States General Accounting Office, 1977)*. Given the extent of handicap established in the population, the use of sheltered care as a setting for long-term protective living seems attractive in light of the observed positive outcomes in physical and mental health, and assisted social functioning. This may be particularly true given the fact that life, complicated by the risk of homelessness and lack of service supports, has become harder over the last decade for the poor and seriously mentally ill. Yet this long-term care solution, like many therapeutic interventions, comes at considerable personal cost for the individual in terms of independent social functioning.

With respect to losses in independent social functioning, it is important to note that the major component of such loss is estimated to be reduced contact with families. This is directly opposed to the effect desired by deinstitutionalization planners, who hoped community placement would facilitate family participation. Perhaps, like the mental hospital before it *(Freeman & Simmons, 1963)*, long-term sheltered care allows such restructuring of family social roles and lifestyle as to reduce time available for family members' interaction with the resident and makes it more difficult for the resident to initiate such contact independently. Such losses of independent functioning may, however, be open to remedy by community-based intervention that is focused on resident–family involvement.

A further caveat to be considered is the possibility that, while the results of sheltered care for the seriously mentally ill are relatively good compared to alternatives, the alternatives are often of very poor quality. For example, community care, conceived by early planners as a fully integrated bio-psycho-social program *(Gruenberg, 1966)*, is all but nonexistent, with a few notable exceptions. Given this situation, our findings may simply indicate that sheltered care is the best of several not very good alternatives.

On the other hand, given the current state of public affairs and the tremendous variation observed in the settings provided by sheltered-care facilities, the balance of positive and negative results revealed by this study suggests the benefit of further investment in these environments for long-term care. This should be made in the form of both direct resources and research. Research should be designed to discover the benefits offered by sheltered care and to what extent they can be combined in different types of settings. Diversity of alternatives offered by a variety of care configurations might obviate some of the negative aspects of the present sheltered-care system.

The findings of this study indicate that time in sheltered care contributes to major positive outcomes, even though there is definite personal cost (particularly in loss of independent functioning and family contact) to the residents. Lack of investment in these settings *(Harding et al., 1987b)* and their population probably contributes to the population's mental and social handicap. Members of this study's cohort have persistent, long-term mental disorders as well as demographic, socioeconomic, and functional statuses requiring long-term supervised support. People in this group may once have been characterized as the "indigent insane" and, prior to the era of deinstitutionalization, they would have been the responsibility of state and county mental-health departments. Whether such departments should currently be charged with responsibility for them is a question beyond the scope of this paper. However, the results of this study indicate that the members of this group require some supervision. Certainly, they should not be abandoned, and sheltered-care facilities, given the balance of benefits and costs to those placed in them, can potentially provide a solution to the problem of long-term care.

REFERENCES

Amdur, M.A., & Souchek, J. (1981). Death in aftercare. *Comprehensive Psychiatry, 22*, 619–626.

Berkman, L., & Breslow, L. (1983). *Health and ways of living: The Alameda County study*. New York: Oxford University Press.

Blaustein, M., & Viek, C. (1987). Problems and needs of operators of board and care homes: A survey. *Hospital and Community Psychiatry, 38*, 750–754.

California Almanac (3rd ed). (1987). Santa Barbara, CA: Pacific Data Resources.

California Commission on Health and the Economy. (1985). *California Community Mental Health Services Act*. Sacramento: California State Department of Mental Health.

California State Department of Finance. (1987). *California statistical abstract*. Sacramento, CA: Department of Finance.

Ditmar, N. (1983). *Board and care for elderly and mentally disabled populations*. A final report to US DHHS for Contract #HEW 100-79-0117, Vols 1–5.

Feinstein, A.R., & Horwitz, R.I. (1982). Double standards, scientific methods, and epidemiologic research. *New England Journal of Medicine, 307*, 1611.

Freeman, H., & Simmons, O. (1963). *The mental patient comes home*. New York: John Wiley.

Gittlelsohn, A., & Royston, P. (1982). *Annotated bibliography of cause-of-death validation studies: 1958–1980*. DHHS Pub. No. (PHS) 82-1363. Hyattsville, MD: National Center for Health Statistics.

Goldman, H.H., Gattozzi, A.A., & Taube, C.A. (1981). Defining and counting the chronically mentally ill. *Hospital and Community Psychiatry, 32*, 21–27.

Gruenberg, E.M. (Ed.). (1966). *Evaluating the effectiveness of mental health services*. New York: Milbank Memorial Fund.

Harding, C.M., Brooks, G.W., Ashikaga, T., Strauss, J.S., & Breier, A. (1987a). The Vermont longitudinal study of persons with severe mental illness: I. Methodology, study sample and overall status 32 years later. *American Journal of Psychiatry, 144*, 718–726.

Harding, C.M., Brooks, G.W., Ashikaga, T., Strauss, J.S., & Breier, A. (1987b). The Vermont longitudinal study of persons with severe mental illness: II. Long-term outcome of subjects who retrospectively met DSM-III criteria for schizophrenia. *American Journal of Psychiatry, 144*, 727–735.

Haugland, G., Craig, T.J., Goodman, A.B., & Siegel, C. (1983). Mortality in the era of deinstitutionalization. *American Journal of Psychiatry, 140*, 848–852.

Lamb, H.R. (1980). Board and care wanderers. *Archives of General Psychiatry, 38*, 135–141.

Langner, T.S. (1962). A twenty-two item screening score of psychiatric symptoms indicating impairment. *Journal of Health and Social Behavior, 3*, 269–276.

Nagy, M.P., Fisher, G.A., & Tessler, R.C. (1988). Effects of facility characteristics on the social adjustment of mentally ill residents of board and care homes. *Hospital and Community Psychiatry, 39*, 1281–1285.

National Institute of Mental Health. (1987). *Mental health, United States 1987*. (K.W. Manderscheid & S.A. Barrett, Eds.). DHHS, Publication No. ADM

87-1518, Washington, DC, Superintendent of Documents, US Government Printing Office.

Overall, J.E., & Gorham, D.R. (1962). The Brief Psychiatric Rating Scale. *Psychological Reports, 10*, 799–812.

Rhoades, H.M., & Overall, J.E. (1988). The semi-structured Brief Psychiatric Rating Scale interview and rating guide. *Psychopharmacology Bulletin, 24*, 101–104.

Segal, S.P. (1990). *The mentally ill in community-based sheltered care: A technical supplement on study methodology, 1977–1989*. Berkeley: University of California Press.

Segal, S.P., & Aviram, U. (1978). *The mentally ill in community-based sheltered care: A study of community care and social integration*. New York: Wiley-Interscience.

Segal, S.P., & Aviram, U. (1977). *The mentally ill in community-based sheltered care: A technical supplement on study methodology, 1972–1977*. Berkeley: University of California Press.

Segal, S.P., & Cohen, D. (1986). Research strategy, network, and process in a twelve-year longitudinal study. In J.P. Bowker & A. Rubin (Eds.), *Studies on chronic mental illness: New horizons for social work researchers* (pp. 154–172). Washington, DC: Council on Social Work Education.

Segal, S.P., & Kotler, P.L. (1991). A ten-year perspective of mortality risk among mentally ill patients in sheltered care. *Hospital and Community Psychiatry, 42*, 708–713.

Segal, S.P., & Liese, H. (1991). A ten year perspective on three models of sheltered care. *Hospital and Community Psychiatry, 42*, 1120–1124.

Seiler, L.H. (1973). The 22-item scale used in field studies of mental illness. *Journal of Health and Social Behavior, 14*, 252–264.

Tsuang, M.T., Woolson, R.F., & Fleming, J.A. (1979). Long-term outcomes of major psychoses: I. Schizophrenia and affective disorders compared with psychiatrically symptom-free surgical conditions. *Archives of General Psychiatry, 36*, 1295–1302.

United States General Accounting Office. (1977). *Summary of a report on returning the mentally disabled to the community: Government needs to do more*. Report to Congress. Washington, DC: Author.

Van Putten, T., & Spar, J.E. (1979). The board and care home: Does it deserve a bad press? *Hospital and Community Psychiatry, 30*, 461–463.

Wells, J.A., & Strickland, D.E. (1982). Physiogenic bias as invalidity in psychiatric symptom scales. *Journal of Health and Social Behavior, 23*, 235–252.

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