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HEALTH AND A RESIDENTIAL CARE POPULATION

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Abstract—This article describes the health status of 234 severely mentally ill (SMI) persons residing in California's supervised residential care facilities in 1973. Relocated in 1983, 63.2% reported their health as good to excellent. Over the follow-up period 80.8% maintained their SSI benefits, insuring them of health insurance coverage. Surprisingly the follow-up sample, believed to be at high risk of increased physical morbidity, compared quite favorably to low income subsamples of the National Health Interview Survey (NHIS). The SMI reported better health, access to and utilization of health services. Differences were particularly striking in the poor health category with NHIS respondents reporting poor health 3.5 times more frequently than SMI sample numbers. These results offer some support for the contribution of health insurance benefits and supervised residential settings to positive health outcomes of this vulnerable population.

Key words—severely mentally ill, health care, residential care, supported housing

INTRODUCTION

The community mental health movement of the 1960s resulted in a change in the focus of treatment for the severely mentally ill (SMI) from institutional settings to the community [1]. For the most disabled in this group not requiring nursing care, deinstitutionalization involved a transfer of responsibility for their care to 24 hr supervised residential settings—board and care, family care, halfway houses and other supported housing arrangements. What effect this shift has had on the physical health of this population is not clear. However, substantial evidence indicates that general psychiatric populations are at a high risk for increased physical morbidity and mortality [2–7]. The special vulnerability of this group requiring 24 hr supervision would place them at even higher risk [14], yet little is known about factors related to this risk.

Although suicide and accidental death account for some of the excess mortality rate in the SMI population, illness is another major factor [7–9]. One reason for high mortality rates as a function of illness may be due to the high incidence of unrecognized medical disorders among psychiatric populations [4, 5, 10] and especially those requiring residential care [14]. Alcohol and other drug abuse may also play a role in the high morbidity and mortality rates [11].

Another issue that has bearing on the physical health status of the SMI is their access to and utilization of health care services. The literature on health care utilization by the SMI is still in its infancy [12], revealing only one study on their health care utilization patterns. Lieberman and Test [13] found that 58 individuals enrolled in aggressive, comprehensive community treatment programs exhibited fairly positive health care practices and perceived health status. However, even for individuals involved in these progressive treatment programs, some service gaps were noted (e.g. some individuals had no means to pay for health care).

To date, little is known about the physical health status of the SMI, other than that they tend to be less healthy than the general population [2–7, 14]. Further, much remains to be known about their access to and utilization of health care services. This is especially true given the shift of responsibility for care from state hospitals where medical supervision was available and utilized to community-based residential facilities where medical care access and utilization is an unknown. Hence, this study was undertaken to shed light on these two issues by describing the health status and health care utilization patterns of an SMI residential care sample. Given that the SMI in residential care tend to be a low income population, further elucidation of health care status and health care utilization was accomplished by comparing our sample to a low income general population sample.

METHODOLOGY

This study is part of a 10-year follow-up study of a probability sample of 393 SMI persons residing throughout California in sheltered care facilities [15, 16]. Of the 393 residents interviewed in 1973, 360 (91.6%) were located 10–12 years later. Of these residents, 270 (75.0%) were alive and 90 (25.0%) were confirmed dead. Of the 270 residents located alive, 253 (93.7%) consented to be re-interviewed. Given concerns about the reliability and validity of self-report data among the SMI [17], all interviews were conducted by psychiatric social workers with at

least one year of experience in working with this population. Subsets of self-report items were checked, in a pretest sample, against direct behavioral observations by trained observers who spent approximately a week with each subject and kept a log of their activities. Results of this process yielded high agreement scores between interview self reports and observations (in the 90% range for publicly observable behaviors). Brief Psychiatric Rating Scale Assessments [18] (with interrater reliabilities in the 0.9 range) were used to determine levels of respondent psychological disturbance. Nineteen individuals, too disturbed to provide accurate responses, according to interviewer assessment and internal consistency checks, were deleted from the followup sample due to the questionable validity of the information they provided. Thus, the sample consisted of 234 subjects.

Health data and health status measures

The health section of the interview was patterned after the annual National Health Interview Survey [19]. All measures, with the exception of the Physical Symptoms Scale (PSS), were created from this section. Two self-report health status scales were employed in this study, namely:

—the Health Problems Scale (HPS); and
—the Physical Symptoms Scale. The HPS determines the number of problems, out of a possible 10, experienced in the last six months. The problems are:
—hardening of the arteries;
—high blood pressure;
—heart trouble;
—a stroke or general neurological problems;
—Parkinson's disease;
—epilepsy, fits or seizures;
—fainting or loss of consciousness;
—trouble controlling bowel movement or urination;
—trouble with the teeth or gums; and
—other injury or chronic condition.

The PSS was created from the 22-item Langner Scale originally drawn from the mid-town Manhattan study [20, 21]. Although the Langner Scale was originally designed as a mental health assessment instrument, it has been criticized on the grounds that it assesses both physical and mental health status [22]. To help distinguish between the physical and psychological aspects of a respondent's symptomatology, the PSS was accompanied by a probe for each positive response. The probe consisted of asking the person whether a physician had been consulted about the problem and, if so, whether the symptom was due to physical illness or psychological problems, according to the physician.

There were six items in the follow-up interview for which $> 40\%$ of the respondents were told by their physicians that their symptom was caused by physical illness. These items, with the corresponding percentages of persons whose doctors indicated a physical illness was involved, were:

—clogging or fullness in the head or nose (75%);
—shortness of breath (70%);
—trembling hands (62.5%);
—acid (sour) stomach (58.6%);
—headaches (46.2%); and
—feeling weak all over (43.3%).

These six items form the PSS.

In addition to the HPS and the PSS, there were three other measures used to assess health status. One measure, referred to as 'bed days in the past two weeks' assessed the number of days, in the two weeks prior to the 1983 interview, the person had spent in bed all or most of the day. They were also asked whether this was due to physical illness, emotional/mental problems, accident or injury or some other problem. The second measure, referred to as 'health rating', asked participants to rate their health as either excellent, good, fair or poor. The final measure, referred to as 'health comparison with people own age', asked respondents to compare their health to most people their own age. Choice of responses included:

—better;
—about the same; and
—worse.

Hence, there were five self-report measures of health status in the 1983 interview. Given that self-assessed health status has been found to be significantly correlated with objective measures of health [23–25], it was expected that our measures would also be indicative of objective health status.

The National Health Interview Survey (NHIS) comparisons

The NHIS is a continuing nationwide sample survey done by the National Center for Health Statistics in which data are collected through personal household interviews. In 1982, the NHIS sample was composed of approx. 40,000 households containing about 104,000 persons [19]. Information is obtained on personal and demographic characteristics, illnesses, injuries, impairments, chronic conditions, utilization of health resources and other health topics [26]. The universe for the NHIS includes the noninstitutionalized civilian population.

The low income subsamples of the 1982 and the 1984 NHIS surveys are employed for comparison with our SMI sample [19, 27]. In comparing our SMI sample to the NHIS samples, the 31 SMI residents in institutions are excluded from the analysis, given that the NHIS data did not include institutionalized residents. Further, as the NHIS surveys included individuals that were 5–12 years younger than the SMI participants in the lowest age group, only the middle and older age groups were compared regarding health status and health care utilization. Since both our sample's demographic characteristics and that of the NHIS

Table 1. Health problems in the past six months in an SMI sample

	Yes responses	% of sample*
1. Trouble with your teeth or gums	64	28.4
2. Any other injury or chronic condition	63	27.8
3. Trouble controlling bowel movement or urination	43	19.0
4. High blood pressure	43	19.0
5. Heart trouble	35	15.5
6. Fainting or loss of consciousness	25	11.1
7. Epilepsy, fits or seizures	18	8.0
8. Hardening of the arteries	13	5.8
9. A stroke; general neurological problems	7	3.1
10. Parkinson's Disease	2	0.9

*Valid cases for individual problems ranged from 224 to 227.

sample corresponded to the general population's demographics in these age groups, no apparent biases were introduced into the comparisons.

RESULTS

Sample demographic characteristics in 1983 are summarized as follows:

—53% were male, 47% were female;
—age ranged from 28–75 ($\bar{X} = 53.4$, SD = 12.4);
—53.6% were never married, 5.6% were married and 40.8% were divorced, widowed, or separated;
—80.8% were SSI recipients;
—7.7% were employed;
—78.9% were white, 8.2% were black and 12.9% were of other racial origin, primarily Hispanic. 55.6% resided in shelter care facilities, 31.2% resided in the community (i.e. lived in their own or a rented apartment or house, with family, or in a hotel), 10.3% resided in nursing homes, and 2.9% resided in state mental hospitals or were in inpatient psychiatric wards. None of the participants were homeless at the time of follow-up.

The correlations between the five health status measures were as follows:

—HPS – PSS ($r = 0.43$, $P < 0.001$);
—HPS – health comparison with people own age ($r = -0.24$, $P < 0.001$);
—HPS – bed days in past two weeks ($r = 0.30$, $P < 0.001$);
—HPS – health rating ($r = -0.22$, $P < 0.001$);
—PSS – health comparison with people own age ($r = -0.29$, $P < 0.001$);
—PSS – bed days in past two weeks ($r = 0.29$, $P < 0.001$);
—PSS – health rating ($r = -0.22$, $P < 0.001$);
—health comparison with people own age – Bed days in past two weeks ($r = -0.20$, $P < 0.01$);
—health comparison with people own age – health rating ($r = 0.21$, $P < 0.001$); and
—bed days in past two weeks – health rating ($r = -0.22$, $P < 0.01$).

As expected, the highest correlation was between the two scales measuring physical symptoms. The fact that all correlations were significant, and in the expected direction, lends some support to the concurrent validity of these instruments.

Physical health status of the severely mentally ill

Approximately two-thirds of the sample (63.2%) rated their health as good or excellent. Supplemental security income (SSI) recipients were almost 3.5 times less likely to rate their health as poor than those not receiving social security benefits (6.5% vs 22.5%, respectively; $\chi^2 = 10.0$, $df = 3$, $P < 0.05$). More than four-fifths (85.8%) of the participants considered their health to be the same or better than people their own age.

In response to the question of how many days they had spent in bed all or most of the day in the two weeks prior to the interview, 87.2% responded 'none'. The mean number of bed days for the entire sample was.57. Of the 29 individuals that indicated they had spent one to 14 days in bed, 14 responded that this was due to

Table 2. Comparison of self-reported health status of an SMI sample with a low income general population sample

		Self-assessed health status Family income (< $10,000) by age (percent distribution)				
Sample (n)	Age	Excellent	Very good	Good	Fair	Poor
NHIS* (6217)	45–64	11.6	13.3	26.7	25.4	23.0†
SMI (90)	45–64	14.4	—	46.7	32.2	6.7
NHIS (9837)	65 +	12.1	16.8	28.6	27.2	15.4‡
SMI (33)	65 +	15.2	—	36.4	30.3	18.2

*NHIS data are for 1982.
†The difference in the pooled fair and poor categories between the SMI and NHIS data was significant ($P < 0.10$).
‡The difference in the pooled fair and poor categories between the SMI and NHIS data was not significant.

a physical health problem, 10 indicated that it was due to an emotional or mental problem, while five reported it to be due to some other problem (e.g. injury).

Regarding the HPS, participants were asked if they had experienced any of 10 health problems in the last six months, as mentioned. As one can see from Table 1, trouble with the teeth or gums and any other injury or chronic condition were the most commonly reported problems.

There were a number of demographic differences in HPS results amongst the SMI. Females were three times more likely than males to have experienced fainting or loss of consciousness in the past six months (17.5% vs 5.7%, respectively; $\chi^2 = 6.8$, $df = 1$, $P < 0.01$). Elderly participants were nearly twice as likely to report 'any other injury or chronic condition' than younger respondents (36.8% of individuals between the ages of 60–75 as compared to 20.0% of those aged 30–44, $\chi^2 = 6.1$, $df = 2$, $P < 0.05$). Blacks were more likely than whites and those of other races to experience trouble with their teeth or gums (47.1% for blacks vs 30.1% for whites and 6.7% for other races, $\chi^2 = 10.2$, $df = 2$, $P < 0.01$).

On the PSS, the percent of respondents reporting the six health problems were:

—clogging or fullness in the head (15.8% yes, 84.2% no);
—shortness of breath (7.7% often, 30.0% sometimes and 62.3% never);
—trembling hands (5.8% often, 22.8% sometimes and 71.4% never);
—acid stomach (21.0% yes, 79.0% no)
—headaches (7.2% often, 44.6% sometimes and 48.2% never); and
—feeling weak all over (24.7% yes, 75.3% no).

When the six items of the PSS were dichotomized (with yes or often equalling one and no or sometimes/never equalling zero) and then summed, the mean on the PSS was 0.933 (SD = 1.2). Hence, the respondents were troubled by one of the six symptoms, on the average. The only demographic difference that reached the 0.05 level of significance on the PSS was residential status. Sheltered care residents had a significantly lower score on the PSS than community or institutionalized residents [$F = 4.6$ (2, 221), $P < 0.05$].

Health care access and utilization

Virtually all of the respondents (96.0%) indicated that they had a usual source of health care. Most participants (90%) had seen a doctor within the past year, while the median time since the last medical visit was 1.8 months. The average number of visits to a doctor or doctor's assistant in the year prior to the 1983 interview was approximately eight ($\bar{X} = 7.9$, SD = 8.6). SSI recipients visited a doctor or doctor's assistant more frequently in the past year than nonrecipients, although this difference only approached the 0.05 level of significance ($\bar{X} = 9.2$, SD = 9.4; $\bar{X} = 6.1$, SD = 9.0, respectively; $t = -1.83$, $df = 191$, $P = 0.07$). Few participants (18.1%) had been a patient overnight in a non-psychiatric hospital and of those who had been hospitalized, most (82.1%) had been hospitalized only once. More than half (62.3%) had seen a dentist in the past year, while one-fifth (20.1%) had not seen a dentist in one to three years, and 17.6% had not visited a dentist in at least four years. Access to health care was assured for 80.8% of the sample, whose SSI benefits were linked to Medi-Cal health insurance coverage, while 22.3% had both public and private health insurance coverage, and 8.9% were insured solely through private sources.

Health comparison of the SMI with a low income population

Two types of health status comparisons of our SMI population with a low income population (i.e. < $10,000/year) were made. The first involves a respondent-assessed view of their general health while the second compares the number of chronic heart conditions per 1000 persons. For respondent-assessed health status, the NHIS study asked: "Would you say your health is excellent, very good, good, fair, or poor?", while our SMI study questionnaire asked: "At the present time, would you say your health is excellent, good, fair, or poor?" Given this discrepancy in categories, interpretation of comparisons of health status of the SMI and the low income populations focused on negative health status (i.e. the fair and poor categories). As can be seen from Table 2, differences between low-income individuals in the general population and the SMI sample on the combined fair and poor health categories were significant only in the middle-aged group. The difference is particularly striking in the poor health category with the NHIS respondents reporting poor health status approx. 3.5 times more frequently than the SMI sample.

The second comparison of health status involves the number of chronic heart conditions per 1000 persons, namely:

—heart disease (i.e. ischemic heart disease, heart rhythm disorders and other selected diseases of the heart, excluding hypertension);
—high blood pressure or hypertension; and
—hardening of the arteries.

As can be seen from Table 3, there were no significant differences between the SMI and the NHIS low income samples on reported cases of heart disease. However, the SMI did report significantly less hypertension in both age categories and fewer instances of hardening of the arteries in the oldest age category. The largest difference was in hypertension in the 65 and older age group. It should be noted that the NHIS study asked whether any of the conditions had been experienced within one year prior to the interview while the SMI study used six months prior to the interview. Although the difference in the reference period covered in the two studies may account for some of the observed

Table 3. Comparison of the number of chronic heart conditions per 1000 persons in an SMI vs a low income sample

Sample	Condition	Family income (< $10,000) by age Age category 45–64	65 +
NHIS*	Heart disease†	206‡	239‡
SMI	Heart disease	178	183
NHIS	Hypertension	352§	474§
SMI	Hypertension	249	175
NHIS	Hardening of the arteries	381	81¶
SMI	Hardening of the arteries	55	0

*NHIS data are for 1982.
†Heart disease = ischemic heart disease, heart rhythm disorders, and other selected diseases of the heart, excluding hypertension.
‡The difference between the NHIS and the SMI data is not significant.
§The difference between the NHIS and the SMI data is significant at $P < 0.05$.
¶The difference between the NHIS and the SMI data is significant at $P < 0.10$.

differences, it seems unlikely that it accounts for the large differences found in hypertension rates.

Health care utilization—comparison of the SMI with a low income population

Health care utilization was assessed in terms of frequency of physician contacts. This was operationalized as the interval since the last physician contact. However, the term 'physician contact' in the SMI data has a more limited definition than in the NHIS data. That is, unlike the NHIS study, the SMI study does not include telephone calls and does not extend beyond the physician to include other medical personnel. In spite of this, the middle-aged SMI had significantly more frequent contact with physicians than the low income population in three of the four time periods, as can be seen from Table 4. Although this general trend was true for the elderly group, the differences were not significant.

Health care access

When compared to a low income general population, a significantly higher percentage of SMI respondents have a regular source of health care (see Table 5).

Another measure of access to health care is the availability of insurance to cover such care. By this standard, the SMI fare well: over four-fifths of the SMI sample in both age groups received health insurance through Medi-Cal (California's public assistance health program) whereas less than one-fifth of the NHIS sample received public assistance health coverage, as can be seen in Table 6. Given that the majority of low income individuals do not suffer from a physical or mental disability, they are not entitled to SSI, and hence may have a more difficult time gaining access to public health coverage. The differences were significant in both age groups. Although one cannot rule out the possibility that individuals in the NHIS low income sample had private insurance, it seems unlikely given their low income status.

DISCUSSION

The SMI sample reported good access to health care services as evidenced by the fact that 80.8% of the sample received Medi-Cal health insurance coverage. The finding that SSI recipients in the SMI sample were nearly four times less likely to rate their health as poor and more likely to have visited a doctor in the past year than SMI individuals not receiving SSI, alludes to the importance of insurance benefits for this population.

When comparing the SMI to a low income population, the data indicate that the SMI were more likely to rate their health favorably in the 45–64 age range, and report less hypertension in the middle and older age ranges as well as less hardening of the arteries in the older age range. Hence, the SMI sample compares quite favorably to a low income general population sample in terms of self-reported health status in the middle age range and generally reports comparable health status in the older age range. Given the many problems associated with their chronic mental illness (e.g. the side effects of medication, self-care problems), one might expect that the SMI would have fared much worse than a low-income general population. Hence, this finding is somewhat surprising. It may be a function of the fact the SMI sample had better access to and utilization of the health care services than the NHIS sample.

The SMI compared very favorably with the low income NHIS population sample with respect to access and utilization of health care services in a number of ways. The SMI were more likely to:

—have seen a doctor in the past year for the middle-aged group;
—have a regular source of health care; and
—be on public assistance health care coverage.

Whether this trend will continue into the future given current legislation and economic constraints which

Table 4. Interval since last physician contact—SMI vs low income samples

Sample (*n*)	Age	Family income (< $10,000) by age (percent distribution) < 1 year	1 year to <2 years	2 years to <5 years	5 years+
NHIS* (9933)	45–64	72.6†	9.5‡	11.0†	6.8†
SMI (74)	45–64	90.5	6.8	2.7	0.0
NHIS (6778)	65 +	82.2‡	5.2‡	8.0‡	4.6‡
SMI (29)	65 +	93.1	3.4	3.4	0.0

*NHIS figures are for 1982.
†The difference between the NHIS and the SMI data is significant at $P < 0.05$.
‡The difference between the NHIS and the SMI data is not significant.

Table 5. Health care access: persons with and without a regular source of medical care by family income—SMI vs low income samples

Sample	Family income*	With a regular source of care	Without a regular source of care
		(% of sample†)	
NHIS‡ (23.944)	$5000–9999	80.9§	14.0§
SMI (167)	$5000–9999	93.2	2.7

*SMI sample sizes are too small for comparison in the < $5000 income range.
†Includes actual rather than absolute percentages.
‡NHIS figures are for 1982.
§The difference between the NHIS and the SMI data is significant at $P < 0.05$.

have resulted in reduction of benefits, is an issue for future research to address.

Having stated our belief as to the meaning of our findings regarding the health status and health problems in our survey followup SMI sample, the 'hardy survivor' effect remains a viable alternative or partial explanation for the results. It must be noted that the typical SMI individual in the baseline sample in 1973 was between 50–65 years old and 22.9% of the original sample ($n = 90$) had died by the ten year follow-up, with over two thirds of the deaths attributed to either heart disease ($n = 40$), cerebrovascular disease ($n = 10$), or cancer ($n = 13$) [14]. Given the relatively high overall mortality rate associated to a large degree with these particular diseases, those still living at follow-up could include a disproportionate number of biologically hardier individuals who have survived despite having the 'risk factor' of SMI. This in turn could explain a portion of the variance in health status in addition to that accounted for by better access to and greater use of health care services (i.e. in comparison to the low income sample from the general population).

An important direction for future research involves the need to obtain information on a broader range of health problems including detailed information on individual health habits, and the nature of health care contacts so one may gain a more adequate understanding of the many factors responsible for the health problems of the SMI. Information about health habits of the SMI is becoming an increasingly salient issue given recent evidence on the relatively high incidence of HIV [28] and high risk behaviors among this population [29]. Although this study found that the SMI compare favorably to a low income population on health status, they do not compare favorably to the general population [2–7, 30]. Given the general decline in services available to the SMI and the growing numbers of homeless SMI over the past decade, this trend may become even more prominent in the future. Further, given our sample included no homeless SMI, future research should include a focus on the health status and health care practices of this subgroup of the SMI.

Table 6. Health care access: persons with and without public assistance health coverage—SMI vs low income samples

Sample	Age	Family income ($5000–9999) by age* (percent distribution) Covered	Not covered
NHIS† (408)	45–64	11.9‡	88.1‡
SMI (69)	45–64	94.2	5.8
NHIS (424)	65 +	7.3‡	92.7‡
SMI (29)	65 +	82.8	17.2

*SMI sample sizes are too small for comparison in the < $5000 income range.
†NHIS data are for 1984.
‡The difference between the NHIS and the SMI data is significant at $P < 0.05$.

CONCLUSION

Policy makers in attempting to reform the mental health system to insure reductions in expenditures ought to take note of the success of past efforts lest they toss out the baby with the bathwater. Some success seems documented in our results. The SMI residential care population has had good access to health care and appears to be in better health than a comparatively poor population. While some may argue that the results simply reflect a 'hardy survivor' effect, the adverse selection of the entire sample—i.e. their assumed need for 24 hr care—leads us to point to the importance of insured health care access and better health care utilization for insuring the health status of the seriously and persistently mentally ill. Perhaps such care is best guaranteed by the nature of the supervised residential settings these people were housed in [31]. Others have argued that the SMI are "...dying with their rights on" [32]. Our results buttress the arguments for good supervised care.

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