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The occurrence and effectiveness of deinstitutionalization of the mentally ill in the pre- antipsychotic era

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THE OCCURRENCE AND EFFECTIVENESS OF DEINSTITUTIONALIZATION OF THE
MENTALLY ILL IN THE PRE-ANTIPSYCHOTIC ERA

A Thesis

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
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in
The Department of Psychology

by
Joni Lee Pow
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Abstract

Deinstitutionalization, as it occurred after the introduction of antipsychotics in 1954 has received much attention. However, little has been done to examine the occurrence and nature of deinstitutionalization before 1954. This study uses US census data on discharge and readmission rates of US mental hospitals from 1935 to 1964 to examine deinstitutionalization during both periods. Data are analyzed using an interrupted time-series model. The model was used to test for statistical significance of trends before and after the advent of antipsychotics, and to test for an effect of antipsychotics on deinstitutionalization. Discharge rates significantly increased in the period before antipsychotics, indicating that deinstitutionalization began before the introduction of these drugs. However, during this period, readmissions also increased significantly and there was no significant difference between discharge and readmissions rates, suggesting that community-based resources and services were inadequate (ineffective). Both discharges and readmissions increased significantly during the post-antipsychotic period with discharges being significantly higher than readmissions. These findings indicated that antipsychotics accelerated deinstitutionalization. Although state mental hospital population was reduced, reports of the disastrous outcome of deinstitutionalized patients suggest that either the drugs were ineffective in enabling patients to function in the community and/or that community-based services remained inadequate. This study also found that the increase in outpatient clinics after the introduction of drugs was less than the increase in discharges. These data suggest that as deinstitutionalization proceeded, the disparity between the resources necessary for successful integration into the community and the actual level of community-based support grew. It is concluded that deinstitutionalization as a public health policy failed, and that this failure was due both to a less than adequate efficacy of the drugs and to insufficient community-based support.

Introduction

The word deinstitutionalization has several meanings. The Oxford dictionary (2010) defines it as the discharge of a long-term inmate from an institution such as a mental hospital or prison. In psychiatry, the term is often used to describe the mass discharge of mental patients into the community following the introduction of chlorpromazine in 1954. This is the meaning of the term as used in Shorter's authoritative book (Shorter, 1997) 'A History of Psychiatry'.

Many historians have made serious errors in their account of deinstitutionalization. The impetus of deinstitutionalization is often ascribed to the introduction of neuroleptic drugs in the 1950's. For example, Shorter (1997) states that "what initiated the massive discharge of psychiatric patients to the "community", a process known as deinstitutionalization, was the introduction of antipsychotic drugs in 1954, the year the Food and Drug Administration licensed chlorpromazine" (p.279).

Contrary to popular belief, deinstitutionalization began in the 19th century. The discharge of patients into the community in the US is first mentioned in 1885. From that time, the rate of discharge climbed as changes in policy and societal attitudes about the mentally ill occurred. The main focus of this thesis is deinstitutionalization of the mentally ill, before the introduction of modern psychiatric medications. The following review traces the development of the deinstitutionalization movement from the origin of family care and outpatient care to the introduction of antipsychotics in 1954.

The history of family care

In the United States, the discharge of patients began with a practice known as family care. Family care is the discharge of patients from the hospital to family homes. Pollock (1945)

explains that family care is an extension of the parole system. In the parole system, patients were placed with friends or relatives who did not receive financial support from the state. In contrast, family care refers to the placement of patients with strangers or a foster family. Foster families were unrelated to the patient and received an allowance from the state. Family care in the US was modeled after the Gheel system of family care. Patients in the Belgian colony Gheel were successfully cared for in foster family homes for several centuries before the practice was brought to America (Pollock, 1936).

The impetus for family care was overcrowding of mental hospitals. Grob (1973) observed that by 1860 overcrowding was a problem in state mental hospitals. He also observed that overcrowding undermined the therapeutic goals of state mental hospitals. Attempts to address this problem were discussed between 1830 and 1860, and suggestions such as detached cottages, farms, the parole system and family care were proposed. Eventually, the desire to reduce costs, overcrowding and the inspiration of the Gheel system led to the establishment of several state boards concerned with broad social planning and long term solutions for the mentally ill (Grob, 1974). These boards sought to develop new organizational models for hospitals that provided care in the most efficient and economical manner possible. As previously mentioned, one such model was family care. From its inception in the 19th century, the purpose of family care was to reduce overcrowding and economic burden on the state created by mental illness.

In the US, family care began in 19th century Massachusetts. In 1863, the State Board of Charities was founded and made responsible for establishing the family care system in Massachusetts (Thompson, 1936). The first report of this state board in 1864 made note of the increasing number of insane and high costs of caring for them. Included in this report, is a plan proposed by Dr. William Prince, the first superintendent of the Northampton State Hospital.

Prince acknowledged the “already enormous expense of supporting so large a number of insane” (p. 24) and recommended a “judicious system of colonization, as practiced in some European countries” (p. 25). In 1885, two patients were put into family care (Pollock, 1945) and over a 70 year span the Massachusetts system experienced gradual growth in family care. By 1914, 341 patients were placed with foster families.

Early use of family care also occurred in New York. In 1885 Dr. Stephen Smith, the State Commissioner in Lunacy, recommended that a system of family care in New York State, founded on Scottish methods be implemented (Pollock, 1945). Based on his observation of the successful boarding of patients in private families in Scotland, Dr. Smith listed several advantages including reduction of costs, improved patient care and relief from overcrowding. The practice of family care in New York was established by 1933. This venture was initially undertaken by the Newark State School in Walworth, New York with favourable results (Vaux, 1936).

With the turn of the century, the advantages of discharging patients were increasingly recognized, and family care expanded across the United States. The benefits of family care both to the institution and patient are widely recognized in the literature. In 1934, Pollock recommended the establishment of patient care outside of the hospital and declared family care as the likely future trend. He stated that family placement of one third of patients in New York State would save \$115,000 per week. In 1939, he predicted the use of family care in every state would reduce costs by 50% (Pollock, 1945). In Maryland, Ruggles (1934) also pushed for the discharge of patients and declared that the system of boarding used in Scotland, Belgium and some parts of America should be further developed. In Massachusetts, Molholm and Barton (1941) reported the success of family care at Worcester State Hospital and declared the practice

was a valuable resource in treatment and rehabilitation. As the financial and practical advantages of family care became widely recognized, the following states established family care:

Pennsylvania in 1932, Utah in 1935, Illinois in 1941, Maryland in 1941, Rhode Island in 1940, California in 1941 and Michigan in 1942 (Pollock, 1945).

Perhaps the strongest early advocate for the discharge of patients was John Maurice Grimes who described a model for deinstitutionalization in his 1934 book 'Institutional Care of Mental Patients in the United States'. This book marked the first instance where the term "deinstitutionalization" is formally mentioned (Johnson, 1990). In 1931, the American Medical Association appointed Grimes as director of a nationwide investigation into all hospitals caring for mental patients. The findings of this investigation prompted Grimes to write and publish this book, where he openly criticized the inefficiency of the system. He referred to the drain of institutionalization on the economy and remarked on how patients "still clog our chronic wards" (p.97). Although he recognized that financial provisions were made in many states to employ a few social workers, he maintained that the "employment of scores of social workers would make possible the parole of hundreds or even thousands of patients" (p.96). He observed no sufficient plan was in place for the care of paroled patients and offered a systematic proposal of how deinstitutionalization should take place. His re-organization plan, made 20 years before the advent of antipsychotics, was large scale and state supported with the "aim of paroling all parolable patients" (p.113). It is evident that after 1900, the practice of discharging patients into family homes was viewed favourably by professionals. Such attitudes were a powerful impetus for deinstitutionalization.

The expansion of family care can also be attributed to changes in public attitudes toward the mentally ill. Shorter (1997) referred to speeches in the early 1920s made at American Psychiatric

Association meetings on the asylum's need to reach out to the community. He remarked on the trend for American psychiatry to view the patient and his illness in social terms and psychiatry's willingness to break out of the custodial mode. Jackson (1939), superintendent of the Danville State hospital in Pennsylvania, referred to this closer relationship between community and hospital. As Jackson (1939) observed there was "considerable success achieved by many state hospitals in enlarging their functions to embrace work... that extends beyond institutional walls and into communities which they serve" (p.332). Stevenson (1939) of the National Committee for Mental Hygiene, also observed changes in mental health stating that the community activities of the mental hospital were being recognized as important to the patient as intramural treatment. Increased awareness and acceptance, along with providing relief to overcrowding and financial burden, contributed to the unimpeded growth of family care until 1946.

World War II is associated with a decrease in family care and a concomitant shift toward community psychiatry outpatient clinics. Pollock (1947) first observed the decline in family care in 1946. Hamilton and Kempt (1939) alluded to the changing economic status of families as a result of the war and stated that under such circumstances any person who could not contribute to family income was unwelcome. Pollock also cited the acute housing shortage and high cost of living due to the war as reasons for the decline in family care. He mentioned that in some cases the rate paid to foster families had to be doubled. These economic changes caused family care to decline and opened the door for the already established outpatient clinic to flourish.

The history of outpatient clinic care

Outpatient clinics have existed since the late 19th century. Barhash, Bentley, Kirkpatrick & Sanders (1952) define the psychiatric clinic as an organization in the community established to

treat the mental and emotional ills of patients. The first such clinics for mental patients were established by the Pennsylvania General Hospital in 1885 and the Boston Dispensary in 1897 (Barhash et al., 1952).

The first clinics credited with using social workers were the Boston Psychopathic Hospital in 1912 and the Henry Phipps Psychiatric Clinic of Johns Hopkins University in 1913 (Barhash et al., 1952). The clinics in existence from 1910 to 1920 “were principally out-patient services connected with some hospital” (p.7, Barhash et al., 1952). According to Shorter (1997), by 1920 Massachusetts had 33 outpatient clinics, New York 25 and Pennsylvania 9. By 1935, 373 outpatient departments were identified in the US, with 281 of these serving patients discharged from mental hospitals (Barton, 1987).

Outpatient psychiatry has its roots in child guidance clinics which arose out of the mental hygiene movement. The mental hygiene movement appeared in the early 20th century as psychiatry became increasingly concerned with social and environmental factors (Grob, 1991). Promoted by Adolf Meyer and William James, the mental hygiene movement was an attempt to improve the mental health of Americans through prevention of mental illness (Shorter, 1997). It was thought that treatment in outpatient community facilities could prevent the onset of severe mental illness that previously required institutionalization (Grob, 1991). With this heavy emphasis on prevention the mental hygiene movement helped shift psychiatry from institutional to community practice. The child guidance clinic emerged from this movement.

The child guidance movement was an attempt to address juvenile delinquency and mental illness in children. This movement was an impetus for later growth of outpatient psychiatric clinics for adults (Barhash et al., 1952). ‘The Organization and Function of the Community

Psychiatric Clinic' by Milton E. Kirkpatrick was published in 1941 and primarily was used by groups seeking to set up child guidance clinics (Barhash et al., 1952), reflecting a growing popularity of community care. Significantly, a multidisciplinary approach developed in these early child guidance clinics (Barhash et al., 1952). The disciplines represented included psychiatry, psychology, and social work. Furthermore, many of these clinics served adults along with children. The American Association of Psychiatric Clinics for Children had 81 clinics in 1952, but because by then the clinics served both adults and children they were also influential in the development of adult clinics (Barhash et al., 1952).

After 1900, the literature indicates that outpatient psychiatry was thriving and well received within psychiatry. In 1926, Jackson & Pike discussed the evolving role of the community clinic and remarked positively on the extension of mental hospital activities into the community at large. New York physician George Pratt commented on the movement from intramural to extramural care and stated that the interdependency of community organizations was rapidly becoming commonplace (Pratt 1933). He cited one of the responsibilities of state hospitals as assisting patients in the resumption of their former status in the community. In 1942, Tarumianz stated that mental hospitals can be divided into three sections, one of which is an outpatient department. In California, Rosanoff (1942) reported that “the most significant recent development in extramural care of mental patients has been a liberalization and extension of the parole policy of mental hospitals for the relief of their chronic state of overcrowding” (p. 598). He also commented on the “uninterruptedly increasing scale” of extramural care undertaken since 1939. In insisting that the rehabilitation of discharged patients be a part of deinstitutionalization, Deutsch (1948) stated that the hospital should be a “link in a chain of interrelated mental hygiene agencies and institutions” (p.186). Hawley (1949) agreed that “the

most promising fields for the reduction of costs of medical care are in the establishing of group clinics and the diagnosis and treatment of more patients on an outpatient basis” (p.484).

Statements such as these indicate the approval and endorsement of community psychiatry in this pre-antipsychotic period.

As mentioned above, WWII decreased family care and increased outpatient care. One of the ways it accelerated the growth of outpatient clinics was through the work of the Veterans Administration, which was suddenly faced with a huge number of mentally ill war veterans (Pollock, 1947). In 1944 the National Committee for Mental Hygiene issued a Directory of Psychiatric Clinics for those in the armed forces needing psychiatric resources. The Veterans Administration was responsible for establishing numerous mental hygiene clinics to serve veterans (Pollock, 1947) and by 1948 Pollock reported considerable growth of these clinics. These clinics, designed to treat veterans, helped steer outpatient care away from child psychiatry and toward the development of services for adults.

The increased awareness of psychiatric problems that grew out of the war also contributed to the growth of adult clinics. The large number of draftees rejected due to mental illness led to a general increase in public awareness of mental health issues (Barhash et al., 1952). It also suggested a level of psychopathology in the general public far greater than previously assumed (Johnson, 1990). The draft rejection intensified the search for psychiatric solutions and allowed for a greater appreciation of the need for more mental health services in the community.

The National Mental Health Act of 1946 also advanced outpatient clinics by providing more funding. These clinics were appealing to states for several reasons: they enabled 1) shorter hospital stays, 2) decreased hospital population, 3) provided more humane and effective

alternatives, 4) diminished costs, and 5) they provided preventative as well as treatment services (Grob, 1991). As Barhash et al (1952) note, the 1946 Act allowed greater availability of funds for small communities to plan new mental health programs and larger communities to extend existing programs. Two million dollars in funding was allotted in 1948, and the following year funding was increased to 3.5 million. Before 1948, more than half of all states had no clinics. By 1949 all but five states had one or more clinics (Grob, 1991).

As a result of the “postwar psychiatric enthusiasm for community clinics” (p.167, Grob, 1991) and increased funding, the number of outpatient clinics continued to grow. According to Felix (1967), the number of mental health clinics increased from approximately 800 to 1200 in the 1940s. Lang (1951) reported on the progress of outpatient mental clinics in 1949 and 1950 listing a total of 855 clinics. Barton (1987) noted that at the start of the century all patient care episodes were treated in institutions, but by the 1950’s 23 percent of the 1.7 million patient care episodes were cared for in outpatient treatment.

Although clinics and family care were the primary forms of mental care outside of the hospital, it is worthwhile to note that other types of community psychiatry existed. The movement of psychiatry into the community was also evident in the use of day hospitals. Day care, a service of hospital outpatient departments, enabled patients to spend all or part of their day within the hospital but live in the community (Barton, 1953). In reference to the Massachusetts Mental Health Center of the 1950’s, Kramer (1962) stated that the day hospital was a transitional facility for patients discharged from the hospital, intended to combat overcrowding of beds, prevent readmission of relapsing cases and to treat acute cases from the community. The first day hospital, Adams Nervine hospital, was established in Boston in 1935

(Barton 1987). Similar programs were subsequently implemented by the Yale Psychiatric Clinic in 1948, the Menninger Clinic 1949, and the New Jersey State Hospital 1952.

Social clubs for ex-mental patients were also introduced to smooth re-entry into the community (Barton, 1987). Such clubs were established in Chicago in 1937, Kansas 1947, Massachusetts 1949 and New York 1948. These alternative forms of aftercare provide supporting evidence of the movement of psychiatry into the community.

In the five year period before the introduction of chlorpromazine, community psychiatry was well-established and preparations for its extensive advancement were being made. The State Mental Health Commission was created in New York in 1949 to organize long term planning for community mental health programs and to administer funds under the 1946 National Mental Health Act (Grob, 1991). By 1953, a master plan for the establishment of community mental health services had been prepared by this commission. Moreover, Glasscote et al. (1964) state that by 1952, the community mental health clinic concept had evolved into the form outlined in legislation passed by NY state. This legislation was called the “Mental Retardation Facilities and Community Mental Health Centers Construction Act of 1963”. It outlined the community mental health center concept and authorized the construction of such centers over a three year period. However, this concept, which entailed outpatient and part-time treatment, rehabilitation services, research and community education programs, was not new. In 1954, the year in which chlorpromazine was introduced to the US, the National Institute of Mental Health reported 1234 such outpatient psychiatric clinics of which two thirds were state supported (Grob, 1991). 508 clinics were entirely state operated and 286 clinics were state aided. Of the 508 state operated clinics, 268 of them were run by state mental hospitals.

Although Felix (1967) noted that a significant decline in hospital populations had not yet begun, he stated that the foundation upon which deinstitutionalization in the following years would be based had been laid. As noted above, this foundation was influenced by significant events before 1950, including the mental hygiene movement, World War II, legislation passed by the federal government and community acceptance of responsibility for care of the mentally ill. A central premise was the belief that hospitalization could be avoided by support in the community in the form of clinics, half way houses, rehabilitation agencies and community mental health centres (Blain & Robinson, 1954). Felix (1967) emphasized that this represented a fundamental shift in thinking: “Few people realized it, but the revolution had begun” (p.53).

The introduction of antipsychotics

Chlorpromazine was introduced in the US in 1954 and dramatically accelerated the rate of discharge. Felix (1967) described the events before 1954 as an evolution or step by step change. This evolution “seemed cumbersome and slow to impatient contemporary activists” (Grob, 1991, p.181). The introduction of antipsychotic drugs triggered the discharge of mental patients on a massive scale. One effect of the new drugs was to increase the number of patients who were able to benefit from community-based intervention (Grob, 1991). This made it possible to discharge large numbers of long-term patients and provided “the most tremendous momentum to the community psychiatry movement” (Grob, 1991, p.6). This wholesale discharge, however, was not due solely to therapeutic effects of the new drugs. It occurred in large part because of the benefits to state hospitals and governments (Johnson, 1990). Nevertheless, the drugs got the credit. As Boyer (1955), president of Smith, Kline and French Laboratories, remarked “through chlorpromazine has come a new *Zeitgeist*, the new and dynamic climate of opinion” (p. 11).

Unlike the preceding gradual evolution toward community based services the new *Zeitgeist* had the character of a revolution with the change being rapid and expansive (Felix, 1967).

The new antipsychotics had limitations, as alluded to above, which complicated deinstitutionalization. The drugs were not as effective as many had hoped and they produced serious adverse side effects, such as tardive dyskinesia. Because of side effects, medications that provided relief in hospital were often not taken once patients were released (Shorter, 1991). Moreover, many released patients did not receive community services. Minkoff (1978) observed that for former mental patients, less than one quarter remained in regular aftercare and less than one half took medication regularly. Many patients ended up on the street, in jails and nursing homes, creating social problems such as homelessness and overcrowded correctional facilities (Johnson, 1990).

Inadequate community care exacerbated the problem. Minkoff (1978) states that discharge planning was contingent upon the availability of suitable supportive living facilities in the surrounding community, but the most common resource for chronic mental patients was board and care homes which offered no treatment or rehabilitation services. Like Johnson (1990), Minkoff noted that forced deinstitutionalization, at a time or location where suitable resources were not available, led to serious problems. Because of such problems, many experts concluded by the 1970s that deinstitutionalization was a failure (Johnson, 1990).

The new drugs did not cause deinstitutionalization, but dramatically hastened an on-going process to a level that exceeded society's capacity to cope. That is, the drugs were not the impetus for deinstitutionalization. As noted above, this idea had been formulated and initiated well before the introduction of antipsychotic drugs. As Johnson (1990) noted, the assumption

that the drugs made deinstitutionalization possible is incorrect. Chlorpromazine was not a solution as much as a damaging catalyst to a promising new trend – community-based treatment of mental illness.

The nature of pre-antipsychotic deinstitutionalization

Before 1954, deinstitutionalization had distinctive features and many saw it as a possible solution to the problem of overcrowding. Several pre-antipsychotic proponents of community psychiatry outlined the discharge procedure, making explicit the framework within which it could work. Some described the actual practice and others gave sound advice about what not to do. Unfortunately, such warnings were ignored.

Proponents of pre-antipsychotic deinstitutionalization recognized the process as a progressive and gradual change that must be adopted with caution. Thompson (1936) cited Dr. W. B. Goldsmith, superintendent of the Danvers State Hospital who stated in 1884 “Although any beginning in this direction would be small, if cases were carefully selected and judiciously pushed, the practice would be likely to spread from family to family and I have little doubt but that after a few years several hundred of the insane would be thus cared for economically on the part of the State and comfortably for themselves” (p.27). Based on methods used in areas such as Belgium, Scotland and Massachusetts, Pollock (1934) recommended that patients should go from the state hospital to the community house and then to their family home in a gradual transition. He recognized that the system would necessarily start on a small scale and develop gradually over time. Even at the cusp of the psychotropic revolution, Barhash et al. (1952) referred to the dangers of assuming that the establishment of clinics will cause a rapid decrease in state hospital admission. They emphasized throughout their book that initially “the clinic will

represent a limited resource with an impossible amount of work to accomplish” (p.19) and “the clinic is safer being established somewhat more slowly” (p.20).

Supporters of pre-drug deinstitutionalization also stressed the necessity for adequate provision of aftercare treatment and services within the community. The importance of the social service worker in helping patients to adjust socially to the community was acknowledged (Jackson & Pike, 1926). Indeed, a thorough knowledge of social organization and community resources for extramural care by hospital staff was considered necessary for deinstitutionalization to be successful (Pratt, 1933). State hospitals needed to use the services of psychiatric social workers. Jackson (1939) also referred to the importance of securing the cooperation of physicians in the after care of discharged patients and described adequate treatment facilities in the community as basic and indispensable. Placement of patients in small communities under close supervision by physicians and social workers was recommended (Hubell, 1937). Stevenson (1939) examined the process of deinstitutionalization at great lengths, discussing the type and nature of the psychiatric social worker, the need for equipped personnel in the community, the need for cooperation of other community agencies and individualizing treatment for the community. Sufficient community care was seen as essential to the process of deinstitutionalization.

In selecting patients for discharge, the suitability of both the individual and the environment was considered essential. Pollock (1934) stated those appropriate for discharge are tractable and capable of following instructions including quiet schizophrenic cases. Molhom and Barton (1941) declared that family care is only useful when the symptoms of mental illness have abated to the extent that the patient could be returned to the community. The breadth and depth with which the process of aftercare was discussed in this pre-antipsychotic literature, indicates not

only the existence of community psychiatry but the careful consideration given to its implementation.

One of the most interesting features of the pre-1954 literature is an emphasis on the dangers of overselling the idea of community care. Almost twenty years before the massive discharge of patients following the introduction of chlorpromazine, Pratt (1933) warned against setting unrealistic expectations of mental health facilities. He emphasized the importance of understanding the limited capabilities of community care and that “failure to clarify this point inevitably leads to numerous attitudes of dissatisfaction” (p.829). Barhash et al. (1952) offer extensive advice on this matter.

In order to follow this rational plan, it is necessary to see clearly what a clinic is able to do, how it fits into the total community picture, and what its limitations might be... clinics can be effective only to the degree they are properly staffed, can coordinate with other resources and techniques already available, and are called upon to perform tasks suited to their specialized skills. More failures result from sponsors' extravagant promises and from the magical expectations that these arouse than result from opposition or indifference in the community. p. 11

Although the danger of hasty and poorly implemented deinstitutionalization was clear to many, the eagerness for a quick solution to the problem of overcrowding, and unrealistic beliefs about the efficacy of drugs, caused such warnings to go unheeded.

The characteristics of pre-antipsychotic deinstitutionalization raise the question of whether it could have worked had the process not been accelerated by the advent of drugs. Realization of the need for progressive and gradual change, adequate provision of aftercare and careful consideration of suitability of patients, coupled with recognition of the dangers of unrealistic expectation, suggest that it was working. Conversely, the haste to transition to a community

based psychopharmacology model in the 50 and 60s, in the absence of adequate community-based provisions, ultimately caused deinstitutionalization to fail.

Statement of Problem and Hypotheses

The rapid discharge rates of post 1954 deinstitutionalization have been well documented. However, little attention has been given to the occurrence and nature of deinstitutionalization before 1954. Baumeister, Hawkins, Lee Pow and Cohen (in press) observed a significant increase in US discharge rates before 1954. The present study elaborates on this finding by examining the nature and implications of this pre-antipsychotic increase in discharge rates, and addressing the question of whether these discharges into the community were successful. The purpose of this study is to determine the extent of pre- and post-drug deinstitutionalization and whether it was effective in enabling patients to function adequately outside of the hospital. The extent of deinstitutionalization in the pre- and post-drug periods was assessed by examining discharge rates from US mental hospitals. As deinstitutionalization is defined as the discharge of a long term inmate from an institution an increase in discharge rates will indicate the occurrence of deinstitutionalization. The efficacy of deinstitutionalization can have several meanings. In a strictly bureaucratic sense, effective deinstitutionalization will serve to reduce the hospital population and address overcrowding. Under this definition of efficacy, readmission rates and the difference between discharge and readmission rates can indicate the extent to which patients were being released and readmitted and how this affected hospital population. In a more meaningful sense, effective deinstitutionalization should involve the release of patients into a community where they function independently and receive adequate support. Both of these definitions will be taken into account when considering the effectiveness of deinstitutionalization.

The comparison of number of outpatient clinics to number of persons discharged was used to assess the adequacy of community-based services. The rates of discharges and readmissions for

all US state mental hospitals as well the number of outpatient clinics were examined from the period 1935 to 1964.

The following hypotheses are proposed for this study:

1. The rate of discharge will increase during the period 1935 to 1954. If deinstitutionalization is defined as the discharge of patients from an institution, an increase in discharge rates, regardless of increases in admission rates or hospital population, indicates the occurrence of deinstitutionalization.
2. The rate of patients discharged will be significantly greater in the period 1954 to 1964 than the period 1935 to 1954. This comparison of discharge rates will assess the degree to which antipsychotics affected discharge rates.
3. The rate of readmission will be significantly greater in the period 1954 to 1964 than the period 1935 to 1954. The aim of deinstitutionalization was to discharge patients successfully into the community. If antipsychotic were effective and/or sufficient provisions were made for the care and treatment of those discharged one would expect lower readmission rates. As a measure of the effectiveness of deinstitutionalization, a comparison of readmission rates provides an index of the efficacy of aftercare and the efficacy of antipsychotics.
4. The difference between discharge and readmission rates will be significantly different in the period 1954 to 1964 than the period 1935 to 1954. As stated in hypotheses 2 and 3, it is expected that antipsychotics will increase the rate of both discharges and readmissions. However, the introduction of antipsychotics may have had differing effects on the rates of discharges and readmissions. Examining the difference between these two rates as a separate variable will allow for the statistical comparison of discharge to readmission rates.

5. The proportion of number of outpatient clinics to number of patients discharged will be higher in the 8 year period of 1944 to 1952 than in the 7 year period of 1955 to 1962.

Deinstitutionalization purportedly failed due to the lack of adequate community care (Johnson, 1990). This will serve as an indicator of the adequacy of aftercare provision before and after antipsychotics.

Method

Total US population, total number of patients discharged and total number of patients readmitted per year was collected from US Census data for the period of 1935 to 1964. To control for population growth, discharge and readmission rates are expressed per 1000 of the total US population. The difference between discharge and readmission rates was calculated by subtracting discharges per 1000 US population from readmissions per 1000 US population. The total number of outpatient clinics for the year 1944 was given by the Directory of Psychiatric Clinics and Related Facilities in the United States and for the year 1952, the Directory of Psychiatric Clinics and other Resources in the United States. For the years 1955 and 1962 this information was derived from the 1955 and 1962 directories both of which are titled Outpatient Psychiatric Clinics and other Mental Health Resources in the United States and Territories. The 1944 directory was published by the National Committee for Mental Hygiene which in 1946 became the National Association for Mental Health. The remaining three directories are published by the National Association for Mental Health. All directories contain contact information and a brief description of each clinic in every state. Only those clinics which were described as treating outpatient patients were counted. Information on the size or efficiency of clinics was not available.

The rate of discharges, rate of readmissions and the difference in rates were examined using time series analysis. A time series is an ordered sequence of observations usually through time (Wei, 2006). Wei (2006) explains that time series in the social sciences is used to study the rates of events such as birth, mortality, accident and crime. The intrinsic nature of a time series is that its observations are dependent or correlated and statistical assumptions which rely on

independence are therefore not applicable (Wei, 2006). Time series analysis controls for this correlation.

The standard linear regression procedure that is typically used in a regression analysis is ordinary least squares (OLS) regression. OLS regression requires that certain assumptions are met such as uncorrelated error terms. Because of the time-series nature of the data, the assumption of independent errors is likely to be violated. This leads to autocorrelated errors, where the error term at time t is correlated with the error term at time $t-1$. When autocorrelated errors are present, the standard errors for OLS coefficients are biased upward and inflated, rendering standard tests of statistical significance problematic. In order to correct for this, it is important to use a generalized least squares (GLS) estimator that accounts specifically for the level of autocorrelation among the OLS errors. For this analysis, a Prais-Winsten procedure was applied to the model, which corrects for standard errors in the face of autocorrelated errors (Gujarati & Porter, 2009).

A time series can be affected by an external event such as policy change. Such an event is referred to as an intervention. Although the traditional two-sample t-test can be used to compare pre and post intervention means, this is not advised (Wei, 2006). The t-distribution is extremely sensitive to correlated observations, and when applied to longitudinal data can give spurious results (Box & Tiao, 1965). Moreover, comparing before and after means, does not provide information about the slope or pattern of a given change in trend. Similarly, the use of a correlation coefficient does not provide adequate information about the slope or intercept. It can show how closely two variables are related and if this relationship is significant, but correlation does not describe the rate or pattern of a relationship and how it may change with an intervention.

An interrupted time series design similar to the one used by Garand, Monroe and Vlosky (2001) was used to evaluate the effect of an intervention. In their 2001 paper, Garand et al. examined the impact of no-fault divorce laws on state divorce rates. According to Garand et al. interrupted time series (ITS) designs provide a model of intercept and slope parameters for a pre-intervention time series, as well as shifts in the intercept and slope following the introduction of an intervention. The intervention in the present study is the introduction of antipsychotics in 1954. This intervention time series model will be used to estimate discharge rates, readmission rates and the difference in rates but for the purpose of explaining the model only discharge rates will be discussed.

The effect of antipsychotics on discharge rates is estimated using the following model:

$$\text{Discharge Rates}_t = a + b_1(\text{Time Counter}_t) + b_2(\text{Intervention}_t) + b_3(\text{Intervention Time Counter}_t)$$

Discharge Rates_t is the discharge rate of total US mental hospitals at time t. Time Counter_t is a year time counter, measured as 1 in the first year of the time series, 2 in the second year and so forth. Intervention_t is a binary variable coded 0 for all years up to 1954 and 1 for 1954 and all the years following. Intervention Time Counter_t is a post intervention time counter, coded 0 for the years before 1954, and 1 for 1954, 2 for 1955, 3 for 1956 and so forth.

In this model “a” represents the intercept, “b₁” represents the slope for the pre-intervention time period, “b₂” represents the shift in the intercept of the time series due to the intervention and “b₃” represents the change in the slope of the time series that occurs following the intervention. A significant “b₁” would indicate that the pre-intervention slope is significantly increasing and the discharge rate was increasing before antipsychotics. The intervention is represented by the vertical red line in the following figures.

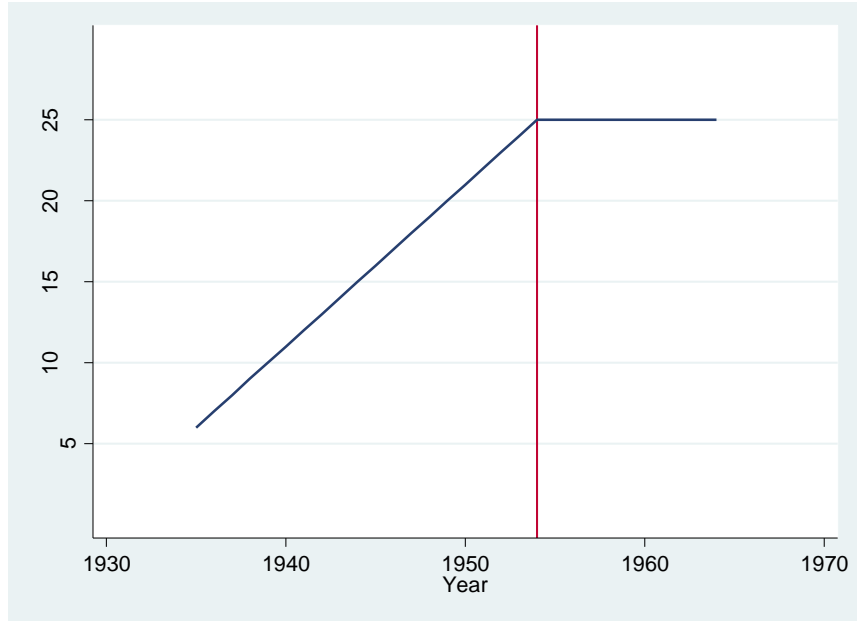


Figure 1. Example of a significant “ b_1 ”.

A significant “ b_2 ” would indicate an effect of the intervention on discharge rates as a result of antipsychotics.



Figure 2. Example of a significant “ b_2 ”.

A significant “ b_3 ” would indicate an ongoing long term impact of the intervention on increasing discharge rates. It would denote that the post-drug slope is significantly steeper than the pre-drug slope.

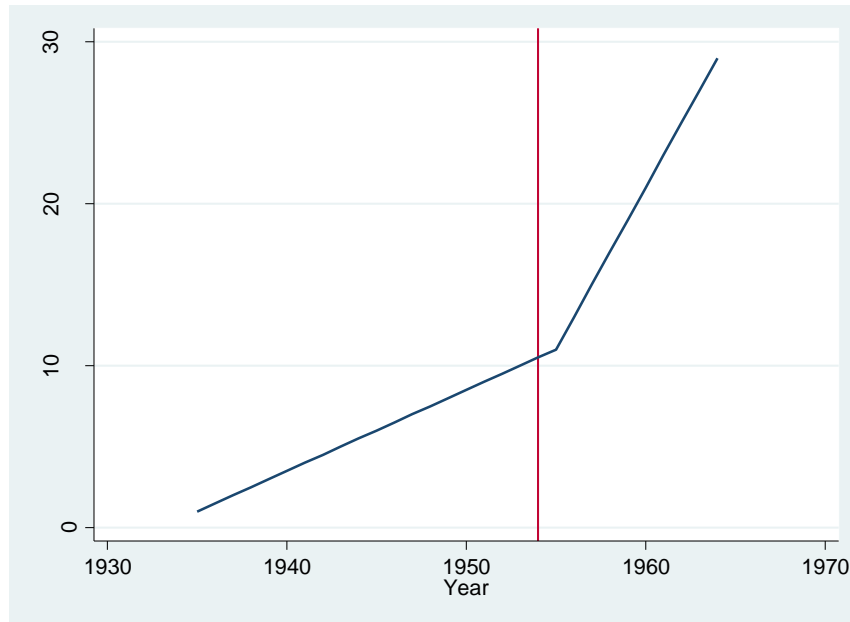


Figure 3. Example of a significant “ b_3 ”.

Results

Discharge and readmission rates are reported per 1000 US population. Discharges begin at a rate of .095 patients discharged per 1000 US population. For discharges, “ b_1 ” representing the pre-intervention slope was significant, ($t=5.81$, $p<.05$). During this period of 1935 to 1954 the discharge rate shows a significant .009 (patients discharged per 1000 US population) per year increase. The immediate effect of antipsychotics on the intercept or “ b_2 ” was not significant but the post-drug slope or “ b_3 ” was significantly different from the pre-drug slope ($t=9.96$, $p<.05$). During this period of 1954 to 1964 the discharge rate shows a significant .045 per year increase. Figure 4 presents the rate of discharges per 1000 US population for the period of 1935 to 1964. The blue dots represent actual data points and the red line is the regression line created from the time series analysis.

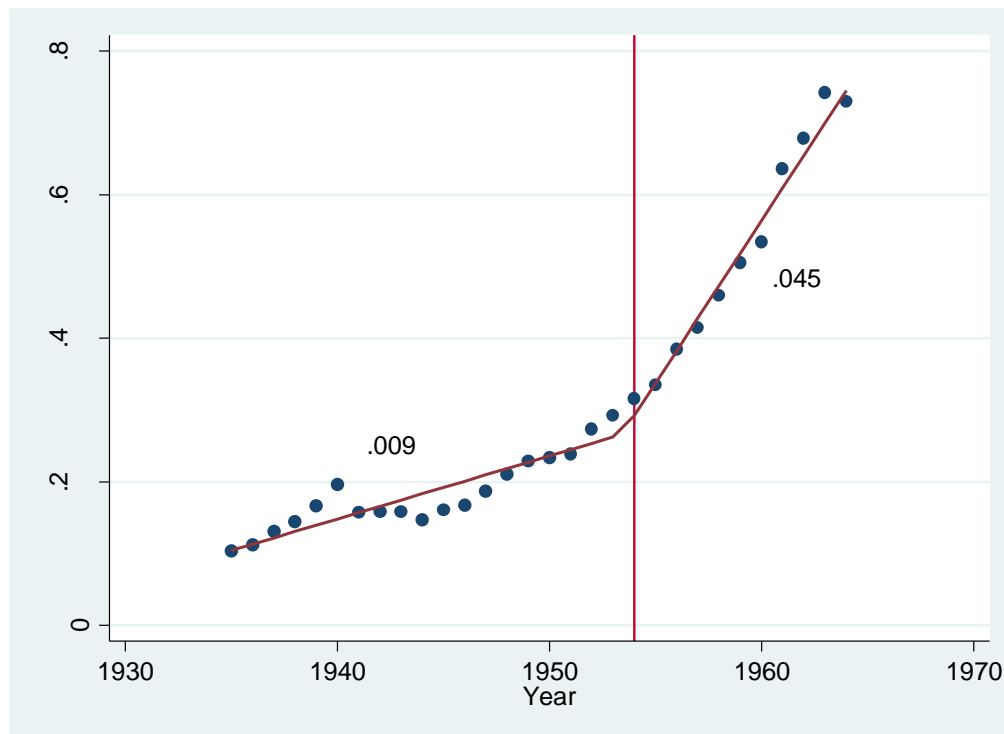


Figure 4. Rate of discharges before and after antipsychotics.

Readmissions begin at a rate of .125 patients readmitted per 1000 US population. The pre-intervention slope or “ b_1 ” was significant, ($t=4.25$, $p<.05$) with readmission rates showing a significant .007 per year increase during this time. Although the intercept does shift from .125 to .024 with the introduction of antipsychotics this shift (b_2) is not significant. The post-drug slope or “ b_3 ” is significantly different from the pre-drug slope, ($t=3.92$, $p<.05$). During this period of 1954 to 1964 the readmission rate shows a significant .024 per year increase. Figure 5 presents the rate of readmissions per 1000 US population for the period 1935 to 1964.

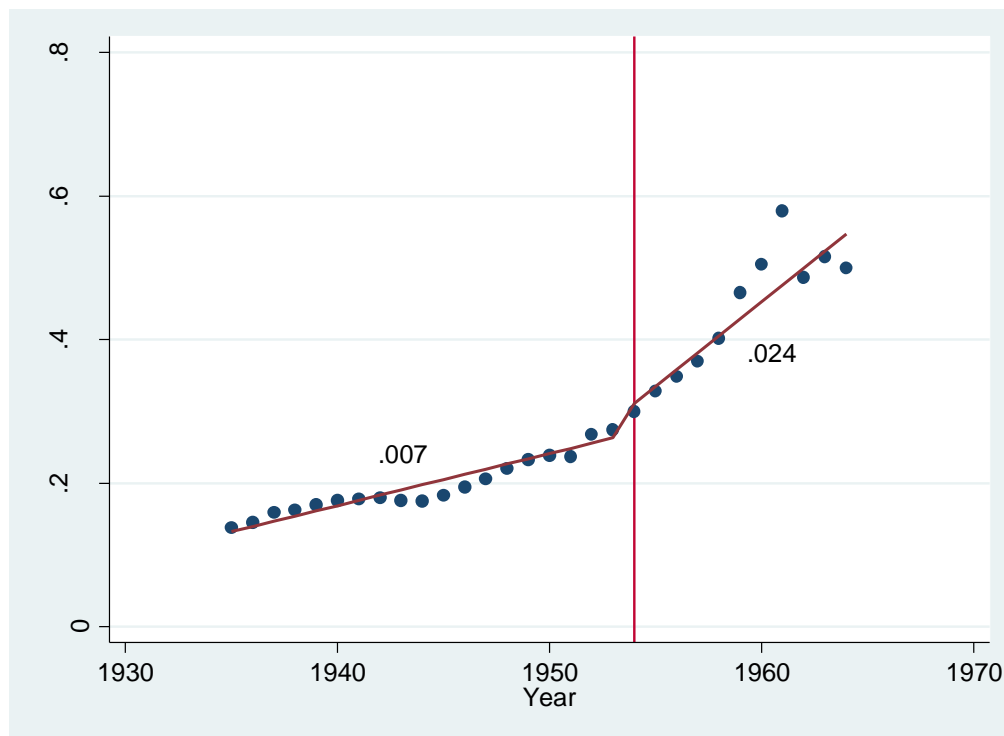


Figure 5. Rate of readmissions before and after antipsychotics.

The difference between discharge and readmission rates was calculated by subtracting readmissions per 1000 US population from discharges per 1000 US population. This difference rate began at $-.029$ and did not significantly increase in the pre-drug period (b_1) or with the intervention (b_2). The post-drug slope (b_3) is significantly different from the pre-drug slope ($t=4.12, p<.05$). After 1954, the difference between discharge and readmission rates shows a significant $.022$ increase per year. Figure 6 presents the difference rate for the period 1935 to 1964.

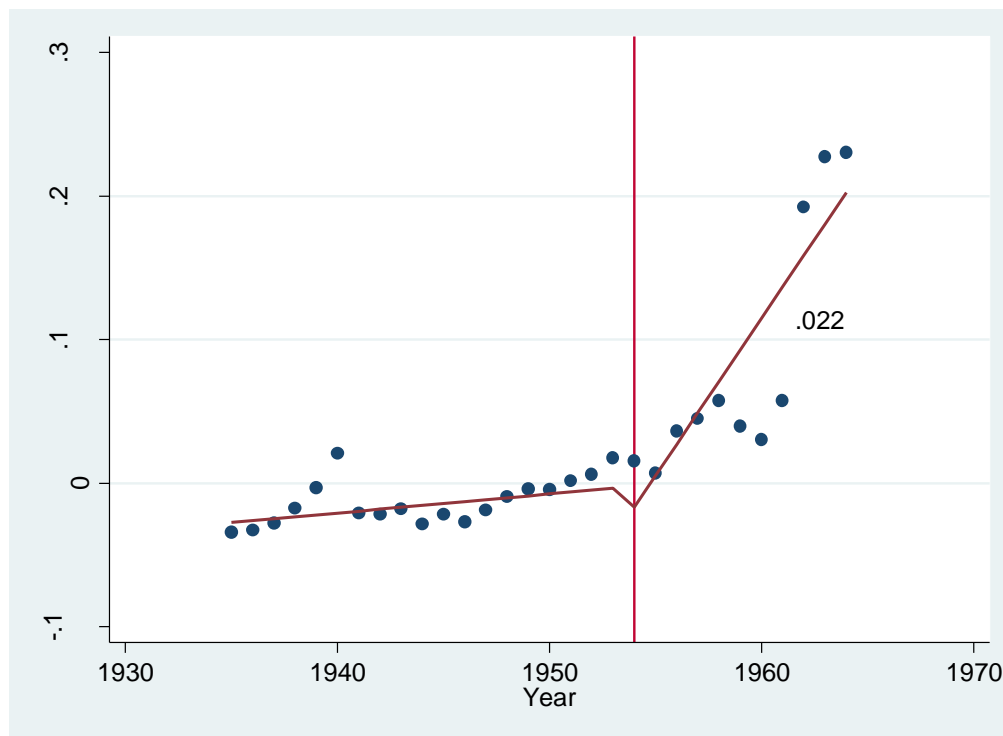


Figure 6. The difference between discharge and readmission rates before and after antipsychotics.

Conceptually the difference between discharge and readmission rates can best be represented by the Figure 7 which shows the rate of discharges and readmissions per 1000 US population.

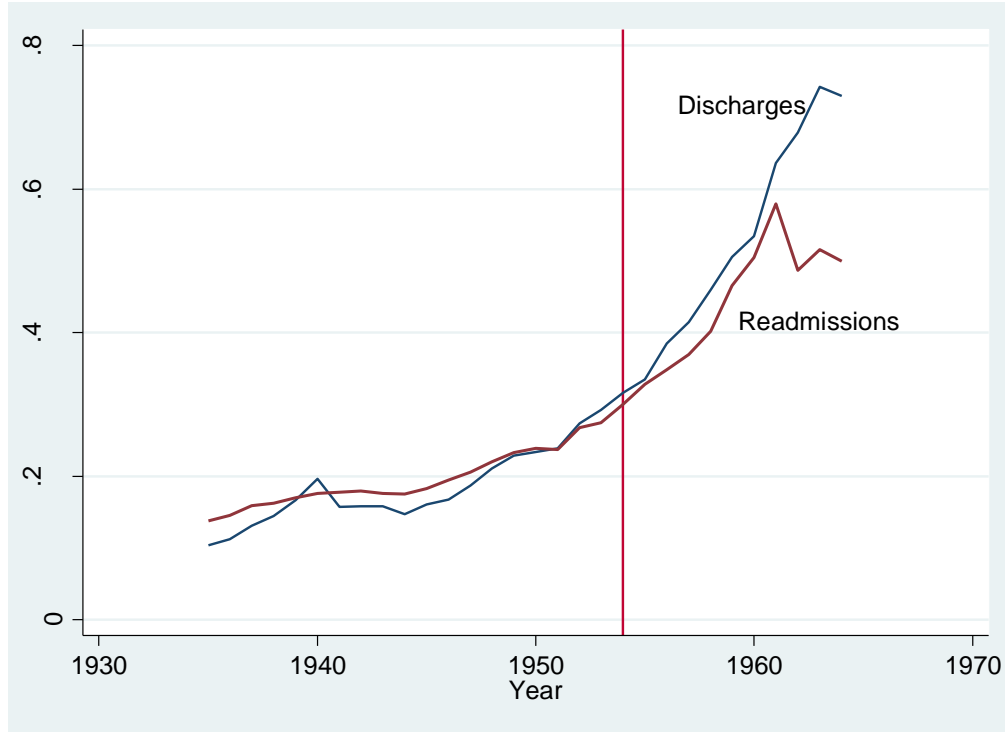


Figure 7. Discharge and readmission rates.

The rates of both discharges and readmissions are relatively similar up to 1960, and 1961 appears to be a pivotal year (Torrey, 1988). A post-hoc analysis was carried out to examine the hypothesis that the significant difference between discharges and readmissions occurred from 1961. A separate interrupted time series analysis was carried out on the difference in discharge and readmission rates excluding the years 1961, 1962, 1963 and 1964. Based on this regression, predicted values were generated for the excluded years. This regression based on predicted values along with the original regression based on actual values is shown in Figure 8. A 90% confidence interval was constructed around the regression line based on predicted values and it is

evident that the last three years occur outside of this confidence interval. This supports the idea that the difference between discharge and readmission rates did not occur prior to 1961.

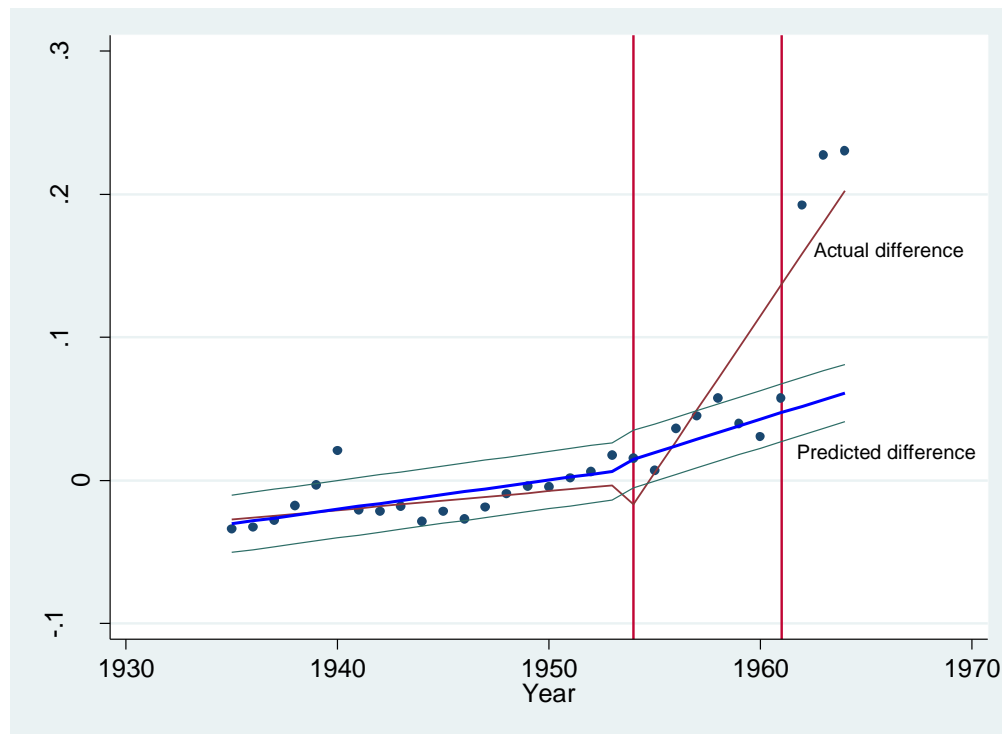


Figure 8. The difference between discharge and readmission rates based on predicted values.

To further explore the year 1961, first admissions per 1000 US population was also considered. This is shown in Figure 9. A separate red vertical line was included at 1961. The similarity with which both first admissions and readmissions decline rapidly following 1961 indicate a greater role of admissions policy than antipsychotic efficacy in the reduction of state hospital populations.

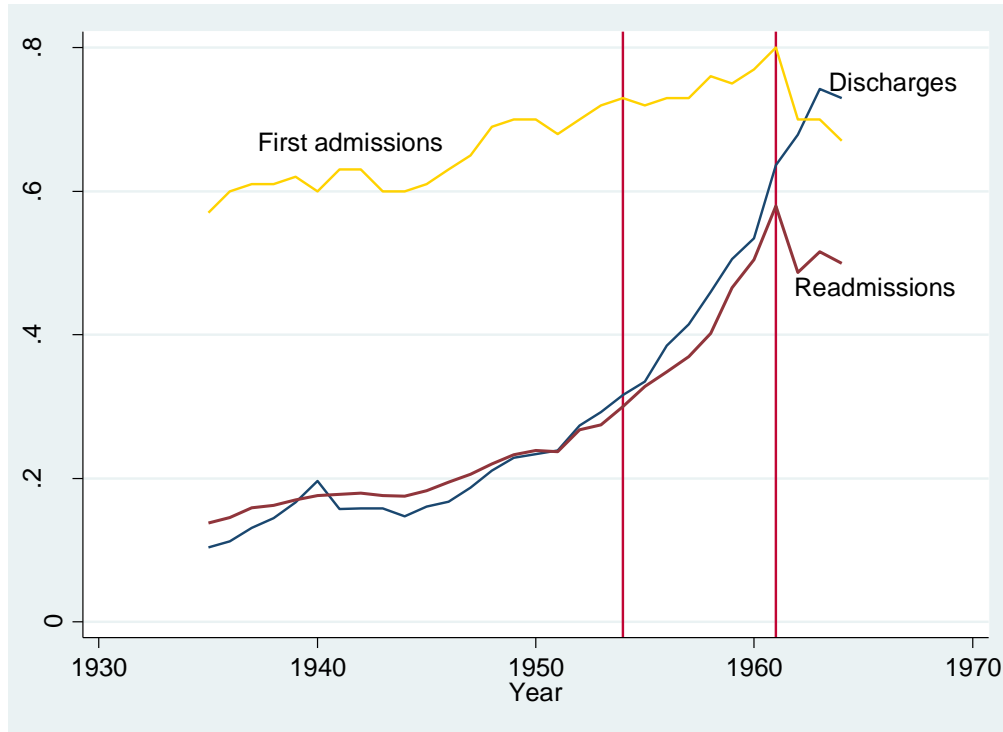


Figure 9. First admission, readmission and discharge rates.

The regression estimates for time series analyses are present in Table 1.

Table 1. Regression estimates for interrupted time series analyses.

	b	T
Discharges		
<i>Intercept</i>	.0955	5.32*
<i>Time Counter(b₁)</i>	.0088	5.81*
<i>Intervention(b₂)</i>	-.0155	-.73
<i>Intervention Time Counter(b₃)</i>	.0365	9.96*
<i>R²</i>	.961	
<i>F</i>	215.72*	
Readmissions		
<i>Intercept</i>	.125	6.22*
<i>Time Counter(b₁)</i>	.0072	4.25*
<i>Intervention(b₂)</i>	.0244	.94
<i>Intervention Time Counter(b₃)</i>	.0163	3.92*
<i>R²</i>	.896	
<i>F</i>	74.47*	
Difference variable		
<i>Intercept</i>	-.0288	-1.16
<i>Time Counter(b₁)</i>	.0013	.64
<i>Intervention(b₂)</i>	-.0350	-1.24
<i>Intervention Time Counter(b₃)</i>	.0206	4.12*
<i>R²</i>	.661	
<i>F</i>	16.88*	

*significance at the .05 level.

The total number of outpatient clinics was only available for the years in which the directories were published. In 1944 there were 17 clinics, 1952: 105, 1955: 108 and 1962: 137. The percentage increase in outpatient clinics and percentage increase in discharge rates were calculated. The two time periods for which the percentage increase was calculated are the 8 year period of 1944 to 1952 and the 7 year period of 1955 to 1962. In the 8 year period before antipsychotics were introduced there was a 70.68% increase in discharge rates and a 517.68% increase in outpatient clinics. In the 7 year period after 1954, there was a 102.65% increase in discharge rates but only a 26.85% increase in outpatient clinics. This is presented in Table 2.

Table 2. Comparison of the growth of outpatient clinics to the increase in discharge rates.

Year	Discharges per 1000 US population	Number of outpatient clinics	% increase discharge rate	% increase outpatient clinics
1944	.1603	17		
1952	.2736	105	70.68	517.68
1955	.3351	108		
1962	.6791	137	102.65	26.85

Discussion

The pre-antipsychotic slope (“ b_1 ”) for both discharges and readmissions was statistically significant. This means that both discharges and readmissions were significantly increasing in the period before antipsychotics. Based on the non-significance of “ b_2 ”, the introduction of antipsychotics in 1954 had no immediate impact on the intercept for either discharge or readmission rates. This does not mean that the drugs had no effect. It simply means the drugs had no immediate effect. As the significance of the difference between the pre-drug and post-drug slope (“ b_3 ”) indicates, the post-drug slope was significantly steeper than the pre-drug slope for both discharges and readmissions. This means that the rate of both discharges and readmissions significantly increased after the introduction of antipsychotics.

The difference between discharge and readmission rates was not significantly increasing before 1954 as indicated by the non-significance of “ b_1 ”. This is seen in Figure 6. The introduction of antipsychotics also had no immediate impact on this variable. The difference between the pre-drug and post-drug slope or “ b_3 ” was significant. This indicates that the difference between discharge and readmission rates significantly increased following 1954 with discharges being significantly higher than readmissions. But as shown in a post-hoc analysis, this effect was due solely to an effect after 1960. During the first years after drugs, readmissions rose at the same rate as discharges. In other words, the drugs, at this time were not enabling the mentally ill to stay in the community. It is only after 1960, that readmissions became significantly less than discharges.

Hypothesis one stated that there would be an increase in the rate of patients discharged in the period before 1954. The findings support this hypothesis as the pre-drug period shows a

significant .009 (patients discharged per 1000 US population) per year increase in discharge rates. This supports the idea that deinstitutionalization was occurring before antipsychotics. However, as readmissions rates were also significantly increasing (.007 increase per year) during this period, this implies that deinstitutionalization in this pre-drug period may have had limited success. If the rate of returning patients was increasing before antipsychotics were introduced, even with a higher ratio of outpatient clinics to patients discharged, this suggests that 1) outpatient services were inadequate in quantity or 2) outpatient services were adequate but ineffective in quality.

Hypothesis two stated that there would be a significant increase in the rate of discharges after 1954. The findings support this hypothesis as “ b_3 ” or the post-drug discharge rate is significantly greater than the pre-drug discharge rate. As there was no significant “ b_2 ” or shift in the intercept as a result of the intervention, it can be concluded that the drugs did not have an immediate effect on discharge rates. However, discharge rates increased after 1954, suggesting a later effect of the drugs. Before 1954, discharges per 1000 US population showed a .009 increase per year and after 1954, discharges showed a .045 increase per year.

Hypothesis three stated that there would be a significant increase in the rate of readmissions after 1954. The findings also support this hypothesis but like discharges, there was a change in the slope and not the intercept. The intervention did not cause a shift in the intercept or an immediate increase in readmission rates. The introduction of antipsychotics was associated with an increase in readmission rates over time. The post-drug slope was significantly steeper than the pre-drug slope. Before 1954, readmissions per 1000 US population showed a .007 increase per year. After 1954, readmissions showed a .024 increase per year.

Hypothesis four stated that the difference between discharge and readmission rates would change after 1954. It was expected that the introduction of antipsychotics would accelerate discharges and readmissions at different rates. Before 1954, there was no significant difference between readmission and discharge rates as indicated by the non-significance of “ b_1 ”. After the introduction of antipsychotics, this difference between the two rates was significantly greater, as indicated by the significant “ b_3 ”. This means that after 1954, discharge rates were significantly higher than readmissions rates. But this effect, as explored in the post-hoc analysis is due to an effect after 1960.

Hypothesis five stated that the increase in discharge rates should exceed the growth of outpatient clinics. A 70.68% increase in discharge rates and a 517.68% increase in outpatient clinics were observed in the 7 year period before drugs. However, a 102.65% increase in discharge rates but only a 26.85% increase in outpatient clinics was observed in the 7 year period after. This indicates that the growth of outpatient clinics did not correspond to the increase in patients discharged. If the drugs were working, perhaps fewer clinics were needed.

In assessing whether deinstitutionalization was occurring before antipsychotics, there are two important observations to consider: before 1954 discharge rates were significantly increasing and the number of outpatient clinics was also increasing. Although the state mental hospital census was not reduced, the fact that discharges were occurring with increasing frequency before the advent of psychotropic drugs suggests that deinstitutionalization was underway before 1954. The considerable growth of outpatient clinics indicates that attempts were being made to address the needs of discharged patients, although such attempts may have been unsuccessful. In addition, the actual term deinstitutionalization was introduced and outlined 20 years before

(Grimes, 1934) and community psychiatry is mentioned and discussed with increasing frequency in the years leading up to 1954. Thus, antipsychotics did not initiate deinstitutionalization.

There is not much evidence to support the idea that pre-antipsychotic deinstitutionalization was effective. Firstly, readmission rates were also significantly increasing and there was no significant difference between discharge and readmission rates. Even with a 518% increase in the number of outpatient clinics from 1944 to 1952, that fact that patients were being readmitted with increasing frequency meant that these clinics were not adequate or effective. This indicates that discharged patients were not successfully integrated into the community. If the aim of deinstitutionalization in this period was to reduce overcrowding, this was also not achieved as discharge rates were not significantly different from readmissions and the hospital population was still increasing, due to increasing rates of first admissions (Baumeister et al., in press).

Post-antipsychotic deinstitutionalization is confirmed by the significant increase in discharge rates after 1954. Both discharge and readmission rates significantly increased suggesting that antipsychotics accelerated the deinstitutionalization process. Although there was a significant increase in discharge rates after 1954, there was a decrease in the growth of new outpatient clinics. There are several interpretations to the discrepancy between the rates increase in discharges (102.65%) and the growth of outpatient clinics (26.85%): . 1) the new drugs worked well, 2) individual clinics expanded in the number of patients they served or 3) became more efficient in their role thus decreasing the need for more clinics.

The difference between discharge and readmission rates significantly increased in this post-drug period. After 1954, patients were being discharged much faster than they were being readmitted. The significant difference between the two rates meant that after 1954 the number of

patients living outside the hospital was increasing. As Johnson (1990) observed the state mental hospital census decreased from 558,000 in 1955 to 140,000 in 1980. The increase in discharges relative to readmissions shown in the present study suggests several interpretations. One is that the drugs worked in enabling patients to live more independently. Perhaps these new drugs allowed for a greater number of patients to be discharged; that is, they fared well outside of the hospital and were not readmitted. Another possibility is that the drugs did not improve independent functioning, and the decline in readmissions was due to loss of contact with mental health services due to increased homelessness and incarceration in prisons.

In fact, these patients did not fare well outside of the hospital. The state hospital census decreased no doubt but as Phipps and Liberman (1988) observed, state hospital services were not adequately replaced with community services and the idea that patients left state hospitals for beneficial care in the community is a myth (Johnson, 1990). The drugs did not enable patients to live independently as hoped for, and as Johnson (1990) stated, the majority of these patients ended up homeless or “reinstitutionalized” in nursing homes, boarding homes and jails.

A major trend which reduced the mental hospital population was the placement of chronic mental patients into community extended care facilities such as nursing homes, foster homes and shelters (Kohen & Paul, 1976). As state hospitals phased out, the trend to move chronic patients to extended care facilities increased. For example, Cole et al. (1978) attributed the decline in the Boston State Hospital census from 2000 in 1963 to 300 in 1978 to the reduction of the chronic inpatient population from 1000 in 1967 to 250 in 1978. In particular, the transfer of elderly patients to nursing homes occurred on a large scale. Using NIMH statistics, Pollack and Taube (1975) showed that in 1969, 38% of discharged patients over 65 were sent to nursing homes.

And from 1964 to 1969, the number of nursing home residents with mental disorders and senility

increased by 144%. In a follow up study of 123 patients in 1963 Cole et al. (1978) found that 29 ended up in nursing homes and only 10% were actually living independently. They explain that patients transferred to nursing homes were no longer supported by the Department of Mental Health and were fiscally transferred to the Department of Public Welfare making it a financially beneficial relocation.

The outcome for the discharged chronic population was not good either. Kohen and Paul (1976) referred to three separate studies that show where declines rather than improvements in functioning have been found for chronic patients who reside in community extended care facilities. They emphasized that hospital decline does not equate effective intervention and the new facilities have not improved patient functioning. In a review of several outcome studies from mental hospital treatment programs, Erickson (1975) concluded that patient functioning improved to a marginal level at best. Phipps and Liberman (1988) also referred to the inability of patients to function adequately in the community and state that 50-60% of discharged psychiatric patients cannot maintain life in the community for two years.

Unable to maintain life outside of the hospital, many of the discharged became homeless. For example, in a 1985 Los Angeles based study of 529 homeless adults, Gelberg, Linn and Leake (1988) found that 29% had been previously hospitalized for psychiatric reasons and only 6% had visited a community mental health center in the past month. They also found that homeless persons who had a previous psychiatric hospitalization were most likely to have mental health problems, use drugs and alcohol and have great involvement in criminal activities. More startlingly, they observed that the majority of this previously hospitalized group had not made an outpatient mental visit in more than 5 years indicating the loss of contact with mental health services. In another study of homeless persons, Kahn et al. (1987) found that over 50% of the

sample met criterion for severe psychological disorder. And of the 264 persons who received emergency psychiatric screening in an Arizona based community hospital, Bachrach et al. (1988) found that 16% were homeless and the homeless were much less likely to be admitted to the inpatient unit. In 1988, a National Survey of Shelters for the Homeless found that the incidence of mental illness among the adult sheltered homeless in the US increased from 19% in 1984 to 34% in 1988.

Another outcome that has been linked to deinstitutionalized patients is incarceration in prisons. Steadman et al (1984) observed that between 1968 and 1978 the correlation between the annual resident census of state mental hospitals and state prisons in the United States was $-.87$. They found that across six states, the percentage of male mental hospital admits with at least one prior arrest increased from 18.2% in 1968 to 55.6% in 1978. And in a Los Angeles based study of 102 male inmates who were referred for psychiatric evaluation, Lamb and Grant (1982) found that 90% had a history of psychiatric hospitalization.

It was previously mentioned that one interpretation for the post-drug lower ratio of number of outpatient clinics to number of patients discharged was that these clinics may have been larger and more effective therefore decreasing the need to build new ones. However, homelessness, incarceration in prisons and poor functioning in the community for discharged patients suggest that this was not the case, and the provision of outpatient care was inadequate. These findings indicate that irrespective of the ratio of outpatient clinics to number of patients discharged, readmission rates in the period before and after antipsychotics were significantly increasing. When discharge rates exceeded readmissions following 1954, state hospitals were emptied with disastrous consequences for those discharged. This leads to the conclusion that the success of deinstitutionalization is not simply reflected in decreased hospital population. Rather success is,

or should be defined, as an increase in the ability of patients to function in less restrictive environments.

One of the findings of this study is that following 1954, discharges were significantly higher than readmissions contributing to the emptying of state hospitals. In Figure 7 which shows the rate of discharges and readmissions, both rates are depicted as relatively similar from 1954 to 1960 with readmissions declining rapidly thereafter. This raises the question of whether the state hospital census was lowered due to the effect of antipsychotics or later events which occurred around 1961. Torrey (1988) stated that 1961 was a watershed year for psychiatric services in the US, with a major occurrence being the publishing of the final report of the Joint Commission on Mental Illness and Health.

Formed in 1955, the Joint Commission on Mental Illness and Health was charged by the 1955 Mental Health Study Act with assessing the United States' mental health needs. The result of this was the final report *Action for Mental Health* published in 1961. This report stated that

No further State hospitals of more than 1000 beds should be built, and not one patient should be added to any existing mental hospital already housing 1000 patients or more. It is further recommended that all existing State hospitals of more than 1000 beds be gradually and progressively converted into centers for the long-term and combined care of chronic diseases, including mental illness. p. 16

Torrey (1988) stated that the state hospitals became relegated to a secondary role within this new report and quotes Mike Gorman a contributor to the report who admitted that his hidden agenda was to break the back of the state mental hospital. Torrey goes on to explain that this was also the year in which Erving Goffman published *Asylums*, Thomas Szasz published *The Myth of Mental Illness* and Gerald Caplan published *An Approach to Community Mental Health*.

All these events, he declared, led to the widespread belief that psychiatric hospitals are bad and should be closed, and that treatment in the community is better.

Much of this report echoed in President Kennedy's 1963 message to Congress on mental illness and mental retardation. He stated that most of the mentally ill "are confined and compressed within an antiquated, vastly overcrowded, chain of custodial State institutions" (p.164, Foley & Sharfstein, 1983) and that "reliance on the cold mercy of custodial isolation will be supplanted by the open warmth of community concern and capability" (p.165). The year of 1963 also marks the establishment of the Community Mental Health Centers Act which Kohen & Paul (1976) described as having a major role in reducing the population of state mental hospitals.

The similarity of discharge rates to readmission rates up to 1960, and importance of 1961 led to a post-hoc analysis being carried out to examine the hypothesis that the significant difference between discharges and readmissions occurred from 1961. The results from this analysis as seen in Figure 8 show that the difference between discharge and readmission rates did not occur prior to 1961. Discharges only significantly exceed readmissions after 1960. A comparison of first admissions to readmissions in Figure 9 also reveals a rapid and similar decline in both admissions following 1961, indicating a change in admissions policy.

One interpretation of the finding that discharges only significantly exceed readmissions after 1960 is that the influence of the antipsychotics on emptying state hospitals did not occur immediately but instead came into effect at a later period. Perhaps this was due to the introduction of more effective antipsychotics during this period. Alternatively, as Torrey suggests, major events in 1961 including the publishing of the final report of the Joint Commission established a general consensus that mental hospitals were bad and should be liquidated. Admissions policies appear to have changed after 1960 with both first admissions and

readmissions declining thereafter. This 1961 shift in admissions combined with the continuation of increasing discharges accounts for the post-drug decrease in the state hospital census.

Conclusion

Deinstitutionalization was underway before the introduction of antipsychotics as indicated by increasing discharge rates. The concept of community psychiatry was established in the literature as a mechanism to enable patients to function in the community. Indeed, there was also a large increase in the number of outpatient clinics during this time. However, readmissions were also increasing and there was no difference between discharge and readmission rates, suggesting that the increase in community-based clinics did not enable patients to function more independently. With the introduction of antipsychotics, both discharge and readmission rates increased. Discharge rates exceeded readmission rates, causing for the first time a reduction in hospital population. This significant difference between discharge and readmission rates did not occur immediately following the introduction of antipsychotics, but occurred from 1961 where a decline in both first admissions and readmissions is observed. After 1954, the increase in discharge rates was actually associated with a decrease in the growth of outpatient clinics. Perhaps this was due to a belief that that the drugs due to their therapeutic action supplanted the need for clinics. This proved not to be the case. The vast majority of patients were unable to function independently outside the hospitals even with the drugs. The consequence of massive discharges, inadequate efficacy of drugs, and a relative diminution of community based support was mass homelessness and increased incarceration in prison. Notwithstanding the introduction of antipsychotics, deinstitutionalization was a failure.

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Vita

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