Soteria Project
Final Progress Report

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4. Sponsoring Institution: Institute for Psychosocial Interaction (IPI)

5. Name and position of person writing this report if other than item 3.

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Aims of the project: (problem studied)

6. Describe briefly the *specific aims* of your project, indicating major changes in direction from the original aims:

The basic long term aims of the Soteria Project were formulated in 1969-70 during the writing of the original grant proposal that was funded beginning early in 1971. We set out to establish an experimental non-hospital residential setting to treat persons recently diagnosed as schizophrenic. Only young unmarried schizophrenics were selected because the clinical literature indicated that this group was at high risk for the development of chronicity. We were particularly interested in preventing the development of long term disability. In order to provide a larger sample and more valid and reliable information as to the robustness of the experimental treatment program, a second residential treatment program (Emanon) modelled after the first (Soteria) was established in another community. The same methods were used in both settings, and similar control groups of subjects receiving usual hospital treatment were studied in both cases.

The method of treatment utilized in the two experimental facilities was to differ significantly from usual hospital treatment in several important respects. Anti-psychotic drugs, the mainstay of hospital based treatment would be under most circumstances withheld for an initial 6-week trial of "pure" psychosocial intervention. After six weeks, only subjects who had not responded to the psychosocial intervention would be administered neuroleptics. The projects' treatment staffs were to be specially selected and trained persons who would not necessarily have any formal mental health training or experience. The length of stay in the experimental facility would be determined on strictly clinical grounds; subjects would be released when they had recovered sufficiently to resume life in the community. This is in contrast to the length of stay for hospitalized patients which is strongly influenced by such non-clinical factors as pressure on available beds, and the economics of medical insurance funding policies.

Three complementary studies were conducted: 1) Patient Outcome Study, 2) Treatment Process Study, and 3) Staff Characteristics Study. The major goal of the Patient Outcome Study was to compare the short (6 week) and longer term (1 and 2 year) outcomes of subjects treated in these non-hospital settings to the outcomes experienced by a similarly selected and studied group of subjects receiving the "usual" treatment offered in the psychiatric ward of a general public hospital. We were most interested in psychosocial outcome variables. We also measured symptomatology and rehospitalization rates, although we did not think that these would be adequately sensitive to the benefits of the experimental treatment. The major goal of the Treatment Process Study was to describe the social environments and treatment processes involved in the delivery of both the experimental and hospital treatments to look for factors that were related to any differences in the outcome variables. The major goal of the Staff Study was to compare and contrast the project staffs to the hospital staffs on a number of demographic, life experience, and personality variables.

The specific aims of the final 2-year grant period were to:
1) complete the collection of longer term (1 and 2 year) follow-up data.

2) analyze and present the results in a "simple" manner
3) write a clinical manual describing treatment techniques used in the experimental settings.

7. Were the aims pursued as *originally formulated*? (yes/no)

The basic aims of the original design were pursued throughout the project. However, in its 13-year grant supported life (1971-1984) the project underwent a number of reviewer introduced changes in methodology and measurement. This led to an enormous amount of data being collected on relatively few subjects. The reviewers of this last grant recognized this and recommended that we report much simpler data analyses in addition to the complex multivariate analyses originally proposed. We pursued the 3 specific aims of the final 2-year grant period as originally formulated except that the "simpler" data analyses replaced rather than supplemented the complex multivariate analyses. It is our position that the review process itself made it very difficult for us to maintain consistent attention to the project's most basic question: How effective were these experimental residential treatment programs in the treatment of acute schizophrenia in young adults compared to short term hospital treatment with neuroleptic drugs?

8. In general how would you characterize your research?

16		Hypothesis development
17	X	Hypothesis testing
18		Development or refinement of methodology
19		Gathering of data; e.g., surveys
20		Other (specify):

Conduct of Research:

9. Describe the methodology used in your research, including characteristics of any sample used:

1. Patient Outcome Study

Subjects. All subjects were obtained from emergency screening facilities operated by one of two County MHC complexes in the San Francisco Bay Area. Subjects were recruited from January 1976 through mid 1979 and were followed for two years post admission. Patients who met the following criteria were potential subjects: initial diagnosis of schizophrenia, judged in need of hospitalization, no more than one previous hospitalization for four weeks or less with a diagnosis of schizophrenia, age 18-30, not currently married. Requirements for participation were explained and informed consent was sought from these patients and their families. Patients agreeing to participate were randomly assigned to either the experimental residential treatment setting or to the usual in-patient public hospital setting. At this point and again after 72 hours, project staff conducted additional diagnostic assessments and noted which of 7 cardinal symptoms of schizophrenia were present. If both of these assessments confirmed a DSM-II diagnosis of schizophrenia, and at least 4 of the 7 cardinal symptoms were observed, the patients were included as subjects in the study.

Data. 29 independent variables were measured at admission: 10 Demographic, 5 Psychopathology, 7 Prognostic, 7 Psychosocial (See Appendix A: Tables 1,2,3, and 4). 7 dependent variables are reported from the six-week post admission assessments: 3 Psychopathology and 4 Medication (See Appendix B: Table 5). 22 dependent variables were collected at 1 and 2 years post admission: 2 Psychopathology, 4 Medication, 4 Inpatient and Outpatient Care, and 12 Psychosocial (See Appendix B: Tables 6,7,8,9, and 10). Data is reported for only those subjects who actually received the experimental or control treatments. In the original Soteria project proposal the experimental treatment was defined as 28 or more days in the experimental facility, and the control treatment was defined as 7 or more days in the hospital.

2. Treatment Process Study. 3 approaches were utilized: 1) Moos' WAS/COPES scales measuring the real and ideal characteristics of the four different social environments (2 experimental and 2 control settings) as perceived by patients and staff were obtained every 6 months throughout the study. 2) An ethnographic/anthropological observational study was conducted in the four settings by Holly Wilson R.N., Ph.D.. 3) The staff of the two experimental facilities kept diaries and logbooks from which material was extracted concerning social structure, institutional variables, and staff attitudes and behavior. A clinical treatment manual summarizing their experience was developed in order to allow replication of the treatment processes in other similar settings.

3. Staff Study. Demographic, attitudinal, and personality characteristics of the experimental staff were collected on hiring and compared with those of hospital ward staffs.

10. Did you have significant technical methodological difficulties? (yes/no) (Examples: necessary measurement tools undeveloped; unexpected inadequate database) If yes, describe, and explain how you dealt with them.

We were concerned about the usefulness or appropriateness of a number of the self report measures included in the study because the sample was composed solely of psychotic persons. On the one hand, we believed it important to attempt to identify subtle changes in variables such as self concept, self-esteem, locus of control, etc. On the other hand, it was difficult to collect valid and complete data from this group of subjects. Most of these measures were not designed for, regularly used with, or validated for psychotic persons. As a consequence, collecting these data was very time consuming and expensive, and proved difficult to do consistently and reliably. Therefore, we have focused our analysis and reports principally on rater-obtained measures with high face-validity.

11. Did you have significant practical operational difficulties? (yes/no) (Examples: trouble with equipment; loss of sample or data; difficulties with cooperating units) If yes, describe and explain how you dealt with them.

1.) Cooperation. Both of the project's control settings (the two county psychiatric inpatient wards) were busy, rapid-turnover, high-volume wards. We had to rely on their willingness to allow the project to divert and study a very small subset of their total inpatient population. Although the vast majority of the data were collected by our research team, it still required a great deal of time and attention to the wards' clinical and administrative staff hierarchies to maintain their collaboration. In late 1978 after a homicide and two serious injuries on its wards, one facility refused to allow further subject acquisition by the project. Obtaining Moos' WAS and staff demographic, attitudinal, and personality characteristics was always problematic because it was perceived as an additional (low priority) demand upon their already overloaded schedules.

2.) Subject Withdrawal. After initially consenting, a number of comparison group subjects refused further project participation while hospitalized or shortly after release. Since as part of our informed consent process patients were told that they could withdraw from the project at any time it was usually unfruitful and perhaps unethical to contact them more than once or twice in an effort to keep them in the study, once they had clearly stated their intention to withdraw.

3.) Inability to find subjects for follow-up assessments. Follow-up studies are notoriously difficult to conduct in the U.S. 10-20% two-year follow-up attrition rates are common in studies such as this one. In addition, this study was conducted in two counties with highly geographically mobile populations. In fact, in the 1970s, Santa Clara County's immigration and emigration rates were approximately 20% per year. Therefore, tracking a cohort of psychotic subjects (known to be more mobile) for two years in these particular counties was extremely difficult. Despite the fact that we utilized sample retention techniques described in previous published long-term outcome research, we still experienced a significant loss of 1 and 2 year follow-up data. Periodic phone contacts, post cards, letters, attempts to locate subjects via family and friends, and payment for participation in follow-up interviews were not sufficient to enable us to obtain complete follow-up data. The problem

was worse for control subjects because unlike the experimental subjects, they had no ongoing relationship with clinical staff members.

In addition, there was a two year period of time before this grant was approved and funded during which the project had no research funding. There was no staff available to follow-up subjects during this time which inevitably resulted in additional subject loss. Finally, serious administrative problems (which led to a lawsuit only recently settled after 5 years) interfered with additional follow-up efforts because research funds were unavailable throughout this time.

Results:

12. Describe (a) your conclusions or results as they relate to your specific aims (please include negative results), and (b) their significance in relation to the field. Avoid highly technical language where practical.

Results - Patient Outcome Study. The project successfully established, maintained, and studied two highly similar residential alternatives to psychiatric hospitalization. They differed in theoretical model (interpersonal phenomenology), treatment principals (interpersonal milieu without neuroleptics) and staffing (non-professional) from usual treatment offered in the psychiatric wards of general public hospitals.

Patient Outcome Study - Admission Characteristics.

10 demographic, 5 psychopathology, 7 prognostic and 7 psychosocial independent variables (29 total) were assessed at admission and comparisons between experimental and control groups were performed (see Appendix A: Tables 1,2,3, and 4). There were only 4 significant inter-group differences: fathers of experimental subjects had more education and higher status jobs than fathers of control subjects; more mothers of experimental subjects were working outside the home than mothers of control subjects; and fewer experimental subjects had positive family relationships (as judged by the research staff) than control subjects.

Patient Outcome Study - Six-week Outcome.

The six week comparison provides an opportunity to compare the ability of the two experimental milieus, in which neuroleptic drugs were not ordinarily used, with that of the two hospital wards where neuroleptics were routinely used to reduce acute psychotic symptomatology. As shown in Table 5, both groups had comparable levels of Psychopathology (3.5, t=.05, ns) and degree of improvement since admission (2.5, t=.15, ns).

Both experimental and control groups evidenced highly significant reductions in symptom levels between admission and 6 weeks (Experimental: 3.5 - 5.1 = -1.6, paired t=6.49, p<.001, Control: 3.5 - 5.3 = -1.8, paired t=9.95, p<.001). These levels of change were not significantly different from each other (t=0.86, ns, Table 5). These equivalent levels of change occurred despite very different use of neuroleptic medications in the two groups. As also may be seen in Table 5, 98% of control subjects received antipsychotics during their entire initial hospital stays while only 12% of experimental subjects did (X^2=70.8, p<.001, Table 5). 67% of experimental subjects received no neuroleptics at all during their initial 6 weeks of residential care, in contrast no control subject (2%) did not receive them (X^2=50.7, p<.001, Table 5).

Although their initial length of stay differed significantly between the two groups (Experimental: 177 days, Control: 43 days, t=4.77, p<.001) the assessments of

psychopathology were made at fixed intervals; hence they are comparable even though many of the control subjects had been discharged from the hospital while most experimental subjects were still in residential care.

As will be seen from the 1 and 2 year follow-up data to be presented below, these changes in psychopathology between admission and 6 weeks are the most robust and surprising findings of this study. That is, although we hypothesized that the interpersonal interventions that were the primary focus of the experimental treatment would be as effective in the long run (1 and 2 years) as the neuroleptic focussed treatment of the control subjects, we did not predict they would be as powerful as the known effectiveness of antipsychotic drugs in the short term -- that they were, is a very striking finding..

Patient Outcome Study - 1 Year (post admission) Outcome.

6 Psychopathology and Medication (Table 6) and 7 measures of Psychosocial adjustment containing 12 variables (Table 7) are reported here.

At 1 year there was approximately a 10% sample attrition in both groups. As a review of Tables 6 and 7 will reveal, the experimental and control groups had very similar outcomes at 1 year post admission. There was no statistical difference between the two groups on 16 of the 18 dependent variables measured. There were only two significant differences between the groups; significantly more control subjects than experimental subjects received continuous and substantial neuroleptic drug treatment (29% vs. 63%, X^2=8.7 p<.001, 55% vs. 79%, X^2=4.6, p<.05, Table 6) and control subjects had significantly more contacts with friends per week (2.8 vs. 1.9, t=2.54, p<.05, Table 7).

Patient Outcome Study - 2 Year (post admission) Outcome.

Sample Loss.

At two years follow-up, 24 of 100 cases (14 experimental and 10 control (31% vs. 20%, X^2=1.61 ns)) were not found, refused to be interviewed, or had no global psychopathology data.. This amount of sample attrition (24%) warrants cautious interpretation of any positive findings. The 29 independent variables collected at admission were compared for the missing and non-missing groups by t-tests or Chi -squares as appropriate. The groups were significantly different (p<.05) on three variables (Table 8). The "missing" group were less religious, had fewer parents with college education, and had fewer subjects with an acute onset of the symptoms of schizophrenia. Three additional variables were marginally significant (p<.06 to p<.10): the missing group had more symptoms diagnostic of schizophrenia, the raters were less certain that these subjects were schizophrenic, and fathers had lower work statuses.

In summary, it can be said that there is a modest preferential loss in the sample of subjects with a slow onset from working class families. However, although significant, the differences were neither large enough nor pervasive enough to make the 2 year data uninterpretable. (At p<.10, 2.5 variables would be expected to be significantly different by chance.)

Results.

6 Psychopathology and Medication (Table 9) and 7 measures of Psychosocial adjustment containing 12 variables (Table10) are reported here. Four additional inpatient and outpatient resource utilization variables covering the entire 2 year follow-up period are reported in Table 11. This resource utilization data was collected for the entire sample from records maintained by the two County Mental Health Systems studied in this project. Hence there is no sample attrition for these variables.

As a review of Tables 9, 10, and 11 will reveal, the experimental and control groups had very similar outcomes at 2 years post admission. There was no statistical difference between the two groups on 20 of the 22 dependent variables measured. There were only two significant differences between the groups; significantly more experimental subjects became more independent in their living arrangements between 1 and 2 years post admission (40% vs. 11%, X^2=7.8, p<.01, Table 10), and the experimental group had fewer mean numbers of outpatient visits for the period of 2 years post admission (Experimental: 22.9, Control: 46.0, t=3.19, p<.01, Table 10).

There were no significant differences between the experimental and control groups on the other three resource utilization variables. A similarly high percentage of each group was readmitted for inpatient care during the 2 years post admission (Experimental: 78%, Control: 87%, X^2=1.0, ns, Table 11), and spent similarly large mean and median numbers of days in inpatient care (Experimental: 40.8 and 24.5, Control 39.7 and 21.5, Table 11). These data indicate that neither treatment was very effective in preventing the well known "revolving door" syndrome.

Patient Outcome Study - Good vs. Poor Outcomes at 1 and 2 Years

Definition of "Good vs. Poor" Outcomes.

Although we reported only two significant differences in outcome throughout one and two years post admission (controls had more contact with friends at one year and experimental subjects living status improved more in the direction of independence at two years), we thought that combining several variables to form good/poor outcome groups was warranted in order to better understand our basic results.

Apriori we selected one symptom variable, global psychopathology, and two psychosocial variables, working and living independently, as a set of variables reflective of overall outcome status. Subjects with a score of 3 or less ("mild" or less) on the seven point psychopathology scale and who were either living independently, working, or going to school, were designated as having "good outcomes." Any subjects scoring 4 or more on the global psychopathology score were designated as having "poor outcomes," and any subjects who were not living independently, and not working or going to school were designated as having "poor outcomes." Data were analyzed separately at one and two years and again through both one and two years.

Experimental vs. Control. As may be seen in Table 12, outcomes were comparable for experimental and control subjects at one and two years as similar percentages had good outcomes at both measurement intervals. Roughly 40% of subjects had good outcomes at

one and two years, and about 25% had good outcomes at both points in time. The initial treatment condition (Soteria House or psychiatric ward in general hospital) had no discernable effect on this dichotomous (good vs. poor) measure of one and two year outcomes as we defined them here. This being the case, all further analyses of these computed "good vs. poor" outcome scores were made utilizing data from the entire sample.

Stability. Comparing the percentages of subjects with good vs. poor outcomes at one year with those at two years, we found that for those with poor outcomes at year one, only 25% had good outcomes at year two. Conversely, 58% of subjects with good outcomes at year one had good outcomes at year two (X^2=6.7, p<.01). Hence, the computed measures described rather stable subgroups.

Relationship to Hospitalization. 34% of good vs. 66% of poor outcome subjects had been rehospitalized over the two year period (X^2=2.40, p<.13). Although only close to marginally significant due to the attrition related small sample sizes, the actual percentages are quite different. Considering days spent in a hospital, patients with "good" outcomes averaged 27 days, and patients with "poor" outcomes averaged 55 days (t=2.31, p<.05).

Relationship to Independent (Predictor) Variables.

Data on all 29 independent variables collected at admission were studied as predictors of good vs. poor outcome at 3 time periods (at one and two years post admission, and throughout both 1 and 2 years) - see Table 13. Because of the small sample sizes, we have included marginally significant variables (p<.10) in Table 13. There were a total of 16 significant relationships found. A total of 11 of the 29 variables were significantly related to outcome in at least one of the 87 comparisons made: two demographic (some college and white race), one psychopathology (Carpenter-Strauss-Bartko-CSB), 5 prognostic (acute onset, presence of confusion, schizoid premorbid adjustment, presence of precipitating life events, and Goldstein's adolescent premorbid adjustment), and 3 psychosocial (working, job and primary source of income, and living independently).

Only one variable ("some college") for study subjects, was significantly related to good outcome in all 3 analyses (at one and two years, and throughout both). Three variables (working or going to school, living independently, and the presence of precipitating life events) were significantly related to good outcomes in two of the three time periods analyzed. Of the other 6 significant relationships found, 4 were at only 1 year (Goldstein, onset, schizoid adjustment, and primary source of income from job) and 2 at only 2 years (white race and presence of confusion). None of the significant relationships were found to apply only in the "throughout both 1 and 2 year" interval.

In our data both presence of confusion and a schizoid premorbid adjustment are related to outcome in a way that is opposite to what would be predicted from the literature; that is, a lower percent of subjects with confusion and a higher percent with schizoid adjustments had good outcomes.

In summary, in our data, 3 of the 4 strongest and most stable outcome predictors were indicators of pre-treatment social and instrumental competence: going to college (despite an average age at admission of about 20), working or going to school, and living independently. These results are quite consistent with what has been reported in the

literature, as is the fourth strongest predictor, the presence of precipitating life events, as related to good prognosis for schizophrenia.

Patient Outcome Study - Neuroleptic Drug Utilization and Outcome

As previously noted, in the admission to six week measurement period, global psychopathology scores decreased significantly and similarly in both treatment groups. Within the experimental group global psychopathology scores for the 25 subjects who received no neuroleptics during this period showed significantly greater improvement on this measure than did the scores of the 12 who received them (Table 14). No such comparison is possible within the control group because all of these subjects received substantial or continuous drug treatment during this period.

As may be seen in Tables 6 and 9, over the two year follow-up period drug treatment becomes much more similar in the two groups. However, the 40% of experimental subjects who were never treated with neuroleptic drugs continued to be significantly different than those who were treated with drugs on several measures at both one and two years.

Method. In the analysis reported here we collapsed the drug treatment variable into two categories that allow all our data on neuroleptic drug usage to be used and that make clinical common sense: Little or no drug treatment ("no substantial neuroleptic treatment") defined as no or less than 7 days of continuous neuroleptic drug treatment; and "substantial" drug treatment, combining the categories of greater than 7 days and continuous drug treatment.

We looked at change in global psychopathology by treatment group and medication status at one and two years and found several significant changes in psychopathology scores but no significant differences in amount of change by drug status between treatment groups. Because of the lack of differences between treatment groups, the fact that the drug treatment became more similar for the two groups, and because we found so few one and two year between treatment group outcome differences (none with our "good vs. poor" outcome analysis) we combined the two treatment groups. Results are reported for drug status vs. each of global psychopathology, good/poor outcomes, rehospitalization, and hospital days (Tables 15, 16 & 17).

Global Psychopathology. Table 15 indicates that subjects receiving substantial neuroleptic drug treatment have significantly higher global psychopathology scores at each follow-up period (6 mos: 3.1 vs 3.6, $t = 1.77$, $p<.10$; 1 yr, 2.2 vs 3.3, $t = 3.61$, $p<.001$; and 2 yrs: 2.5 vs 3.3, $t = 1.96$, $p<.06$).

"Good vs. Poor" Outcome. Table 16 indicates that good outcome is significantly associated with minimal drug treatment at both one and two years (1 yr: 54% vs 32% "good," $X^2 = 2.75$, $p<.10$; and at two yrs: 69% vs 29% "good," $X^2 = 5.34$, $p<.05$)

Rehospitalization. Table 17 indicates that over the two year follow-up period, significantly more subjects treated with substantial courses of neuroleptic drugs were rehospitalized (91% vs 68%, $X^2 = 3.9$, $p<.05$) and spent more days in hospital on the average, than did minimally drug treated subjects. Although the difference in hospital days did not quite reach significance (because of the wide variance) the magnitude of the difference (23 vs 42 days) is substantial.

Discussion. Interpretation of these results is complex; subjects given neuroleptics in the experimental settings (milieus that generally eschewed their use) had higher levels of psychopathology on entry to the study and changed significantly less than non-drug treated subjects over the initial six weeks (table 14). This is what might be expected; sicker, more problematic patients were given drugs. However, it is contrary to most psychopharmacologic data that a non-neuroleptic treated group of psychotic patients would change more than those treated with drugs.

With the passage of time study subjects were mainly outpatients. It appears that, consistent with clinical practice, sicker patients were more regularly given neuroleptics. Hence, less ill patients were less likely to receive substantial neuroleptic drug courses. However, it is also true that, contrary to expectation, the neuroleptics were not very effective in reducing symptoms; psychopathology was not reduced and most neuroleptic treated patients had poor outcomes and substantial hospital experience (tables 15, 16 and 17). It is entirely possible, of course, that the "substantial" neuroleptic treated (actually, in the 1-2 year interval 70% received continuous drug treatment) would have had even more unfavorable courses of illness without neuroleptic drug treatment. All we can say at this point is that in this sample, studied in Silicon Valley in the late 70's, the antipsychotic drugs were very limited in their ability to produce favorable outcomes defined in a number of different ways.

Given the known substantial risk of tardive dyskinesia (4-5% per year, Kane et.al, 1984) one must ask whether the risk benefit ratio is sufficiently weighted with benefit to warrant the risk of continuous neuroleptic drug treatment. A more specific, differentiated use of neuroleptics seems warranted by our data. Basically, our data indicate that relatively competent (going to college, working or living independently) persons with acute onset of illness precipitated by life events should not be medicated - certainly not exposed to the risk of T.D. by post-acute episode maintenance neuroleptic drug treatment. If there is no Soteria type milieu available they may have to be medicated while in the hospital to conform to DRG length of stay standards. However, it is clear from these data that the common clinical practice of routinely maintaining all schizophrenic patients, regardless of pre-morbid prognostic factors, on neuroleptic drugs is unwarranted.

Results - Treatment Process Study.

1.) WAS/COPES milieu assessments. The two experimental settings were remarkably similar in their COPES profiles. The profiles remained consistent for the duration of their operation. The two control (hospital) settings had WAS profiles which also were similar to each other (but less similar than the two experimental facilities), and they were also stable over time. However, the experimental settings were significantly different from the hospital settings on 8 of the 10 variables measured by these scales. The experimental settings were similar to the hospital settings only on the "personal problem orientation" and "staff tolerance of anger" subscales. The experimental settings had significantly higher scores on the subscales measuring involvement, support, spontaneity, autonomy, order, and clarity. The experimental settings were significantly lower on the subscales measuring practicality and staff control. These data are presented in Appendix D, Figures 1-6. For detailed results see: Menn & Mosher, 1978; Mosher & Menn, 1983; Mosher et. al. 1989; Mosher et. al. 1990; and Wendt et. al. 1983.

2.) Ethnographic/Anthropological assessments. Very different ongoing social and behavioral processes were identified in the experimental settings as compared to the hospital settings. The hospital model was characterized as a "dispatching process" involving patching, medical screening, piecing together a story, labelling and sorting, and distributing. The model in the first experimental setting (Soteria) was characterized as "An Infracontrolling Process," and the basic social processes in the second experimental setting (Emanon) as "Conjoint Becoming."

The dimensions of the Infracontrolling Process identified were presencing, fairing, limiting intrusion. For detailed results see: Wilson, 1974; 1976; 1977; 1982; 1983; 1985; 1986; 1990. The dimensions of Conjoint Becoming were birth, transition-fermentation, working out non-rules, tracking individual pathways, and sorting out comparative non-identities (Wilson, 1978).

Although differing in some respects, Wilson concluded that "...when compared to usual psychiatric treatment, the two [Experimental] settings resemble each other in many ways" (Wilson, 1978, p. 145). She went on to describe 5 major catagories in which they were similar but very different from the control settings: 1) Approaches to social control that avoided codified rules regulations and policies, 2) Keeping basic administrative work to a minimum to allow a great deal of undifferentiated time, 3) Limiting intrusion into the setting, 4) Working out social order on a face-to-face emergent basis, and 5) Commitment to a non-medical model that did not require symptom suppression.

3.) Records of patient progress, staff observations, and house meetings. These records were reviewed, categorized, and abstracted to produce the Soteria Clinical Treatment Manual. This manual represents one of the major accomplishments of the final 2-year grant period.

Results - Staff Study. Experimental staff were initially characterized as having led long lives in relatively few years, as being tough but tolerant, energetic, and well integrated (Mosher et. al. 1973). Hospital and experimental facility staffs were compared using demographic, attitudinal, and personality test measures. The two groups were found to be similar in ego strength (self assurance, emotional maturity, independence, and autonomy). They were also similar in affective qualities (warmth, sensitivity, and empathy). However, the two groups differed significantly on a set of cognitive/attitudinal qualities with the experimental staff exhibiting significantly higher levels of intuition, introversion, flexibility, and tolerance for altered states of consciousness. The data do not allow us to determine whether the differences found are due to genuine personality differences or are a consequence of the two radically different clinical environments within which they worked. For detailed results see Hirschfeld et. al. 1977.

Significance of these Results.

The project demonstrated that most newly identified, young, unmarried DSM-II schizophrenics can be treated successfully over the short term usually without the use of neuroleptic drugs in specially staffed milieus in small home-like community based facilities. The 2-year outcome data from the post-1976 cohort of subjects did not replicate the data from the 1971-76 cohort which showed substantially better outcomes for the experimental subjects on a number of psycho-social variables. However, the similarity of long-term outcomes in the two groups is very significant in light of the conventional wisdom that routine use of, and maintenance on, neuroleptics is essential for the treatment of schizophrenic patients. We believe, the earlier more positive outcomes were not replicated because: 1) The ever-present uncertainty of the financial viability of the project and the experimental treatment facilities that demoralized the staff, and 2) The spontaneously occuring natural extended support network that grew up around the two experimental treatment facilities broke up as it became clear that the houses would be closing and the project would be ending.

In sum, the project data call into question American psychiatry's routine use of short term hospitalization and neuroleptic drugs with newly identified schizophrenic patients. Establishment of Soteria-like models of community care could allow the field to reduce use of neuroleptic drugs and thereby reduce the prevalence of tardive dyskinesia without adversely affecting patient outcomes or increasing costs.

13. Did you have other findings not directly related to the specific aims ("serendipitous findings")? (yes/no) If yes, describe:

Unexpected findings emerged in two areas; neuroleptic drugs and social networks.

A) Neuroleptics: The Soteria project was conceptualized (1969-70) prior to the recognition of the seriousness of the tardive dyskinesia problem by the field. Although one of the project's original aims was to provide a psychosocial alternative to the routine neuroleptic treatment provided in hospitals we did not realize the magnitude of the tardive dyskinesia problem at the time. Crane's courageous 1973 article in Science about tardive dyskinesia opened our eyes and those of many others. So, serendipitously, the project allowed us to somewhat informally compare and contrast the experiences of drug treated and continuously maintained control patients (about 50%) with those of a group of experimental subjects who received no neuroleptics over two years (about 40%).

Unfortunately we did not systematically study the prevalence of T.D. in the two groups - although as newly identified schizophrenics we would have found few cases of it - perhaps 10% of the 50% maintained on antipsychotics for the entire two year follow-up period (Kane et al 1984). However, our follow-up interviewers frequently reported spontaneous comments from drug and non-drug treated subjects. As our interviewers were not M.D.'s, were not directly involved in deciding subjects' treatment and were attentive to what the subjects had to say for perhaps 90 minutes in each interview many clients seemed to frame it as a safe place to describe their neuroleptic drug treatment. In addition, our interviewers often found easily observable behavioral differences between subjects taking neuroleptics as compared with those who were not. Part of the interview focused on the details of treatment received during the preceding year. Our interviewers could not be "blind" to treatment condition and may have been predisposed to view drugs negatively because of the ethos of the project.

The interviewers reported that drug treated clients complained of feeling dead; or having no feelings; of being uninterested in anything including sex; of feeling cut-off from themselves; of feeling controlled and powerless in the face of their treatment team's insistence on their continuing neuroleptics. Patients were given little information about the drugs they were taking. The interviewers also observed what one expects from neuroleptic drug treatment; slowed speech and body movement, expressionlessness, lack of spontaneity and humor, and a kind of generalized unresponsiveness or lethargy.

Retrospectively, the failure to systematically collect these observations and an Abnormal Involuntary Movement Scale (AIMS) score was a serious project design flaw. It is interesting to note, however, that never in any of the project's many peer reviews was this brought to our attention. Reviewers were anxious to add many additional measures to this study that arguably already had too many variables to adequately track and follow-up, but none of these reviewers were interested in systematic experiential accounts of drug effects or tardive dyskinesia.

B) Social Networks: Our observations in this area also highlight a design flaw in the project although in this instance we actually proposed (in 1978) a separate study of the networks that had grown up spontaneously around the two experimental houses.

It is hard to identify exactly when we began to become aware that many former Soteria, and later Emanon, clients were living within a few blocks of each house and visited there with some regularity. The houses were conceptualized from the beginning as needing to be open social systems with easy and informal return and departure whether it meant just a visit or an actual readmission. Generally speaking ex-residents were allowed to "crash" for a night or two. They were officially readmitted when they asked to be (if staff agreed) or when staff felt it would be unwise/unsafe for them not to be.

However, by 1974-75 it was becoming clear that Soteria was more than a place where ex-clients "dropped by" whenever they felt like it. It became a rendezvous site when several ex-clients wanted to get together. It became a friend finder service; when ex-clients or staff wanted to find other ex-clients or staff after an interruption in contact they would use the house's address and phone number card file to help them re-establish contact. It became a big brother/sister program with ex-clients "adopting" new ones. The ex-clients acted as friends/advocates and would frequently help their adoptees find a job, housing (often with an ex-client) and recreational opportunities as discharge neared. This was probably the first spontaneously occurring of the currently "new" notion of training ex-clients to be case managers. Ex-clients also provided what would be formally called "peer-counseling" to clients in residence. We only gradually came to appreciate their power to provide hope and remoralization to current residents. They could say, justifiably, that they had been as disorganized, depressed and miserable as the resident but that they were at that moment living, visual, tangible proof that the current resident would feel better in the future. They were not mental health workers offering rather empty supportive comments. They were the real thing; they had shared the experience and joined with the current resident. Immediate changes in the resident's misery were noted frequently after such inter-changes. They, with staff, also provided continuity of persons after discharge.

A number of current and former staff also lived near the houses; they were usually included in these extended supportive networks. Staff-client distinctions were so muted as to be imperceptible to an outside observer in this network. In retrospect, those networks were largest and most highly functioning in the 1973-78 era at Soteria and for shorter period of time, 1975-78 at Emanon. We believe that much of the good outcome variance in the original (1971-76) Soteria treated cohort is likely the result of this readily available peer support network that was maximally operational during their follow-up period. The Emanon sample and the second Soteria cohort had such a network available for only the initial portion of the follow-up period.

These networks gradually broke up as the project's treatment settings' viability became less and less tenable. Emanon closed in 1980 and funding for Soteria House phased down in 1981 although it limped along until 1983 using reduced staffing, volunteers and fee collection. No new subjects were added to the Soteria sample after late 1978 when VMC had withdrawn its collaboration. Disapproval of the 1978 grant application to study social networks made it impossible for us to systematically study this interesting serendipitous finding.

14. How do the overall results of the project fit into these descriptions? (If you had multiple expectations or hypotheses, base your response on the predominate trend of the results).

___ Confirming your hypotheses or expectations
___ Disproving your hypotheses or expectations
_X_ inconclusive

15. Did your research result in significant *methodological developments*?

No.

Implications:

16. How would you describe the *impact* of your project?

    1. (30) Providing facts ready for publication.
    2. (29) Contributing to the knowledge base of the field.

17. Do you have immediate plans for *further research* in this area?

    One of the writers of this report (LRM) has recently received an NIMH CSP research/demonstration grant to compare outcomes and costs of a heterogeneous group of mental health system users deemed in need of hospitalization and randomly assigned to treatment in hospital or community based residential care.

    This grant will allow, for the first time, outcomes and costs to be compared for subjects assigned to one of two community based alternatives (a group home model based on the Soteria experience and family foster care) with those of subjects admitted to local general hospital psychiatric wards.

    In terms of social policy this new study, based on the design, experience and findings of the Soteria study, is very important. Based on Soteria Project results, it has incorporated a number of major changes: 1) A sample different from that in the Soteria project will be studied; any mental health system patient in crisis and deemed in need of hospitalization will be admitted (most are long-term system "veterans"). 2) The community based alternatives are part of a system of care (Soteria and Emanon were outside the regular system) in Montgomery County, Maryland. 3) The primary research focus will be on the acute care episode, because that is where the Soteria project's findings are strongest. 4) Social networks will be studied extensively. 5) Costs will be carefully evaluated; these were never a primary focus of the Soteria project.

18. Beyond your own plans, what is your opinion of the future directions this research area should take?

    In this era of biologic research dominance even good psychosocial research, like that reported here, has had difficulty being adequately funded over a period of time.

    Drug effects can be seen relatively quickly; therefore, studies of them, using well known methods, are relatively quick and easy; hence fundable. Psychosocial research with a long-term problem like schizophrenia must, in our view, take a long term perspective (see also other comments in #19, above). The limitations of neuroleptic drug treatment are highlighted by our data. Yet, what alternatives, other than new drugs, are currently being studied to address the large numbers of patients (30% or more) who do not respond well to neuroleptics? At the present time tardive dyskinesia can only be prevented by exposing

patients to no, or limited, doses of neuroleptics. What psychosocial methods can be substituted? Very little evidence addressing this critical issue is being collected. The legal system seems to be taking T.D. more seriously than the NIMH's research funding programs.

Additional research is needed to define which aspects of this community based residential alternative treatment are essential vs. those that are optional to produce an effective treatment package. In addition, comparisons of heterogeneous subject groups admitted to hospital and Soteria-like facilities are needed. This need will be addressed by the new project described in #17, above. To address the very important issue of whether or not using neuroleptics within a Soteria-type milieu would produce even better short term results with newly identified schizophrenic patients random assignment drug/placebo controlled trial within a Soteria-type milieu is needed.

Our outcome predictors indicate that systematic attention to psychosocial competence and social networks in an acute treatment milieu, and subsequently, is warranted. Interestingly, our original intent was to address long-term outcomes in a sample systematically selected for "bad prognoses" (early onset, unmarried). Despite this selection, level of premorbid competence was still the best outcome predictor - even within a quite homogeneous sample. Clearly this means that the Soteria approach, by itself, is insufficient for newly diagnosed schizophrenics. What is needed is a post-acute care rehabilitation/education orientation focused on the promotion of psychosocial competence and the development of peer-based social networks. Perhaps Perris' (1989) cognitive therapy approach in a long term Soteria-like milieu is what is needed. Clearly, neither the Soteria model nor acute care in general hospitals address long term rehabilitation issues very well.

19. Do you have *specific suggestions (experiments, cautions, etc.)* for other research in this area?

This is a developmental research area. It needs to allow unusual practices and research paradigms to be used and support should be guaranteed for relatively long periods of time (3-5 years). Short grant periods with frequent, changing membership, expert site visits, and reviews make the conduct of innovative psychosocial research nearly impossible. This practice with regard to the Soteria Project produced an unwieldy, over-measured protocol with many more variables than subjects. It prevented this study from achieving its original, more modest (as compared with reviewer generated ones), goals in a timely fashion.

20. Are you aware of other researchers using your techniques, or planning to replicate your study, or of some individual or organization continuing your work?

Specific: A number of researchers have studied variations on the Soteria model, mostly called intensive non-hospital crisis care (see Stroul, 1987). There is a nearly exact replication of the design of this study and its clinical practices ongoing in Bern, Switzerland under the direction of Prof. Luc Ciompi. The results are quite similar to those reported here (Ciompi 1988, Ciompi 1991). Three Soteria like milieus focused on longer term rehabilitation have been created by Professor Carlo Perris in Umea Sweden (Perris, 1989).

General: The 20 year old Soteria project is known in most Western industrialized nations and has served as a model for a whole generation of small, home-like, non-medical residential alternatives to hospitalization. NIMH's current interest in the development of crisis residential care is based primarily on Soteria's clinical practices and results (see Stroul 1987). With longer periods of uninterrupted funding, a great deal more could have been learned from the "basic" project. However, because of its non-medical, non-neuroleptic, non-hospital, non-professional orientation the Soteria model has not been embraced by America's biologically oriented psychiatry. However, because of its low cost, humanistic orientation and effectiveness, the model has had appeal in countries with national health insurance.

In the current climate of concern about escalating health care costs the Soteria model and its second generation successors (Crossing Place, McAuliffe House) are likely to become more and more utilized in the U.S. as less costly and equally effective acute care options. If some form of universal health care system is legislated here this known effective model will likely be widely implemented.

Dissemination:

21. List of all publications resulting from this project.

See Appendix C.

22. Do you have any plans for future publications, papers, and/or demonstrations dealing with the results of this project?

At least two papers are planned to detail the findings summarized here. The treatment manual will be made widely available, perhaps as a book. Both Ms. Menn and Dr. Mosher lecture and consult widely about the development, implementation, clinical practices and results of this project.

As noted above (#20), although the last project facility closed in 1983, this research has had a continuing impact on the field. Most standard textbooks of psychiatry and psychology describe both the clinical methods and results of the project. It is a tribute to the NIMH that it could support (albeit ambivalently) this controversial but ground-breaking project.

Appendix A

Results: Admission Data

Table 1.
10 Demographic Independent Variables

	Experimental N=45	Control N=55	Test
Sex (Male)	69%	71%	X^2 =0.00, ns
Age	21.9	21.5	t =0.56, ns
Race (White)	75%	68%	X^2 =0.21, ns
Religion (those citing an affiliation)	84%	88%	X^2 =0.03, ns
Education (some college)	56%	39%	X^2 =2.11, ns
Work (some work exp.)	80%	82%	X^2 =0.00, ns
Parents' Education (either parent college grad.)	49%	26%	X^2 =4.00, p<.05
Father's Occupation (high status, mgr. or prof.)	53%	30%	X^2 =4.48, p<.05
Mother Working (outside the home)	40%	18%	X^2 =4.22, p<.05
Parents' Marriage (original family intact)	64%	61%	X^2 =0.01, ns

Table 2.
5 Psychopathology Independent Variables

	Experimental N=45	Control N=55	Test
Carpenter Strauss Bartko Scale (certainty of schiz., 1-12)	8.2	8.6	t =1.46, ns
Venables & O'Connor Paranoia Scale (0-25)	20.4	20.7	t =0.42, ns
Symptoms Diagnostic of Schizophrenia (Cole et. al., 0-7)	5.3	5.5	t =1.15, ns
Certainty of Diagnosis of Scizophrenia (Mosher et. al., 1-7)	5.9	5.9	t =0.19, ns
Global Psychopathology (Mosher et. al., 1-7)	5.1	5.3	t =1.53, ns

Table 3.
7 Prognostic Independent Variables

	Experimental N=45	Control N=55	Test
Acute Onset (symptoms less than 6 mos.)	**53%**	**67%**	X^2 =1.48, ns
Presence of Confusion (in admission interview)	**80%**	**76%**	X^2 =0.04, ns
Schizoid Pre-morbid Adjustment	**44%**	**36%**	X^2 =0.38, ns
Presence of Precipitating Events	**60%**	**56%**	X^2 =0.03, ns
History of Previous Hospitalization (for mental illness)	**47%**	**55%**	X^2 =0.36, ns
Family History of Mental Illness (mother, father, or sibling)	**40%**	**52%**	X^2 =0.82, ns
Goldstein Adolescent Adjustment Scale (7-35)	**20.0**	**21.9**	t =1.30, ns

Table 4.
7 Psychosocial Independent Variables

	Experimental N=45	Control N=55	Test
Living Independently (prior to admission)	**47%**	**35%**	X^2 =1.05, ns
Work or School (full or part time)	**36%**	**49%**	X^2 =1.30, ns
Primary Income from Work	29%	40%	X^2 =0.69, ns
Number of Friends (scale, 0-6)	**2.2**	**2.6**	t =1.26, ns
Number of Contacts With Friends (per week, scale 0-6)	**1.8**	**2.1**	t =0.92, ns
Sexual Intercourse (at least once)	**26%**	**21%**	X^2 =0.23, ns
Positive Family Relationship (judged by research staff)	**21%**	**45%**	X^2 =4.54, p<.05

Appendix B

Results: Outcome Data

Table 5.
Six Week Outcome Data
Psychopathology and Medication

	Experimental N=45	Control N=55	Test
Global Psychopathology (Mosher et. al., 1-7)	3.5	3.5	n =39,50 t =0.05, ns
Global Psychopathology (Change from Admission)	-1.6	-1.8	n =39,50 t =0.86, ns
Global Improvement (Change from Admission) (Mosher et. al., 1-7)	2.5	2.5	n =39,50 t =0.15, ns
Continuous Neuroleptic Drug rx	12%	98%	n =42,55 X^2 =48.4, p<.01
Substantial Neuroleptic Drug rx (>7 days)	31%	100%	n =42,55 X^2 =50.9, p<.01
Any Neuroleptic Drug rx	33%	100%	n =42,55 X^2 =70.8, p<.01

Table 6.
One Year Outcome Data
Psychopathology and Medication

	Experimental N=45	Control N=55	Test
Global Psychopathology (Mosher et. al., 1-7)	3.0	2.7	n =39,50 t =1.00, ns
Global Improvement (Mosher et. al., 1-7)	2.1	2.1	n =42,48 t =0.05, ns
Continuous Neuroleptic Drug rx	29%	63%	n =42,43 X^2 =8.7, p<.01
Substantial Neuroleptic Drug rx (>7 days)	55%	79%	n =42,43 X^2 =4.6, p<.05
Any Neuroleptic Drug rx	62%	79%	n =42,43 X^2 =2.2, ns

Table 7.
One Year Outcome Data
7 Psychosocial Measures

	Experimental N=45	Control N=55	Test
Living Independently	26%	31%	n =43,49 X^2 =0.1, ns
Improved?(since 6 wk)	15%	16%	n =40,49 X^2 =0.0, ns
Work or School (full or part time)	36%	51%	n =42,49 X^2 =1.3, ns
Improved?(since 6 wk)	23%	19%	n =40,48 X^2 =0.0, ns
Primary Income from Work	33%	38%	n =40,48 X^2 =0.1, ns
Improved?(since 6 wk)	21%	22%	n =38,46 X^2 =1.3, ns
Number of Friends (scale, 0-6)	2.5	2.8	n =42,49 t =0.79, ns
Improved?(since 6 wk)	46%	28%	n =39,46 X^2 =2.2, ns
Contacts With Friends (per week, scale 0-6)	1.9	2.8	n =42,49 t =2.54, p<.05
Improved?(since 6 wk)	39%	33%	n =39,46 X^2 =0.1, ns
Sexual Intercourse (at least once)	19%	16%	n =37,44 X^2 =0.0, ns
Positive Family Relationship (judged by research staff)	49%	59%	n =33,34 X^2 =0.4, ns

Table 8.
Independent Variables Related to Sample Loss at 2 Years

	2-year Data MISSING N=24	2-year Data PRESENT N=76	Test
Religion (those citing an affiliation)	70%	90%	t= =3.76, p<.05
Parents' Education (either parent college grad.)	15%	44%	X^2 =4.24, p<.05
Father's Occupation (high status, mgr. or prof.)	22%	44%	X^2 =3.55, p<.06
Symptoms Diagnostic of Schizophrenia (Cole et. al., 0-7)	5.6	5.3	t =1.79, p<.10
Certainty of Diagnosis of Scizophrenia (Mosher et. al., 1-7)	5.7	5.9	t =1.78, p<.10
Acute Onset (symptoms less than 6 mos.)	42%	67%	X^2 =3.95, p<.05

Table 9.
Two Year Outcome Data
Psychopathology and Medication

	Experimental N=45	Control N=55	Test
Global Psychopathology (Mosher et. al., 1-7)	3.0	2.8	n =31,45 t =0.52, ns
Global Improvement (Mosher et. al., 1-7)	2.6	2.3	n =29,46 t =0.60, ns
Continuous Neuroleptic Drug rx	50%	70%	n =32,30 X^2 =1.8, ns
Substantial Neuroleptic Drug rx (>7 days)	59%	83%	n =32,30 X^2 =3.2, p<.10
Any Neuroleptic Drug rx	59%	83%	n =32,30 X^2 =3.2, p<.10

Table 10.
Two Year Outcome Data
7 Psychosocial Measures

	Experimental N=45	Control N=55	Test
Living Independently	38%	28%	n =37,46 X^2 =0.5, ns
Improved?(since 6 wk)	40%	11%	n =35,46 X^2 =7.8, p<.01
Work or School (full or part time)	38%	37%	n =37,46 X^2 =0.0, ns
Improved?(since 6 wk)	11%	9%	n =35,45 X^2 =0.0, ns
Primary Income from Work	22%	36%	n =37,44 X^2 =1.4, ns
Improved?(since 6 wk)	18%	16%	n =34,43 X^2 =0.0, ns
Number of Friends (scale, 0-6)	2.7	2.6	n =35,45 t =0.30, ns
Improved?(since 6 wk)	34%	32%	n =32,44 X^2 =0.0, ns
Contacts With Friends (per week, scale 0-6)	2.1	2.6	n =35,45 t =1.26, ns
Improved?(since 6 wk)	41%	30%	n =32,44 X^2 =0.6, ns
Sexual Intercourse (at least once)	15%	23%	n =34,43 X^2 =0.4, ns
Positive Family Relationship (judged by research staff)	46%	60%	n =24,25 X^2 =0.5, ns

Table 11.
Two Year Outcome Data
Rehospitalization and Outpatient Visits

	Experimental N=45	Control N=55	Test
Rehospitalization (% of subjects)	78%	87%	n =45,55 X^2 =1.0, ns
Rehospitalization (# of days)* (average for only those subjects with rehospitalization)	40.8 Median(N=35)=24.5	39.7 Median(N=48)=21.5	n =29,44 t =0.10, ns
Outpatient Visits (% of subjects)	82%	93%	n =45,55 X^2 =1.7, ns
Outpatient Visits (# of visits) (average for only those subjects with outpatient visits)	22.9	46.0	n =37,51 t =3.19, p<.01

*NOTE: Because these data are extremely skewed (range 1-600, Median =23), we trimmed the extreme 10% of the data (resulting in a range of 1-196) prior to computing the means.

Table 12.
Percentage of Subjects with Good (vs. Poor) Outcomes by Treatment Group

	1-year	2-year	Both 1 & 2 year
Experimental Group	**33%** (14/42)	**42%** (13/31)	**29%** (9/31)
Control Group	**50%** (24/48)	**37%** (16/45)	**24%** (10/45)
Test	X^2=1.91, n.s.	X^2=0.10, n.s.	X^2=0.05, n.s.

Table 13.
Independent Variables Related to Good (vs. Poor) Outcomes at 1 and 2 years

	1-year Poor/Good N=52 / N=38	2-year Poor/Good N=47 / N=29	Both 1 & 2 year Poor/Good N=54 / N=19
Race (White)	**71% / 75%** (49,36) X^2=0.01 n.s.	**61% / 86%** (44,28) X^2=3.80 p<.05	**71% / 78%** (51,18) X^2=0.08 n.s.
Education (some college)	**37% / 62%** (52,37) X^2=4.71 p<.05	**30% / 75%** (47,28) X^2=12.65 p<.001	**35% / 83%** (54,18) X^2=10.70 p<.001
Carpenter Strauss Bartko Scale (certainty of schiz., 1-12)	**8.8 / 8.1** (52,38) t=2.33 p<.05	**8.6 / 8.4** (47,29) t=0.60 n.s.	**8.6 / 8.1** (54,19) t=1.31 n.s.
Acute Onset (symptoms less than 6 mos.)	**46% / 82%** (52,38) X^2=10.15 p<.001	**68% / 66%** (47,29) X^2=0.00 n.s.	**61% / 79%** (54,19) X^2=1.27 n.s.
Presence of Confusion (in admission interview)	**87% / 71%** (52,38) X^2=2.39 n.s.	**89% / 69%** (47,29) X^2=3.70 p<.06	**85% / 68%** (54,19) X^2=1.58 n.s.
Schizoid Pre-morbid Adjustment	**50% / 76%** (52,38) X^2=5.34 p<.02	**66% / 62%** (47,29) X^2=0.01 n.s.	**63% / 68%** (54,19) X^2=0.02 n.s.
Presence of Precipitating Events	**40% / 82%** (52,38) X^2=13.63 p<.001	**53% / 69%** (47,29) X^2=1.25 n.s.	**50% / 84%** (54,19) X^2=5.45 p<.02
Goldstein Adolescent Adjustment Scale (7-35)	**20.0 / 23.0** (43,29) t=1.88 p<.07	**20.5 / 21.8** (38,23) t=0.76 n.s.	**20.4 / 22.7** (46,14) t=1.14 n.s.
Living Independently (prior to admission)	**26% / 61%** (50,38) X^2=9.27 p<.01	**39% / 54%** (46,28) X^2=0.94 n.s.	**35% / 68%** (52,19) X^2=5.16 p<.05
Work or School (full or part time)	**24% / 44%** (46,36) X^2=2.98 p<.10	**31% / 44%** (45,25) X^2=0.67 n.s.	**28% / 53%** (50,17) X^2=2.48 n.s.
Primary Income from Work	**33% / 47%** (52,38) X^2=1.42 n.s.	**28% / 52%** (47,29) X^2=3.49 p<.07	**26% / 63%** (54,19) X^2=6.95 p<.01

Table 14.
Experimental Subjects' Change in Global Psychopathology (Admission to 6-weeks) by Drug Status

	Admission	6-weeks	Change*
NO Substantial Neuroleptic Drug rx (none, or<7 days)	**5.0**	**3.1**	**1.9*** N=25, t=5.35, p<.001
Substantial Neuroleptic Drug rx (>7 days, or continuous)	**5.2** (24/48)	**4.2** (16/45)	**1.0** N=12, t=4.06, p<.01

*NOTE: Change for experimental subjects with **No** Substantial Neuroleptic Drug Treatment is greater than the Change for experimental subjects **With** Substantial Neuroleptic Drug Treatment (N=25,12, t=2.05, p<.05).

Table 15.
Global Psychopathology (at 6-weeks, 1 year, 2 years) by Drug Status

	6-weeks	1-year	2-years
NO Substantial Neuroleptic Drug rx (none, or<7 days)	**3.1**	**2.2**	**2.5**
Substantial Neuroleptic Drug rx (>7 days, or continuous)	**3.6**	**3.3**	**3.3**
Test	N=25,62 **t=1.77**, p<.10	N=28,56 **t=3.61**, p<.001	N=13,42 **t=1.92**, p<.06

Table 16.
Good (vs. Poor) Outcomes (at 1 year & 2 years) by Drug Status

	1-year	2-years
NO Substantial Neuroleptic Drug rx (none, or<7 days)	**54%** (15/28)	**69%** (9/13)
Substantial Neuroleptic Drug rx (>7 days, or continuous)	**32%** (18/56)	**29%** (12/42)
Test	X^2=2.75, p<.10	X^2=5.34, p<.05

Table 17.
2-year Rehospitalization Data by Drug Status

	% Rehospitalized	# of Hospital Days*
NO Substantial Neuroleptic Drug rx (none, or<7 days)	**67%** (12/18)	**23.2** (N=17)
Substantial Neuroleptic Drug rx (>7 days, or continuous)	**91%** (40/44)	**42.0** (N=36)
Test	X^2=**3.90**, p<.05	t=**1.40**, n.s.

*NOTE: Because these data are extremely skewed (range 1-600, Median =23), we trimmed the extreme 10% of the data (resulting in a range of 1-196) prior to computing the means.

Appendix C

List of Publications

1. Mosher LR. Research Design to Evaluate Psychosocial Treatments of Schizophrenia. In D Rubinstein and YO Alanen (Eds), Psychotherapy of Schizophrenia. Amsterdam: Excerpta Medica Foundation, pp. 251-260, 1972. Reprinted in Hospital & Community Psychiatry, 23, 229-234, 1972.

2. Mosher, LR. Psychiatric Heretics and the Extra-Medical Treatment of Schizophrenia. In R Cancro, N Fox, and L Shapiro (Eds), Strategic Intervention in Schizophrenia: Current Developments in Treatment. New York: Behavioral Publications, pp. 279-302, 1974.

3. Mosher LR and Menn AZ. Soteria: An Alternative to Hospitalization for Schizophrenia. In JH Masserman (Ed), Current Psychiatric Therapies, (Vol. XIV). New York: Grune and Stratton, Inc., pp. 287-296, 1974.

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Appendix D

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