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A Comparison of Psychotic Symptoms Recorded in Patient Files of Persons with a First Diagnosis of Schizophrenia in 1930 and 1960 Cohorts Drawn from a Large State Hospital

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A COMPARISON OF PSYCHOTIC SYMPTOMS RECORDED IN PATIENT FILES
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1960 COHORTS DRAWN FROM A LARGE STATE HOSPITAL

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To my wife, Keren, and our two sons Kol and Kai.

And, in memory of my parents, Charles and Marie Henderson.

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ABSTRACT

The growth of mental hospital populations during the 19th and 20th centuries along with the corresponding increase in the number of mental institutions is well documented. The cause of the growth is the subject of considerable debate. One hypothesis is that the growth in hospital population was due, in part, to an increase in the prevalence or incidence of schizophrenia. Another is that diagnostic criteria for schizophrenia changed with time in such a manner that increasing numbers of patients were given this diagnosis. The present study sought to address these issues in two ways: 1) by comparing the number and type of symptoms recorded in the files of patients who had a first diagnosis of schizophrenia in either 1930 or 1960; and 2) by retrospective diagnosis of these patients based on recorded symptoms using the *DSM-IV-TR* and *ICD-10* diagnostic criteria. Subjects were two groups of 50 patients (N=100) randomly selected from a large state hospital in Louisiana. The results showed that recorded symptoms of patients diagnosed with schizophrenia changed dramatically between 1930 and 1960. In addition, patients from the 1930 cohort were significantly more likely to receive a retrospective diagnosis of schizophrenia than those from the 1960 cohort. Limitations of the study are discussed: 1) recorded symptoms are not necessarily veridical to actual symptoms; 2) the results may not be generalizable to other hospitals. The central finding of this study is that despite clear evidence of a change in the way schizophrenia was conceived – from a narrow Kraepelinian perspective to a broader psychoanalytic perspective – the percent of the hospital population diagnosed with schizophrenia did not change. This undermines the hypothesis that apparent changes in prevalence and incidence are due to a psychoanalytic redefinition of the boundaries of schizophrenia.

INTRODUCTION

The idea that hospitalization was therapeutic for mental illness gained popularity across Europe and the United States from the mid 18th century to the beginning 20th century (Shorter, 1997; Torrey & Miller, 2001). Studies of mental hospitals in the U.S and Europe indicate that both the number of hospitals and the total hospital population experienced dramatic growth during that timeframe (Hare, 1988; Shorter, 1997; Torrey & Bowler, 1990; Torrey & Miller, 2001). Certain scholars have argued that this increase in hospital populations was due to an increase in the incidence of schizophrenia. More specifically, these scholars suggest that the increase in first admission rates indicates an increase in incidence on the premise that first admissions rates are an index of incidence (Baumeister, Hawkins, Lee Pow, & Cohen, 2012; Torrey & Bowler, 1990). The idea that schizophrenia increased in the modern era has been dubbed the "recency hypothesis" (Hare, 1983, 1988; Torrey, 1980; Torrey & Miller, 2001).

Proponents of the recency hypothesis offer several additional lines of evidence to support their view: 1) before 1800 there is a dearth of descriptions of schizophrenia in scientific literature (Hare, 1988); 2) after 1800, numerous descriptions of schizophrenia— as characterized later by Emil Kraepelin, with early onset and poor prognosis—began to appear (Haslam, 1809). Indeed, according to Kraepelin (1899/1990), by the end of the 19th century "adolescent insanity" became a main category of mental illness; 3) after 1800, there was a rise in psychotic symptoms, particularly delusions and hallucinations (Haslam, 1809; Hare 1983; Kraepelin, 1899/1990; 1919/1989; Torrey, 1980;) and; 4) the population adjusted number of patients diagnosed with schizophrenia as well as first

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admission rates for schizophrenia increased significantly between 1920 and 1950 (Baumeister et al. 2012; Hare, 1988; Torrey & Bowler, 1990).

Critics of the recency hypothesis charge that its proponents place too much weight on changes in mental hospital populations. Instead, they suggest that there are other possible factors that may have increased hospital populations other than an increase in prevalence or incidence. One explanation is a redistribution of the mentally ill from the population in general to the mental hospitals. Indeed mental hospitals became greatly overcrowded despite increased capacity (Wynter, 1870). According to this view, a huge extra-hospital population existed pre-1880 and was gradually redistributed to the expanding mental hospital facilities. This has been called the "lumber room" hypothesis according to which, "If we make a convenient lumber room, we all know how speedily it becomes filled with lumber. The county asylum is the mental lumber room of the surrounding district" (Wynter, 1870, pp. 430-431). This competing view with the recency hypothesis suggests that the increase in prevalence and first admissions for schizophrenia is apparent rather than real. Accordingly, these scholars argue that hospital populations are poor indicators of mental illness in the general population (Jeste, del Carmen, Lohr, & Wyatt, 1985; Kuriansky, Deming, & Gurland, 1974; Kuriansky, Gurland, Spitzer, & Endicott, 1977; Scull, 1979).

Other arguments against the recency hypothesis include the following: 1) mental illness is a social construction and the growth of hospital populations resulted from institutionalization of unproductive and otherwise problematic members of society (Scull, 1979); 2) the growth in hospital populations was driven by the financial incentives to psychiatrists (Scull, 1984); and 3) the growth in mental hospital populations was due to a

change in the criteria that defined schizophrenia (Andreasen, 1989, 1997; Ferreira, 1961; Hoenig, 1983; Jablensky, 1997; Kuriansky et al. 1974; Kuriansky et al., 1977; McNally, 2011).

Of these critiques, the latter has received the most attention by scholars. Their argument is that these changes reflected a recast of the number and type of inclusionary criteria and symptoms used to diagnose schizophrenia (Kuriansky et al. 1974, 1977). As such, these changes in the criteria that defined schizophrenia before and soon after the publication of the first *DSM* are the focus of this study. The main purpose of this study is to determine whether diagnostic criteria for schizophrenia in a large state mental hospital were different for cohorts of schizophrenic patients first admitted to that hospital in 1930 and in 1960.

SCHIZOPHRENIA AS A DIAGNOSTIC CATEGORY

The idea that schizophrenia is a category of mental illness that could be differentiated from other forms of insanity began in Europe, circa late 1800's. Accordingly, schizophrenia is a category of mental illness that is separate from other forms of mental illness (e.g. manic depression) based on specific symptom clusters and the natural history of the disease. By this definition, the individual symptoms of schizophrenia may be comorbid with other categories of mental disorders.

Debate still continues over who first discovered schizophrenia, but many scholars credit Emil Kraepelin with providing the most influential contributions (Andreasen, 1995, 1997; Berrios, Luque, & Villagrán, 2003; Ferreira, 1961; Hoenig, 1983; McNally, 2011; Snowden, 2009). Kraepelin separated insanity into two entities of psychosis—dementia praecox and manic depression—by grouping patients with diverse symptoms that were previously thought to represent different disorders (Carpenter, 2007).

Kraepelin's differentiation of insanity resulted in dementia praecox becoming a category of mental illness based on age of onset (adolescent or young adult), prognosis (poor) and symptomology. Kraepelin's list of symptoms characteristic of dementia praecox included incoherent thought, impoverished thought, catatonia, avolition, auditory hallucinations, delusions, paranoia, inappropriate affect, limited affect, mood fluctuations, and intense capriciousness (Kraepelin, 1899/1990; Jablensky, 2010). Kraepelin also delineated the category of dementia praecox as having four sub-categories: 1) paranoid, 2) hebephrenic, 3) catatonic, and 4) undifferentiated.

Kraepelin felt the psychotic symptoms associated with dementia praecox were predominantly non-affective (i.e., auditory hallucinations, delusions, thought disorder), of

somatic etiology, and had a progressive, deteriorating course (Berrios et al., 2003; Hoenig, 1983; Jeste et al., 1985; Kraepelin, 1899/1990). In other words, he viewed the disease primarily as a severe disturbance of cognition, rather than emotional impairment (Berrios et al., 2003, El-Missiry, Aboraya, Manseur, Machester, France, & Border, 2011). The progressive course of dementia praecox remained a defining feature of Kraepelin's concept of the disorder even though he recognized remission or recovery in 16 out 127 (12.6%) of his own patients, (Andreasen, 1989; Hoenig, 1983).

The next shift in the criteria associated with diagnosing schizophrenia was the result of Eugen Bleuler's work (Bleuler, 1950). Bleuler renamed dementia praecox schizophrenia—literally meaning, "split mind"—because he felt the disorder was characterized by dissociation of psychological processes, particularly of cognitive functions. Bleuler's concept of schizophrenia emphasized four fundamental symptoms: 1) flattened affect; 2) ambivalence—fragmented emotional response; 3) autism, or social withdrawal and 4) impaired association of ideas (Bleuler, 1950; El-Missiry et al., 2011; Snowden, 2009a). According to Bleuler, impaired association was the defining feature of schizophrenia (Bleuler, 1950). Hallucinations and delusion were not characteristic of the disorder, as they could be co-morbid with other disorders, and were considered accessory symptoms. As explained by Bleuler:

> Certain symptoms of schizophrenia are present in every case and in every period of the illness even though as with every other disease symptom, they must have attained a certain degree of intensity before they can be recognized with any certainty. Besides the specific permanent or fundamental symptoms, we can find a host of other, more accessory manifestations such as delusions, hallucinations, or catatonic symptoms. As far as we know, the fundamental symptoms are characteristic of schizophrenia, while the accessory symptoms may also appear in other types of illness. (p. 53)

According to Bleuler, the content of accessory symptoms (e.g., what was hallucinated by the patient) could be useful in the therapeutic process but they did not have the same diagnostic value as fundamental symptoms (Bleuler, 1950; Hoenig, 1983; McGlashan, 2011).

Bleuler stated that all the fundamental symptoms were characteristic of all schizophrenics, yet may not be identified immediately. The fundamental symptoms increase and decrease in severity over time, therefore, their identification required long-term observation and possibly hospitalization (Bleuler, 1950). However, the presence of one fundamental symptom, with the exception of autism, could permit a diagnosis of schizophrenia (Bleuler, 1950, p. 299).

Bleuler also did not agree with Kraepelin regarding the course and prognosis of schizophrenia. Bleuler did not think the symptoms associated with schizophrenia progressed in the patient until death, which was a central element to Kraepelin's concept of dementia praecox (Andreasen, 1997; Hoenig, 1983; Jablensky, 2010; McGlashan, 2011; Snowden, 2009a). Bleuler also felt that the concept of schizophrenia should be widened to encompass such disorders as "hysterical insanity", "masturbatory insanity", "pyromania", "kleptomania", and "nervous types" as he was certain that, with a long enough observation period, these patients would ultimately display the fundamental symptoms of schizophrenia (Bleuler, 1950, p. 289).

A problem with Bleuler's diagnostic system, according to many scholars, is that the definitions of fundamental symptoms are ambiguous. Specifically, the use of the phrase "characteristic to the disorder" when describing the fundamental symptoms led clinicians to interpret them as pathognomonic to schizophrenia. In this sense, scholars

argue that "pathognomonic" means the presence (and identification) of one fundamental symptom-save autism-rather than all four, despite its severity, is evidence of schizophrenia. It is argued the ambiguity surrounding this definition gave rise to a disorder with wider and/or subjective boundaries (Andreasen, 1997; Bleuler, 1950; Hoenig, 1983; Jablensky, 2010; McGlashan, 2011; Snowden, 2009a).

Scholars argue that the changes in the defining characteristics of schizophrenia introduced by Bleuler made the boundaries of the disorder broader and more ambiguous, resulting in an increased number of patients diagnosed by Bleuler's system compared to that of Kraepelin (Andreasen, 1997; Jablensky, 1997). As will be discussed below, Bleuler's system is reflected in the first version of the *DSM*, and was particularly influential during the 1950's and 1960's (Kuriansky et al., 1974).

A third shift in the criteria used for schizophrenia diagnosis was the result of Kurt Schneider's research (Schneider, 1959). Schneider reorganized psychotic symptoms associated with schizophrenia into an ordinal system based on ease of detection and pathognomonicity (Andreasen, 1997; Berrios et al., 2003; Hoenig, 1983; Snowden, 2008, 2009a, 2009b). Accordingly, hallucinations, delusions, and losses of autonomy were *first rank* symptoms and had high diagnostic value. *Second rank* symptoms referred to the affective and behavioral anomalies that Bleuler and Kraepelin associated with the disorder. These symptoms had less importance in schizophrenia diagnoses (Andreasen, 1997; Hoenig, 1983; Snowden, 2009a). However—like Bleuler, but unlike Kraepelin— Schneider believed the core symptoms of schizophrenia were not necessarily progressive (Schneider, 1959). Some scholars suggest that Schneider's diagnostic criteria for schizophrenia not only provided for a more reliable diagnosis, but also raised the

threshold for the disorder by excluding a portion of the population that would be diagnosed as schizophrenic by other systems (Andreasen, 1997; Hoenig, 1983). Moreover the Schneiderian criteria, which focus attention on the recognition of florid psychotic symptoms for the diagnosis of schizophrenia, were more objective than the Bleuler's criteria. It is further suggested that the poorly defined boundaries of schizophrenia coincided with its canonization in early diagnostic manuals, thereby increasing its salience (Snowden 2009a; Wilson, 1993).

Problems with reliability of schizophrenia diagnoses became apparent to psychiatrists in the first half of the 20th century (Henderson & Gillespie, 1936; Hoenig, 1983; Snowden 2008). A goal of the first edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) was to increase diagnostic reliability (*DSM*; American Psychiatric Association, 1952; Wilson, 1993). However, as noted above, Bleuler's work and the prevailing psychoanalytic theory (i.e., a psychosocial model emphasizing "schizophrenic reaction" types) heavily influenced the first *DSM* (*DSM*; American Psychiatric Association, 1952, p. 26; McGlashan, 2011). For example, the *DSM-I* describes schizophrenia as "a group of psychotic reactions" that "are marked by strong tendency to retreat from reality (autism), by emotional disharmony (ambivalence), unpredictable disturbances in streams of thought (impaired association of ideas), regressive behavior, and in some, by a tendency to 'deterioration'" (*DSM*; American Psychiatric Association, 1952, p. 26). The vagueness and subjectivity of such notions detracted from reliability (Andreasen, 1997; Jablensky, 1997). These influences, and their negative effect on reliability, were further ensconced in American psychiatry with the publication of the *DSM-II* in 1968 (2nd edition; *DSM-II*; American Psychiatric

Association, 1968; Snowden 2009b; Wilson, 1993). The problems of reliability were less pronounced in Europe where psychiatrists placed heavier reliance on Schneider's first rank symptoms and the criteria outlined in the *International Classification of Diseases (ICD)* (Andreasen & Flaum, 1991; Snowden, 2008; Wilson, 1993).

The third revision of the *DSM* in 1980 sought to mirror *ICD* criteria more closely. Namely, it also made use of Schneider's first-rank symptoms and included a symptom duration criterion as suggested by John Feighner (3rd ed., rev.; *DSM–III–R*; American Psychiatric Association, 1987; Kendler, Muñoz & Murphy, 2010). Scholars agree that this revision effectively narrowed schizophrenia criteria to produce more reliable diagnoses (Andreasen & Flaum, 1991; Jablensky, Hugler, von Cranach, & Kalinov, 1993; Snowden, 2008; Wilson, 1993). The more recent revisions, *DSM-IV-TR* and *ICD-10,* increased the degree of concordance between the two manuals in terms of clinical descriptions and nomenclature with respect to schizophrenia criteria (Compton & Guze, 1995; Jablensky, 1997; Snowden, 2008). The similarities and differences of the manuals are discussed below.

Both classification systems now employ similar diagnostic criteria for schizophrenia (Jablensky, 2010). However, they differ concerning certain variables associated with the onset of schizophrenia. Specifically, the *DSM-IV-TR* requires hallucination, delusions, or bizarre behavior to be present for at least one month in conjunction with residual symptoms for six months (4th ed., text rev.; *DSM–IV–TR*; American Psychiatric Association, 2000). The *ICD-10,* on the other hand, only requires psychotic and residual symptoms to be present for one month (World Health Organization, 1992). Scholars suggest the shorter duration criterion of the *ICD-10*

increases the number of patients diagnosed with schizophrenia, when compared to the

DSM-IV-TR (4th ed., text rev.; *DSM–IV–TR*; American Psychiatric Association, 2000;

Andreasen & Flaum, 1991; Hiller, Dichtl, Hecht, Hundt & Zerssen, 1993; Jablensky,

2010; Snowden 2009b; World Health Organization, 1992). Another difference between

the *ICD-10* and the *DSM-IV-TR* is that the former places more diagnostic weight on

Schneider's positive, first rank symptoms. This is in contrast to the *DSM-IV-TR*, which

weighs negative symptoms and positive symptoms equally (4th ed., text rev.; *DSM–IV–

TR*; American Psychiatric Association, 2000; Hiller et al., 1993; Jablensky, 2010;

Kendler, 2009; Snowden, 2009; World Health Organization, 1992).

Each publication differs in its strengths. Scholars agree that *DSM-IV-TR* criteria

offer reliable detection of clear-cut, chronic cases of schizophrenia, which makes it a

superior candidate for epidemiological research. Contrariwise, in clinical spheres, the less

restrictive *ICD-10* criteria are sufficiently broad which facilitates better recognition of

atypical schizophrenia (Hiller, et al., 1993; Jablensky, 1997; Jablensky, 2010; Kendler,

2009; Snowden, 2009). For example, the *ICD-10* has a diagnostic category, *simple

schizophrenia*, not recognized in the *DSM-IV-TR* (World Health Organization, 1992).

Simple schizophrenia, as described by the *ICD-10*, is described as having only negative

symptoms. Under *DSM-IV-TR* criteria, a patient presenting only negative symptoms

could still be diagnosed with schizophrenia as long as he or she met the duration criterion

(American Psychiatric Association *DSM-IV-TR*, 2000; World Health Organization,

1992). The preceding example is important because reliance on different manuals by

different researchers affects how broadly (*ICD*) or narrowly (*DSM*) schizophrenia is

operationally defined. Furthermore, as will be seen below, one of the objectives of this

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study was to provide evidence that diagnostic manual choice can lead to an increase or decrease in schizophrenia diagnosis in an historical cohort.

Despite a great amount of research on the nosological evolution of schizophrenia as a categorical entity distinguished from other mental disorders, the issue about its diagnostic criteria remains unsettled. Moreover, empirical evidence concerning the theoretical change in the criteria of schizophrenia to include larger portions of the population is mixed. These topics are discussed in the following section.

REVIEW OF EMPIRICAL STUDIES

Results from a cohort study using retrospective diagnosis suggest that the increase in the diagnosis of schizophrenia was not an artifact of categorical expansion (Healy, Le Noury, Linden, Harris, Whitaker, Linden, Baker, & Roberts, 2012). Healy et al. (2012) compared the first admission records of an 1875-1924 cohort (n=3168) to a 1994-2010 cohort (n=355) in order to calculate "admission incidence" of schizophrenia in Northern Wales. Many patients in the late 19th century cohort were admitted before the Kraepelinian definition of schizophrenia. According to Healy et al., the diagnosis for schizophrenia—along with other disorders—before the Kraepelinian definition was "mania". Therefore Healy et al. used *ICD-9* criteria to retrospectively diagnose 1074 patients (34%) originally diagnosed with mania. Comparison of the two cohorts did not show a significant increase in schizophrenia admission incidence overall but did show an increase in admission incidence of schizophrenia within the first historical cohort (1875-1924). Their results also suggest admission incidence of schizophrenia increased for men but decreased for women at the end of the 20th century. Healy et al. concluded that an expansion of criteria used to diagnose schizophrenia did not occur during the first half of the 20th century and that diagnostic criteria were valid and reliable over this time.

Another retrospective diagnosis study supports the stability of diagnosis over time. Jablensky et al. (1993) investigated the issue of change in the diagnostic criteria of schizophrenia by retrospectively diagnosing patients from Emil Kraepelin's own patient files. Using *ICD-9* criteria, Jablensky et al. (1993) quantified the symptoms of 187 patients (53 dementia praecox; 134 manic-depression). Jablensky et al. chose to include patients with manic depression in his study since many of the symptoms of the disorder

are co-morbid with schizophrenia. Patients were then re-diagnosed using the CATEGO computer program. According to Jablensky, et al. the advantage of the CATEGO program for their study was the generation of a "pure" virtual patient that all other re-diagnosed patients were compared to. Creating a "pure" patient first entailed inputting the symptoms and their duration criterion, as outlined in the *ICD-9,* in to the CATEGO program. Next, the authors coded the symptoms and their duration of all patients in the sample and input this data into the CATEGO program. Lastly, the CATEGO program compared all of the sample patients to the "pure" patient.

Following the above stated steps, the authors generated an 88.6% concordance rate between Kraepelin's dementia praecox patients and the retrospective diagnosis based on the *ICD-9* calibrated CATEGO program. According to Jablensky et al., since the retrospective diagnosis did not differ significantly from Kraepelin's diagnosis, a change in the diagnostic criteria for schizophrenia did not occur between the early part of the 20th century and the present, or was limited to the United States. In the United States a comparison study of UK/US schizophrenia diagnoses supports the latter claim. (Kuriansky et al., 1974; Kuriansky et al., 1977; Jablensky et al., 1993; Jablensky, 1997, 1999; El-Missiry et al., 2011).

Kuriansky et al. (1974) used retrospective diagnosis to investigate differences in the percentage of patients diagnosed with schizophrenia in the New York State Psychiatric Institute (NYSPI) and Maudsley Hospital in London. They reported that between 1932 and 1957 the percentage of schizophrenia diagnoses for first admissions at NYSPI increased from 28% to 77%, while the percentage of patients diagnosed at Maudsley did not change. Subsequently, Kuriansky et al. sampled 128 NYSPI patients

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(aged 20-59 years) from two cohorts (1932-1941, n=64 and 1947-1956, n=64). Then 16 psychiatrists, with differing academic backgrounds, performed blind retrospective diagnosis of the sampled patients according to *DSM-II* standards. Re-diagnosis resulted in only a 5% increase in the percentage of patients diagnosed with schizophrenia for the years under study as opposed to the 49% increase in original diagnoses. By holding the diagnostic criteria at a constant (*DSM-II)* across cohorts, the authors concluded that the original increase in diagnoses was, indeed, due to a change in the diagnostic criteria of schizophrenia. They further suggested that the large increase in the original diagnoses observed at NYSPI was due to an increased emphasis on subjective or borderline symptoms in the diagnostic process (Kuriansky et al., 1974; Kuriansky et al., 1977; Andreasen & Carpenter Jr., 1993).

The preceding discussion shows the issue of whether a change in the diagnostic criteria for schizophrenia resulted in an increase in schizophrenia diagnoses is unsettled. Thus, it is the focus of this thesis. The aim of this study is to determine whether the symptoms of patients diagnosed with schizophrenia remained stable over time at one southern United States in-patient facility. If the symptoms of schizophrenia did not remain stable then how, specifically, did they change?

HYPOTHESES

The present study tested three principal hypotheses:

Hypothesis 1

The symptomological profiles (i.e., type of symptom and frequency) of first admission patients diagnosed with schizophrenia from a 1930 cohort will differ significantly from the symptomological profiles of the patients of the same type from a 1960 cohort.

This hypothesis was designed to determine whether the mean recorded symptoms of patients in the two cohorts differ significantly with the dependent measure as the difference in the percentages of symptoms at the patient level. As stated above, many scholars suggest the types symptoms used for diagnosing schizophrenia changed during the time span under study. This hypothesis also designed to detect whether a sampled patient's cohort has an effect on their symptomological profile.

Hypothesis 2

Retrospective diagnosis using *DSM-IV-TR* criteria will result in a significant decrease in the total number of patients re-diagnosed with schizophrenia between the 1930 and 1960 cohorts.

In the preceding discussion it was suggested that by 1960 diagnostic criteria for schizophrenia had become broader, more subjective, and more reflective of the psychoanalytic school. But, beginning with the third edition of the *DSM*, diagnostic criteria were more in accord with Schneider's conception of schizophrenia. As a consequence, the criteria became more narrow and objective. These changes continue to be reflected in the diagnostic criteria used at the time of this study (i.e., those in the *DSM-*

IV-TR). This hypothesis is designed to investigate whether patients diagnosed with schizophrenia before contemporary diagnostic methods could still be considered such.

Hypothesis 3

Retrospective diagnosis using *ICD-10* criteria will result in significantly more patients diagnosed as schizophrenic than patients retrospectively diagnosed using *DSM-IV-TR* criteria in both cohorts.

As discussed above, although the two manuals share numerous similarities, differences still exist between them (e.g. the broad versus narrow debate). In recent years efforts have been made to reduce the differences in diagnostic criteria used by the *DSM* and the *ICD*. This hypothesis is designed to determine whether the two systems produce the same retrospective diagnoses frequencies and whether the two systems differentially reflect the 1930 versus the 1960 conceptualization of schizophrenia.

METHOD

Subjects

Data for this study came from patient files archived at the Eastern Louisiana State Mental Hospital (ELSMH). ELSMH maintained comprehensive patient records for patients interned in 1930 and 1960. These records include a first admission checklist (which includes a preliminary diagnosis), psychiatric and medical evaluations, therapeutic interventions, patient family history, letters from home, and records of criminal proceedings.

The hospital organized patient records by year of admission. A master ledger—arranged chronologically by admission date with patient numbers ascending numerically—contains the date of admit, hospital identification number, date of birth, date of discharge, sex, and original diagnoses for patients admitted in 1930. The master ledger did not include initial diagnoses or other demographic information for patients admitted in 1960.

In order to satisfy the inclusion criteria, all patients selected for this study were first admission patients given an initial diagnosis of dementia praecox, if admitted in 1930, or schizophrenia if admitted in 1960. The admitting nurse and attending psychiatrist, upon reaching a consensus, made the initial diagnosis. Once admitted, patients would undergo a more thorough psychological evaluation by a different psychiatrist. The purpose of this evaluation was to either confirm the validity of the initial diagnosis or offer a differential diagnosis. Again, this second diagnosis required consensus from of all parties involved in the admitting process (admission nurse, attending psychiatrist, and the second evaluation psychiatrist). If the admitting parties did

not agree with the diagnosis given by the second psychiatrist, a note in the patient files would indicate the disagreement. Patients given a diagnosis other than dementia praecox or schizophrenia, upon completion of this second, more thorough examination, were excluded from this study and replaced by a different, randomly selected patient with a first admission diagnosis of schizophrenia.

Procedure

As stated above, because the master ledger for patients admitted in 1960 did not include an initial diagnosis, it was necessary to examine all files of patients admitted in 1960 to identify patients with a first admission for schizophrenia. Next, 100 patients (1930 n=50; 1960, n=50) were randomly selected for this study. This sample size was justified by two studies, cited above, where the dependent measure was a difference between the original and retrospective diagnoses. A review of the sample sizes, effect sizes, and calculated power for the Kuriansky et al. study (1974; N=128, Odds Ratio (OR)= .41, Power (1-□)= .99) and the Jablensky et al. study (1993; N= 53, OR= .88, Power (1-□)= .83) revealed a total sample size of 100 patients would be sufficient for this study. I used G*Power statistical software to calculate post-hoc power for the above cited studies. The percentages, sample sizes, and effect sizes for each study were the input parameters. The differences between the percentages for each study were measured using a z-test. Effect sizes for each z-test were calculated by generating Pearson's r for each study then converting Pearson's r to Cohen's d (Faul, Erdfelder, Lang, & Buchner, 2007).

The randomization procedure was as follows: 1) identify all patients in both cohorts admitted with a confirmed diagnosis of schizophrenia (i.e. potential subjects), 2) all potential subjects were assigned a code number to ensure anonymity; 3) a random

numbers table that contained numeric values equal to all possible patient codes was used to generate a sample of 50 randomly selected patients from each cohort.

Data Collection

Data collection began by recording relevant demographic information, including age, race, occupation, marital status, and education level. Tabulation and identification of symptoms were in accordance with the Scale for the Assessment of Positive Symptoms (SAPS) and the Scale for the Assessment of Negative Symptoms (SANS) (Andreasen, 1984). The SAPS and SANS have symptom categories containing individual symptoms. For example, the SAPS symptom category Hallucinations is sub-divided into the symptoms auditory hallucinations, visual hallucinations, or somatic hallucinations (see Appendix). The SANS is arranged in the same fashion. Each of these individual symptom constructs has a description of the behavior and example. A complete list of the SAPS and SANS symptom categories and individual symptom constructs used for this study is in Appendix A.

All together, there are nine categories of symptoms in the SAPS and SANS. For positive symptoms, these categories are: 1) hallucinations, 2) delusions, 3) bizarre behavior, and 4) thought disorder. Negative symptom categories are: 1) affective flattening, 2) alogia, 3) avolition-apathy, 4) anhedonia, and 5) attention. For this study the two cohorts were compared with respect to each of the nine categories. Although research supports the validity and reliability of the SAPS, (Andreasen et al., 1995; Nicholson, Chapman & Neufeld, 1995), certain studies raised issues of limitations regarding the symptom constructs of the SANS. Specifically, studies on the individual constructs that comprise the negative symptom categories revealed they might be too highly correlated

with each other to permit differentiation into separate symptom constructs (Minas, Stuart, Klimidis, Jackson, Singh, & Copolov, 1992). Nevertheless, the SANS remains the gold standard for negative symptom description (Andreasen, et al. 1995; Nicholson, Chapman & Neufeld, 1995).

Recorded symptoms were tabulated in a nominal manner (present or absent) for all nine categories and all 39 individual symptoms contained in the SAPS and SANS. Particular categories and symptoms were recorded only once for each subject regardless of the number of instances a given category or individual symptom was recorded in a patient's file.

After symptom tabulation, data from the notes made by the admitting nurse, attending psychiatrist, and second evaluation psychiatrist were extracted. This information included: date of onset of schizophrenia, examples of schizophrenic behavior, quotes the patient made during examination, patient family history, and final diagnosis. The patient notes, coupled with the SAPS and SANS profiles for each individual patient, provided the data for retrospective diagnosis.

Retrospective Diagnosis

As noted above, diagnostic criteria used by the *DSM-IV-TR* and *ICD-10* differ. Studies comparing *DSM-IV* criteria to *ICD-10* revealed that, with respect to schizophrenia diagnoses, *ICD-10* criteria led to more diagnoses of schizophrenia than *DSM-IV* criteria (Compton & Guze, 1995). Presently, there is considerable interest in developing an international consensus regarding diagnostic criteria for schizophrenia. Both systems have an impact on academia since both of their respective criteria are used for retrospective diagnosis. Therefore, it is important to determine whether the different

systems used for retrospective schizophrenia diagnosis are concordant. If the different systems are not concordant, the present study was designed to identify which symptoms are responsible for the discordance.

In accordance with hypotheses two and three, the criteria for retrospective diagnosis came from the *DSM-IV-TR* and the *ICD-10.* Blind with respect to cohort date, the primary researcher re-diagnosed each patient using criteria outlined in the aforementioned manuals. An alternative diagnosis was not offered. Instead, the patient was either deemed schizophrenic by *DSM-IV-TR* (DSM-IV-TR 295.1–295.3, 295.90) or *ICD-10* (F20) standards or not.

A clinical psychologist on staff at Louisiana State University also conducted a second blind retrospective diagnosis on five randomly selected patients from each cohort (10 total). The inter-rater agreement percentage between the primary researcher and the clinical psychologist, with regard to schizophrenia diagnoses, was 80%. An inter-rater agreement statistic was generated using Cohen's κ coefficient. Cohen's κ coefficient (10 cases, two raters, schizophrenia affirmed vs. schizophrenia denied) was .60[1].

Statistical Analysis

For hypothesis one, differences in the mean number of recorded symptom categories and individual symptoms per patient in the 1930 and 1960 cohorts were

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[1] It should be noted that a Cohen's κ coefficient of .60 is viewed as a 'moderate agreement'. This statistic shows the extent to which a retrospective diagnosis study, like this one, cannot take into account the nuances of interpreting patient files without access to the patients themselves. As such, an argument could be made that it is a possible limitation of this study.

compared using an independent samples t-test. Effect sizes for significant t-test results are reported using Cohen's d. Post-hoc analysis of a significant t-test was made using a two-tailed z-test on symptom percentages. Effect sizes for z-tests are reported in OR.

The alpha rate for the above mentioned z-test had a Bonferroni correction adjusting the alpha rate from .025 to .01. A strict alpha rate was necessary in order to guard against experiment-wise inflation that would occur when analyzing nine pair-wise comparisons. An independent-samples t-test was used to investigate whether or not the two cohorts differed with respect to age. Lastly, Pearson's X^2 statistic was used to investigate whether the cohorts differed with respect to gender distribution.

For hypothesis two and three, a z-test statistic was generated to investigate the difference in percentages of patients with an original and retrospective diagnosis of schizophrenia in the 1930 and 1960 cohorts. A Bonferroni correction adjusted the alpha rate for this test from .05 to .025 with all effects sizes in OR. The following results are organized by the stated hypothesis.

RESULTS

Demographic characteristics, the number and percentage of patient population

diagnosed with schizophrenia, the total number of recorded symptoms, and the total

recorded positive and negative symptoms of the two cohorts are shown in Table 1. As can

be seen from the total admissions, although the number of patients diagnosed with

schizophrenia was nearly four times greater in the 1960 cohort, the percent of the hospital

population having this diagnosis remained constant across the study period $X^2(1,N=2716)$

$= 3.26$ p $> .05$. Of the 100 patients sampled for this study, there were no statistically

significant differences between cohorts in age (t (98) p$>$.05) or gender (z=-.40, p$> .05$,

one-tailed). A one-tailed test was chosen as previous research indicates that there may be

a gender component to schizophrenia diagnoses (Piccinelli & Homen, 1997).

Table 1.
The demographic and symptomological characteristics recorded in patient files of 100
randomly selected patients (1930, n=50; 1960, n=50), with a first admission for
schizophrenia, from the Eastern Louisiana Mental Health System.

	1930 cohort	1960 cohort
Total admissions	515	2201
Schizophrenia admissions	131 (25.43%)	479 (21.76%)
SAPS & SANS categorical symptoms	323	197
SAPS & SANS individual symptoms	642	307
Positive symptoms	373	213
Negative symptoms	274	97
Males	26 (52%)	28 (56%)
Females	24 (48%)	22 (44%)
Mean Age (in years)	31.64	33.48

Hypothesis 1

An independent samples t-test on the mean number of recorded categorical

symptoms from each SANS and SAPS category at the patient level revealed that the two

cohorts differed significantly. The 1930 cohort had significantly more recorded

categorical symptoms (323 recorded symptoms, M=6.48, SD=1.61) than the 1960 cohort

(197 recorded symptoms, M=3.94, SD=2.25, t(98)=6.44, p<.001, CI [1.74, 3.30],

Cohen's d=1.30) See Table 1 and Figure 1).

	SAPS & SANS Categorical Symptoms	
	1930 Cohort	1960 Cohort
■ Frequencies	323	197

Figure 1. Total number of recorded symptoms from the nine categories of the SAPS and
SANS. Patients from the 1930 cohort had significantly more categorical symptoms
recorded in their files.

In order to identify which symptom categories significantly differed, it was

necessary to perform pair-wise comparisons between cohorts for each of the nine SAPS

and SANS categories. A z-test with a Bonferroni correction revealed that the 1930 cohort

had significantly more recorded symptoms in the following categories: hallucinations (z=

5.20, p< .01, two-tailed, OR=10.10), delusions (z= 3.82, p< .01, two-tailed, OR= 12.28),

attention (z= 3.00, p< .01, two-tailed, OR=4.51), alogia (z=4.45, p< .01, two-tailed,

OR=10.61), and avolition-apathy (z=5.20, p< .01, two-tailed, OR=10.10; See Figures 2

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and 3). These results suggest that year of hospitalization can have an effect on the recordation of certain symptoms used for diagnosis. The above results illustrate how some symptoms (e.g., hallucinations) are 10 to 12 times more likely to be recorded than others.

	Bizarre Behavior	Delusions*	Hallucinations*	Thought Disorder
■ 1930 Cohort	100%	96%	78%	100%
■ 1960 Cohort	90%	66%	26%	90%
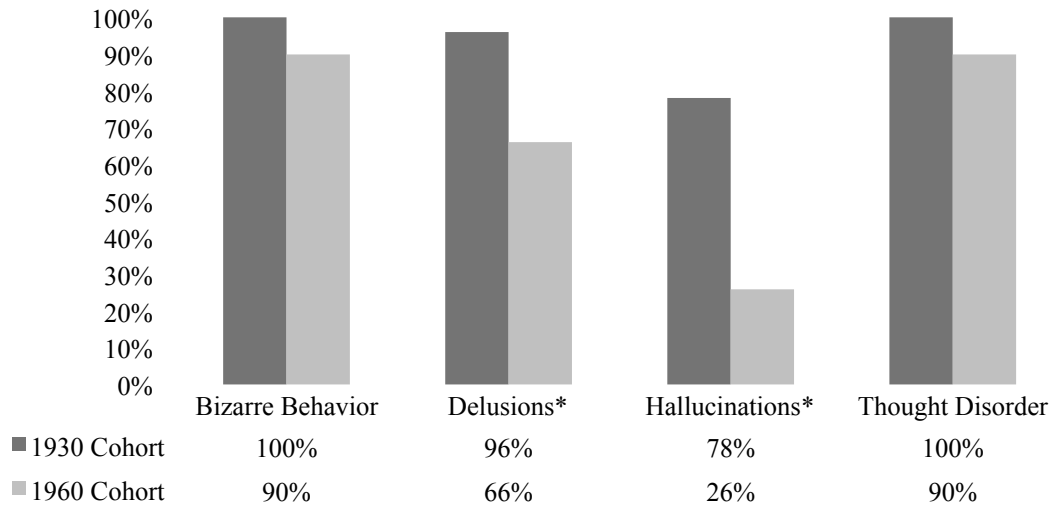
Figure 2. The percentages of patients diagnosed as schizophrenic with recorded symptoms from each SAPS category. Asterisks denote significantly different values.

	Affective Flattening	Alogia*	Anhedonia	Attention*	Avoultion-Apathy*
■ 1930 Cohort	58%	48%	50%	38%	78%
■ 1960 Cohort	46%	8%	30%	12%	26%
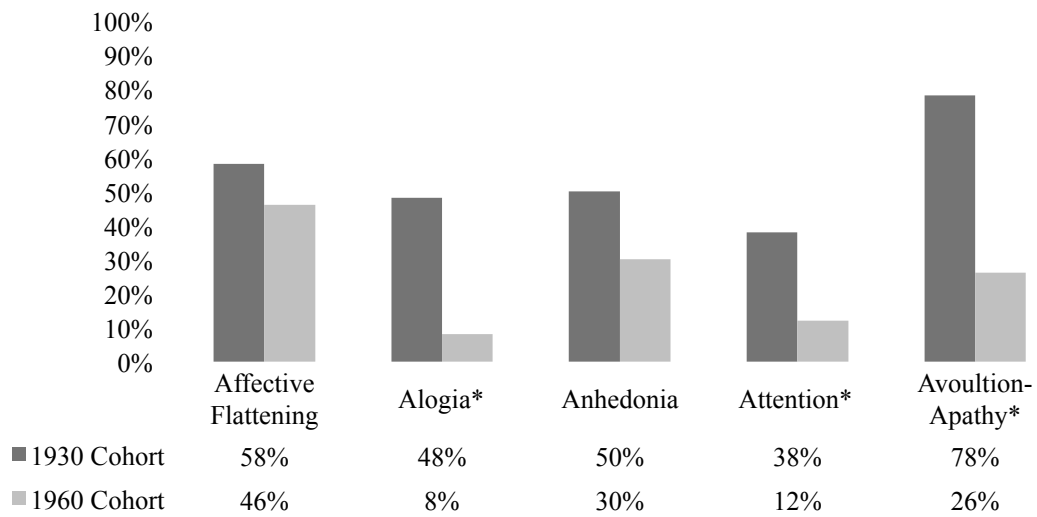
Figure 3. The percentages of patients diagnosed as schizophrenic with recorded symptoms from each SANS category. Asterisks denote significantly different values.

An independent samples t-test revealed that the 1930 cohort (642 recorded individual symptoms, M=12.84, SD=3.61) differed significantly from the 1960 cohort (307 recorded individual symptoms, M=6.14, SD=3.35; t(98)= 9.61, p<.001, CI [5.32, 8.09], Cohen's d=1.92; See Figure 4). Figure 4 represents how the categorical symptoms are delineated. As discussed above, a patient experiencing two types of hallucinations would only have one recorded for categorical symptoms (recorded in Hallucinations). Counts for the individual symptoms would take into account the distinct nature of different types of hallucinations (auditory, visual or somatic) and record them accordingly. Thus, for individual symptoms, a patient experiencing auditory and visual hallucinations would have them recorded separately in the auditory and visual hallucinations sub-category. Again, these results suggest that cohort can have an effect on symptom recordation.
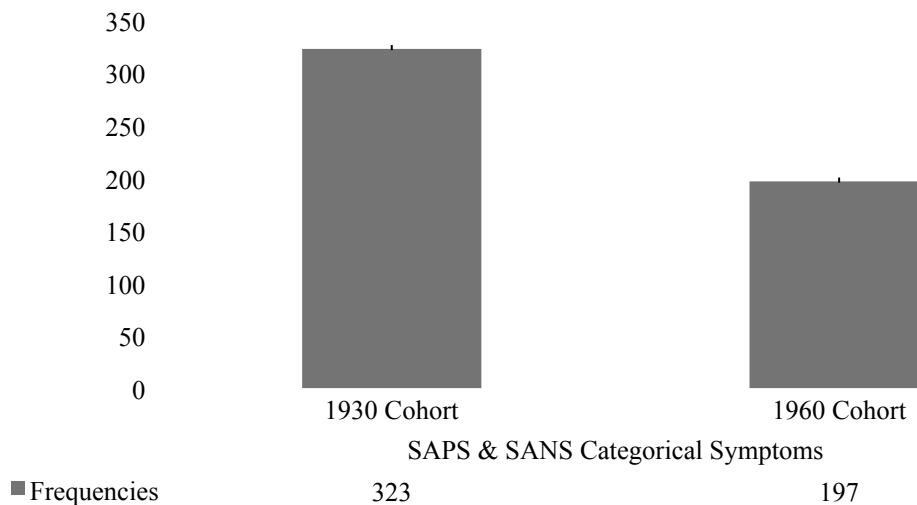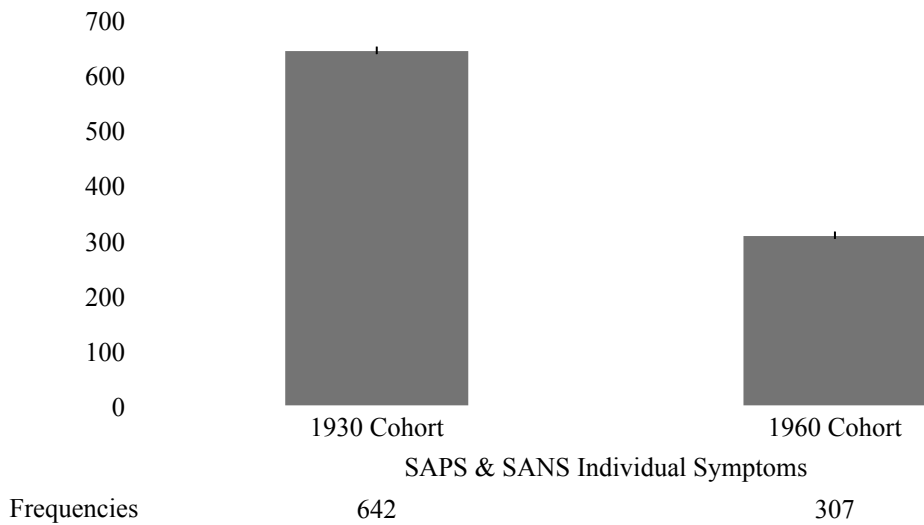

Figure 4. Total number of recorded individual symptoms from the nine categories of the SAPS and SANS. Patients from the 1930 cohort had significantly more individual symptoms recorded in their files.

Pair-wise comparisons between cohorts of the percentage of patients with each SAPS and SANS individual symptom using a two-tailed *z*-test with a Bonferroni correction revealed significant differences at the 0.01 levels in 21 of the 39 individual symptoms under study (See Figures 5-13). The individual symptoms and their corresponding patients percentages are grouped by the SAPS or SANS category they belong to. For the full list of symptom categories and their individual symptoms please see Appendix.

Characterization of symptoms in the 1960 cohort was quite different from that of the 1930 cohort. The 1930 cohort is characterized as having predominately auditory hallucinations, religious delusions, incoherent or impoverished speech, and catatonic behavior. The 1960 cohort, on the other hand, is characterized as having bizarre behavior thought disorder, and anhedonia, and lack of vocal inflection.

Delusions

	Religious*	Thought Broadcast*	Grandiose	Persecutions	Guilt	Somatic	Jealousy
■ 1930 Cohort	30%	18%	28%	70%	4%	4%	6%
■ 1960 Cohort	8%	2%	12%	60%	4%	2%	4%

Figure 5. Percentages of patients with the recorded individual symptoms from the SAPS category Delusions. Asterisks denote significantly different values.]

Hallucinations

	Auditory*	Visual	Somatic
■ 1930 Cohort	92%	14%	4%
■ 1960 Cohort	44%	14%	4%
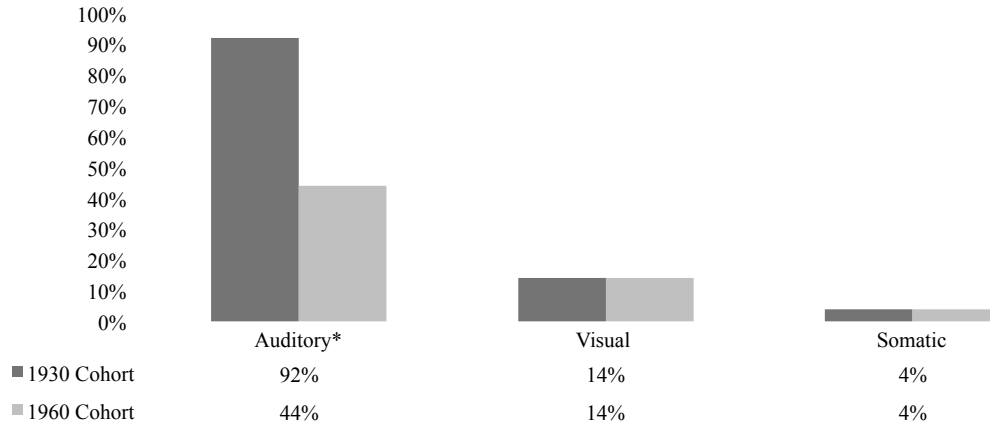
Figure 6. Percentages of patients with the recorded individual symptoms from the SAPS category Hallucinations. Asterisk denote significantly different values.

Bizarre Behavior

	Aggressive*	Appearance*	Sexual
■ 1930 Cohort	54%	44%	6%
■ 1960 Cohort	32%	18%	8%
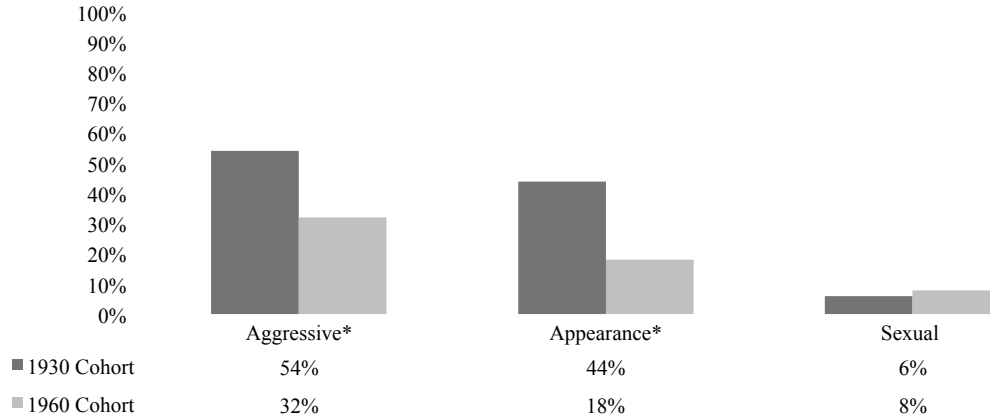
Figure 7. Percentages of patients with the recorded individual symptoms from the SAPS category Bizarre Behavior. Asterisks denote significantly different values.

Thought Disorder

	Illogicality*	Tangentiality*	Incoherence*	Circumstantial	Pressured Speech	Loose Associations
■ 1930 Cohort	82%	42%	13%	10%	12%	26%
■ 1960 Cohort	46%	14%	1%	6%	22%	22%

Figure 8. Percentages of patients with the recorded individual symptoms from the SAPS category Thought Disorder. Asterisks denote significantly different values.

Affective Flattening

	Non-responsive*	Paucity of Gesture*	Vocal Inflection*	Facial Expression	Inappropriate Affect	Decreased Movement	Eye Contact
■ 1930 Cohort	38%	18%	0%	20%	96%	96%	0%
■ 1960 Cohort	8%	0%	16%	8%	66%	66%	0%

Figure 9. Percentages of patients with the recorded individual symptoms from the SANS category Affective Flattening. Asterisks denote significantly different values.

Alogia

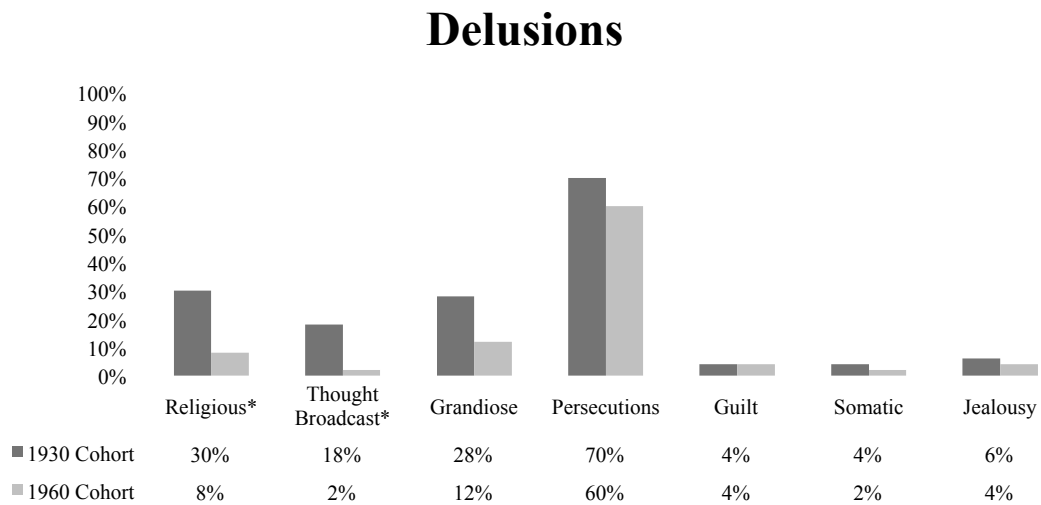|	Poverty of Speech*	Response Latencies*	Poverty of Content*	Blocking
■ 1930 Cohort	30%	24%	14%	0%
■ 1960 Cohort	4%	4%	0%	0%

Figure 10. Percentages of patients with the recorded individual symptoms from the SANS category Alogia. Asterisks denote significantly different values.

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Avolution-Apathy

|	Anergia*	Grooming	School/Work
■ 1930 Cohort	42%	0%	0%
■ 1960 Cohort	20%	0%	0%

Figure 11. Percentages of patients with the recorded individual symptoms from the SANS category Avolution-Apathy. Asterisk denote significantly different values.

Anhedonia

|	Relationships*	Intimacy*	Recreation
■ 1930 Cohort	62%	52%	0%
■ 1960 Cohort	16%	14%	0%

Figure 12. Percentages of patients with the recorded individual symptoms from the SANS category Anhedonia. Asterisks denote significantly different values.

Attention

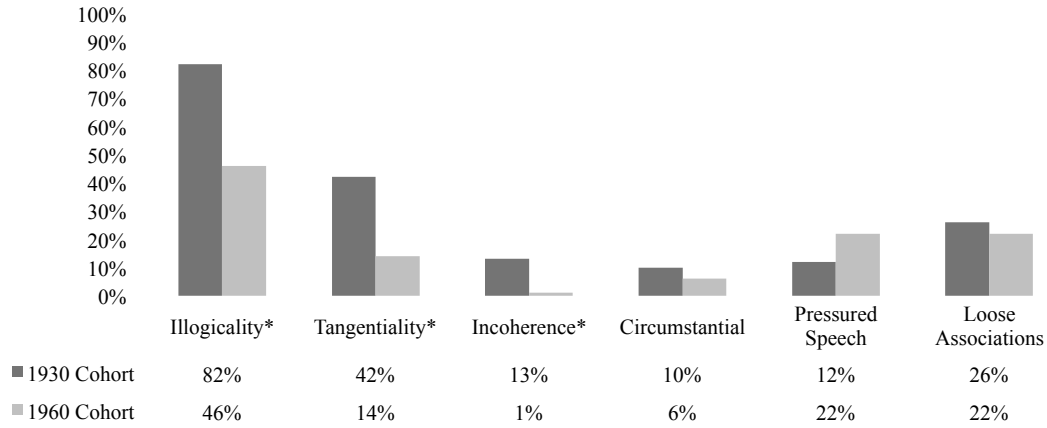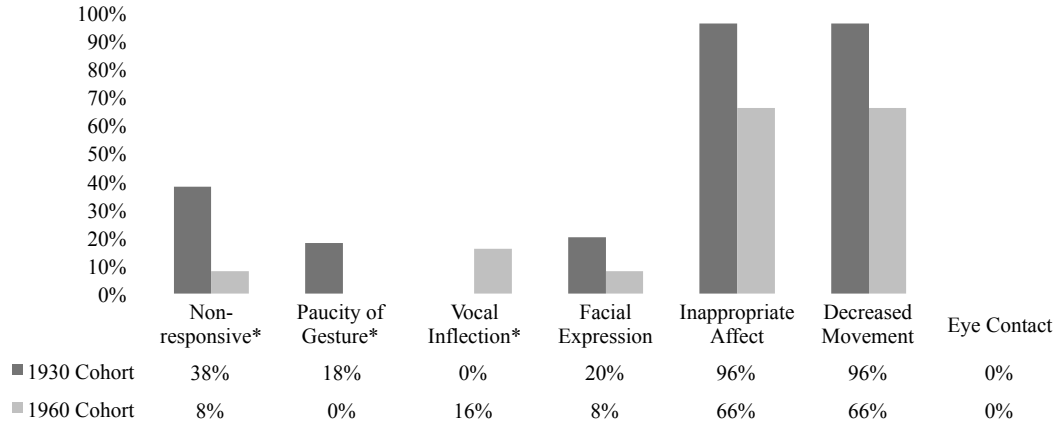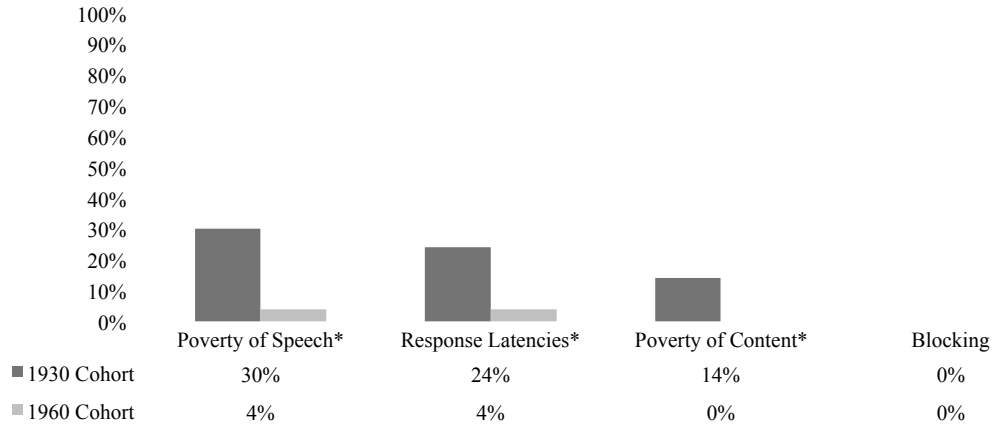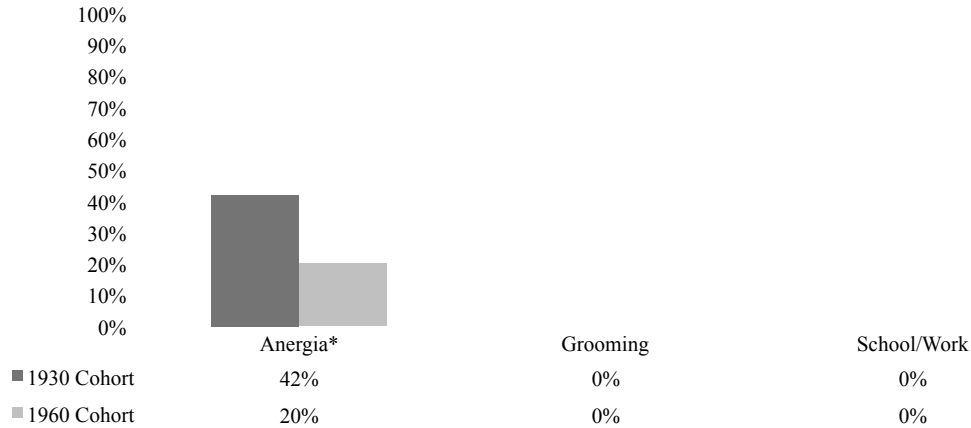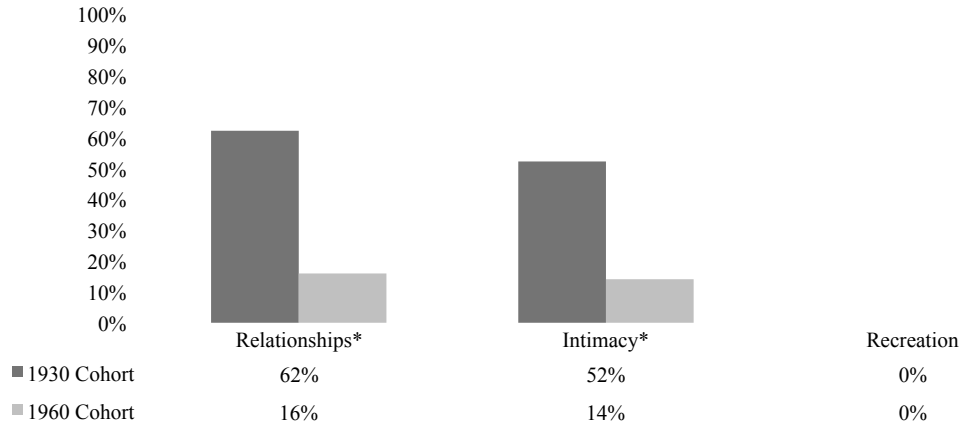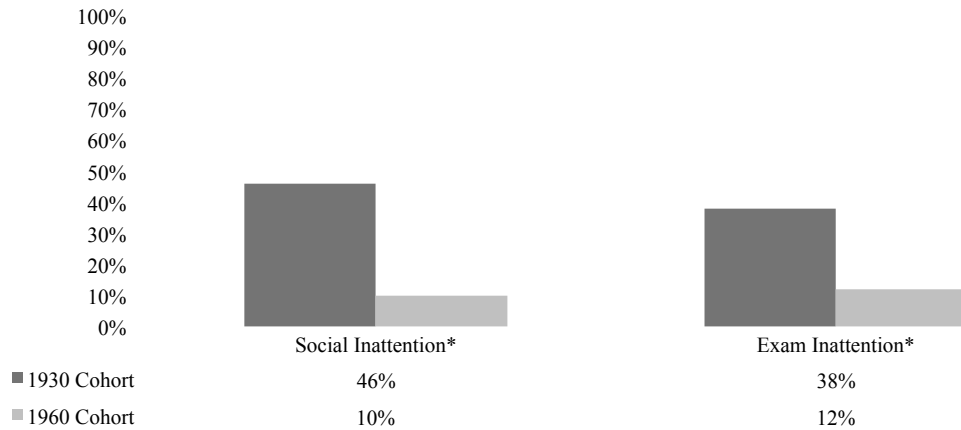|	Social Inattention*	Exam Inattention*
■ 1930 Cohort	46%	38%
■ 1960 Cohort	10%	12%

Figure 13. Percentages of patients with the recorded individual symptoms from the SANS category Attention. Asterisks denote significantly different values.

Hypothesis 2

A retrospective diagnosis using only *DSM-IV-TR* criteria would result in a

significant decrease in the total number of patients re-diagnosed with schizophrenia in the

1960 but not the 1930 cohorts. Results of retrospective diagnoses are shown in Table 2. A

pair-wise comparison of the percentages of patients retrospectively diagnosed using

DSM-IV-TR criteria revealed significant discordance between original and retrospective

diagnoses in the 1930 cohort (z=4.20, p< .025, two-tailed, OR= .70) and the 1960 cohort

(z= 7.83, p< .025, two-tailed, OR= .24. The implication of these results is that *DSM-IV-*

TR may be more restrictive than the *DSM-I,* which can lead to fewer patients diagnosed

with schizophrenia.

Table 2.
Number and percentage of patients with an original diagnosis of schizophrenia and
retrospective diagnosis of schizophrenia in the 1930 and 1960 cohorts using *DSM-IV-TR*
criteria.

Cohort	Original Diagnosis	Retrospective Diagnosis (*DSM-IV)*	Odds Ratio (OR)
1930	50 (100%)	35 (70%)	.70
1960	50 (100%)	12 (24%)	.24

Hypothesis 3

A retrospective diagnosis using *ICD-10* criteria will result in more patients

diagnosed as schizophrenic than patients retrospectively diagnosed using *DSM-IV-TR*

criteria in both cohorts. Pair-wise comparisons using a z-test revealed that the percentage

of patients retrospectively diagnosed with *ICD-10* criteria in the 1930 cohort was

significantly greater (z=-2.50, *p*< .025, two-tailed, OR= 1.24) than the percentage of

patients retrospectively diagnosed using *DSM-IV-TR.* There was no significant difference

between manuals in the percentage of patients retrospectively diagnosed with

schizophrenia in the 1960 cohort (z= -1.51, p> .025, two-tailed, OR= 1.58). A significant

result here suggests that following *ICD-10* over *DSM-IV-TR* criteria could result in

increased schizophrenic frequencies depending on when the patient was hospitalized. The

results of retrospective diagnoses according to diagnostic manual are shown in Table 3.

Table 3.
The number and percentage of patients retrospectively diagnosed with schizophrenia
using *DSM-IV-TR* and *ICD-10* criteria. Asterisks denote significantly different values.

Cohort	*DSM-IV-TR*	*ICD-10*	Odds Ratio (OR)
1930*	35 (70%)	45 (90%)	1.24
1960	12 (24%)	19 (38%)	1.58

DISCUSSION

Mental hospital populations in the United States increased around the years 1800 to 1960 (Torrey, 1980). Some scholars believe this increase was caused, in part, by an increase in the prevalence or incidence of schizophrenia. The main evidence for this hypothesis is the documented increase in first admissions for schizophrenia in US mental hospitals during the 1st half of the 20th century (Baumeister et al., 2012). However, critics of this idea argue that the increase was due to a change in diagnostic criteria that made the concept of schizophrenia less restrictive. This, in turn, would result in a diagnosis of schizophrenia for patients who would not garner a schizophrenic diagnosis before the putative change in diagnostic criteria (Andreasen, 1997; Jablensky, 1997).

The main goal of this study was to determine whether the recorded symptoms of patients admitted for the first time to a large state mental hospital in either 1930 or 1960 is suggestive of such a change. To this end, the present study 1) compared symptoms recorded in the files of patients admitted for the first time in either 1930 or 1960 with a diagnosis of schizophrenia, 2) used retrospective diagnosis to determine the percentage of patients in each cohort that would be considered schizophrenic by *DSM-IV-TR* standards, and; 3) compared the percentage of patients retrospectively diagnosed using criteria from two diagnostic manuals (*DSM-IV-TR* and *ICD-10*).

The results show that recorded symptom profiles for the two cohorts were different. Patient files in the 1930 cohort had more recorded classic symptoms associated with schizophrenia. These classic symptoms included hallucinations, delusions, and bizarre behavior. In addition to the classic symptoms of schizophrenia, alogia, inattention, and avolition-apathy were recorded significantly more often in the 1930 than

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the 1960 cohort. In contrast, the 1960 cohort was characterized by a dearth in total recorded symptoms and in classic symptoms of schizophrenia. Instead, as discussed in the results section, patients diagnosed with schizophrenia in the 1960 cohort were described as having bizarre behavior, thought disorder, anhedonia, and lack of vocal inflection.

The differences seen between the cohorts, with respect to recorded symptomology, were not limited to the classic symptoms of schizophrenia. With respect to positive and negative symptoms, patients in the 1960 cohort had 28% fewer recorded negative symptoms than patients in the 1930 cohort. One other symptom—recorded lack of vocal inflection—also increased significantly during the same timeframe.

Multiple explanations could account for the differences in symptom profiles as reflected in patient files of the two cohorts. One is that the patient files were more of a reflection of the theoretical orientation of the diagnostician than of actual patient symptoms. That is, patients in the 1960 cohort may have actually displayed similar symptoms to those of the 1930 cohort, but psychiatrists in 1960 – probably due to the ascendance of the psychoanalytic paradigm – described their patients in different terms, such as their personality reaction type. Thus, many patients were diagnosed as having a "schizophrenic reaction" to environmental cues, which required hospitalization and therapeutic interventions.

It is important to note, however, that even if a theoretical shift in the conceptualization of schizophrenia occurred, it had no effect on the percent of the patient population diagnosed with schizophrenia. This appears to contradict previous claim that a putative broadening of the concept of schizophrenia associated with psychoanalytic

thought was responsible for an increase the number of patients diagnosed with schizophrenia (Kuriansky et al, 1974, 1977).

Other explanations assume that the recorded symptoms reflect a real difference in clinical presentation of the two cohorts. Such an outcome could occur if 1) psychiatrists in the two cohorts were identifying different mental disorders but giving them the same label (i.e., schizophrenia), 2) psychiatrists were identifying the same disorder (i.e., schizophrenia) but the clinical manifestations of this disorder changed during the study period. Both possibilities are nearly impossible to evaluate.

The first could have occurred as a result of the apparent dramatic shift in the theoretical schema of the 1960 psychiatrists. It is suggested that this shift was the result of a rise in the psychoanalytic school of thought (Shorter, 1997). However, without additional evidence there is no way to know whether what the 1960 psychiatrists were calling schizophrenia was the same disease as what the 1930 psychiatrists called dementia praecox. Peripheral considerations, however, make it seem unlikely that what the 1960 psychiatrists were calling schizophrenia was something else.

The historic record is fairly clear that the disorder variously termed schizophrenia or dementia praecox, as defined by classical symptoms, constituted a major portion of the mental hospital population. If what the 1960 psychiatrists were calling schizophrenia was some other disease, then one is left to wonder what happened to all the actual schizophrenic patients. The problem with this is that mental hospitals at the time were severely overcrowded and there was strong pressure to reduce the patient population. In this context, it seems unlikely that patients with minor disorders (i.e., neuroses) would

have been hospitalized. Rather, they would more likely have been treated as "outpatients".

The other possibility – that both cohorts had schizophrenia but clinical manifestations of the disease had changed – is not only improbable but cannot be evaluated with the available evidence. The recorded symptoms of the 1930 and 1960 cohorts were dramatically different. It is difficult to understand how a common underlying disease could produce such different symptoms. Moreover, this explanation requires the assumption that a dramatic change in phenotype of schizophrenia occurred during the relatively short study period (i.e., 30 years), when, in fact, the classic form had clearly existed for at least 100 years.

Finally, there is simply no way to know whether the two cohorts had the same underlying disease process as that process has yet to be identified in modern times. Perhaps the underlying genetics or neuropathology remained constant, but other risk or modifying factors that affect the clinical phenotype (e.g., stress) changed. While this appears to be a logical possibility, again, it appears implausible. It would mean that some factors - either environmental or endogenous - that had a powerful influence on clinical presentation changed, again, in the course of three short decades. It would further mean that this change was limited to the United States, as studies of European patients have not shown the same change in symptom manifestation (Kuriansky et al., 1974).

All things considered, the first explanation appears to be the most parsimonious: Patients in both cohorts not only had a common underlying disease (i.e., schizophrenia) but, despite the clear difference in descriptors of the disease in the two cohorts, it is possible that both displayed core symptoms of schizophrenia. Accordingly, patients in the

1960 cohort had the classic symptoms of schizophrenia but because of theoretical orientation they were not deemed critical to the diagnosis and were not recorded. Of course without the ability to actually observe a patient's behavior neither this nor the other possibilities discussed above can be confirmed with certitude.

As discussed in the introduction, it is historically evident that a paradigm shift occurred, especially in American psychiatry, during the study period. The shift was sweeping in that it resulted in new formulations for most mental disorders. Succinctly and broadly put, the shift was away from a biological paradigm toward a psychoanalytic perspective. As noted above, the 1960 cohort was characterized by an overall low number of symptoms, a dearth of classical symptoms, and a comparatively larger number of non-classic symptoms (e.g. lack of vocal inflection). The recorded symptoms in the 1960 cohort appear to reflect a psychoanalytic orientation. Moreover, this orientation had a significant effect on how patients' and their symptoms were viewed. Psychoanalytic theory expected the observer (i.e. psychiatrist) to rely on intuition when making diagnostic judgments and not necessarily on observable symptoms. Specifically, it emphasized "the value of the observer's inability to feel with the patient and understand him" (Mayer-Gross, Slater & Roth, 1960, p. 283). Accordingly, a lack of rapport with the patient was one of the most important diagnostic indicators used by psychoanalysts (Mayer-Gross et al., 1960). If such "intuition" rather than symptoms was important during schizophrenia diagnoses for the 1960 cohort, this might explain the relative dearth of recorded symptoms in patient files from 1960.

As noted above, the influence of this paradigm is evident in the files of the 1960 cohort. One line of evidence for a psychoanalytic influence apparent at ELSMH in 1960

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was the use of Rorschach tests in diagnosing schizophrenia. Indeed, patient files from the 1960 cohort indicated that second evaluation psychiatrists withheld diagnosis until results of a Rorschach test were analyzed. This was not the case for patient files from the 1930 cohort, as there was no indication of Rorschach tests used for diagnostic purposes. Patients in the 1930 cohort appeared to be diagnosed with schizophrenia based on psychotic symptom-complexes, once other organic causes could be ruled out (e.g. cerebral arteriosclerosis or meningitis; Jaspers, 1962).

A diagnosis of schizophrenia based on the unconventional recorded symptomatology, as seen in the 1960 cohort, could also have been influenced by reliance on *DSM-I* guidelines. The *DSM-I* was published in 1952. As discussed in the introduction, the *DSM-I* closely mirrored Bleuler's concept of schizophrenia and differed from that of Kraepelin. The first *DSM* not only lacked a symptom duration requirement, but also did not require the presentation of florid psychotic symptoms. This could account for the dearth of psychotic symptoms recorded in the 1960 cohort.

Thus, it is conceivable that even though description of patient symptoms in the 1930 and 1960 cohorts were different, patients in both cohorts nevertheless displayed the classic symptoms of schizophrenia. This is supported by the constancy of the percent of the hospital population with this diagnosis across time. However, this would seem to imply that despite the change in descriptors entered into patient files, the diagnostician was aware of the presence of classic symptoms and at some level accounted for them in the diagnostic process.

The results of the retrospective diagnoses show that the recorded symptoms of the 1930 but not 1960 cohort closely resemble current diagnostic criteria for schizophrenia.

Seventy percent of patients in the 1930 cohort received a retrospective diagnosis of schizophrenia, whereas this is true of only 24% of the 1960 cohort. The results for the 1930 cohort are similar to those reported by Jablensky et al. (1993; p. 849). In that study, 88.6% of a sample of Kraepelin's original patients diagnosed with dementia praecox the retained this diagnosis based on *ICD-9* criteria. On the other hand, the recorded symptoms in the 1960 files are not suggestive of schizophrenia by today's standards. However, it is important to remember that the recorded symptoms from the 1960 cohort may not reflect actual patient symptoms. All that can be said with confidence is that the 1930 records (not, necessarily patient characteristics) show good concordance with current diagnostic criteria; the 1960 records do not.

The present results also reveal a difference between the *DSM-IV-TR* and *ICD-10* when used for retrospective diagnoses. For the 1930 cohort, the percentage of patients retrospectively diagnosed using *ICD-10* criteria (90%) was significantly greater than the percentage of patients retrospectively diagnosed using *DSM-IV-TR* criteria (70%). As discussed above, this suggests that the patients in the 1930 cohort seemed to be diagnosed using Kraepelinian criteria. In addition, the present study supports other studies (Hiller et al., 1993; Wilson, 1993), which report that the *ICD* results in more diagnoses of schizophrenia than does the *DSM*. Nevertheless, retrospective diagnoses results revealed that a higher percentage of patients from the 1930 cohort retained the diagnosis of schizophrenia than the percentage of patients in the 1960 cohort, regardless of the diagnostic system (i.e., *DSM* or *ICD*) used.

In short, this study reveals and highlights a few issues surrounding the clinical history of schizophrenia. It is clear that the definition of schizophrenia has changed and

evolved since its inception in the early 20th century. A central part of this change has to do with the symptoms clinicians identify for diagnosis. This study does confirm the hypothesis that schizophrenia criteria changed during the period under study. As discussed above, many scholars argue that increases in schizophrenia incidence from 1930 to 1960 are a direct result of these fluctuating criteria. This study, however, does not support that hypothesis. While a change in schizophrenia criteria is evident, this study could not link such a change to an increase in schizophrenia incidence.

A limitation of the present study is external validity. That is, the degree to which the present results generalize to other hospitals, states, and geographic regions is unknown (Campbell & Stanley, 1963). The author knows of no reason to question the representativeness of the present data to other large state hospitals at that time. Indeed, ELMHS was typical in size, type of patients, and general resources of other large state hospitals. Nevertheless, the external validity of the present results is an empirical question that needs to be addressed in future research.

CONCLUSION

The main purpose of this study was to determine whether evidence contained in patient files from a large state mental hospital indicates that the criteria used to diagnose schizophrenia changed between 1930 and 1960, and whether such a change may explain reported increases in the diagnosis of schizophrenia during this time. The results are consistent with a change in diagnostic criteria, but they are not conclusive because the nature of the correspondence between symptoms recorded in patient files and actual patient symptoms is unknown. Consistent with other studies, the present study also revealed a growing influence of the psychoanalytic school in hospital psychiatry. Others have argued that the boundaries that define schizophrenia are more broad and ambiguous in the psychoanalytic perspective, resulting in an increase in the diagnosis of schizophrenia. The most important observation revealed by the present study is that despite a clear shift toward psychoanalytic thinking, there was no increase in prevalence of diagnosis of schizophrenia. This calls into question the view held by many that the apparent increase in diagnosis of schizophrenia was related to the increasing importance of psychoanalytic thought.

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APPENDIX A

Scale for the Assessment of Positive Symptoms (SAPS)

Hallucinations

Auditory	Visual	Somatic

Delusions

Guilt	Grandiose	Religious
Somatic	Thought Broadcast	Persecutions
Jealousy		

Bizarre Behavior

Aggressive	Appearance	Sexual Behavior

Thought Disorder

Incoherence	Illogicality	Circumstantiality
Pressured Speech	Loose Associations	Tangentiality

Scale for the Assessment of Negative Symptoms (SANS)

Affective flattening

Paucity of gestures	Poor eye contact	Affective non-responsiveness
Lack of vocal inflection	Inappropriate affect	Unchanging facial expressions
	Decreased movement	

Alogia

Blocking	Increased response latencies	Poverty of speech
	Poverty of content of speech	

Avolition-Apathy

Anergia	Grooming and hygiene	Impersistence at work/school

Anhedonia

Intimacy	Relationships	Recreational activities
Sexual interest		

Attention

Socially inattentive	Inattentive during exam

LSU

Office of Research & Economic Development

July 16, 2015

To: Michelle Masse
                    Dean of the Graduate School
                    Louisiana State University

Through: Matthew Lee
                    Associate Vice Chancellor

CC: Emily Elliot
                    Kristopher Henderson

Last week I was informed that a graduate student, Kristopher Henderson, in the Department of Psychology, defended his thesis but had not submitted an application to the IRB. His graduate advisor is Professor Emily Elliot.

Just recently, the IRB received the materials that should have been submitted prior to data collection. I reviewed the project files to learn how the study was conducted, but, as you know, it is not possible for an IRB to give retroactive approval to a study.

According to his materials, Mr. Henderson's study involved an analysis of publicly available archival data devoid of any personal identifying information. If the project was, in fact, conducted as described in Mr. Henderson's materials it could have been done with an exempt approval under the existing data category. Let me repeat, though, that this project was not approved. I'm simply indicating the probable decision had an application been properly submitted.

Sincerely,

Dennis Landin
William Prescott Foster
Professor Chair, Institutional
Review Board

VITA

Kristopher Henderson graduated from Louisiana State University with a Bachelor's of

Arts in Psychology. He also holds an Associate's Degree in Marine Diving Technology

from Santa Barbara City College. He currently lives in New York State with his beautiful

wife Keren and their two sons Kol and Kai.