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Social disorder and diagnostic order: the US Mental Hygiene Movement, the Midtown Manhattan study and the development of psychiatric epidemiology in the 20th century

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Abstract

Recent scholarship regarding psychiatric epidemiology has focused on shifting notions of mental disorders. In psychiatric epidemiology in the last decades of the 20th century and the first decade of the 21st century, mental disorders have been perceived and treated largely as discrete categories denoting an individual's mental functioning as either pathological or normal. In the USA, this grew partly out of evolving modern epidemiological work responding to the State's commitment to measure the national social and economic burdens of psychiatric disorders and subsequently to determine the need for mental health services and to survey these needs over time. Notably absent in these decades have been environmentally oriented approaches to cultivating normal, healthy mental states, approaches initially present after World War II. We focus here on a set of community studies conducted in the 1950s, particularly the Midtown Manhattan study, which grew out of a holistic conception of mental health that depended on social context and had a strong historical affiliation with: the Mental Hygiene Movement and the philosophy of its founder, Adolf Meyer; the epidemiological formation of field studies and population surveys beginning early in the 20th century, often with a health policy agenda; the recognition of increasing chronic disease in the USA; and the radical change in orientation within psychiatry around World War II. We place the Midtown Manhattan study in historical context—a complex narrative of social institutions, professional formation and scientific norms in psychiatry and epidemiology, and social welfare theory that begins during the Progressive era (1890-1920) in the USA.

Key words: Psychiatry, psychiatric epidemiology, history, health services, methods, survey research, community studies

Key Messages

- Contemporary psychiatric epidemiology, especially survey research, defines mental disorders as discrete, narrow entities arising in broad, often national population samples. In contrast. at mid-century, two landmark investigations, the Midtown Manhattan and the Stirling County studies, conceptualized mental health as a continuum, from normal to abnormal. Each was sensitive, at least implicitly, to the need to find a basis for cultivating positive mental health, an aim noticeably absent from contemporary psychiatry and social psychiatry.
- Both the Midtown Manhattan and Stirling County studies sought to measure the prevalence of mental disorders and mental health in specific communities, seeking explanations for the resilience and vulnerability of their respective populations in the total biocultural environment, its equilibrium and disequilibrium, of a particular place over time. Such recognition of the importance of place has largely fallen away in contemporary psychiatric epidemiology.
- Both studies were deeply influenced by historical forces ranging from the urban reformism of the Mental Hygiene movement to the profound revisions in psychiatry and federal funding of science fostered during the Second 'world War. An historical analysis of psychiatric epidemiology in the United States contextualizes current work in the field and provides a developmental arc that permits us to critically examine the latter, its origins and limitations.

Introduction

Recent scholarship regarding psychiatric epidemiology has focused on changing notions of mental disorders. In psychiatric epidemiology in the last decades of the 20th century and the first decade of the 21st century, mental disorders have been perceived and treated largely as discrete categories denoting an individual's mental functioning as either pathological or normal. In the USA, this grew partly out of evolving modern epidemiological work responding to the State's commitment to measure the national social and economic burdens of psychiatric disorders and subsequently to determine the need for mental health services and to survey these needs over time.

This effective beginning of this approach occurred in the 1980s with the Epidemiological Catchment Area (ECA), discussed below; the ECA marked an important moment of transition in community-based survey research of psychiatric disorders to determine both disease burden and service need. On its heels, a symbiotically developing set of scientific technologies, both research and clinical, and State needs, enabled and encouraged the field to study narrowly defined psychiatric disorders in nationally representative populations. Landmark studies such as the National Comorbidity Survey (NCS) conducted in the 1990s and its replication about a decade later relied necessarily on discrete psychiatric diagnoses, and effectively relegated the community to the background.

In the immediate post-World War II decades, areas of US culture, like the architecture and urban planning literature, addressed place—specifically cities—as a source of well-being.[1] So too did psychiatry and social epidemiology, which developed environmentally oriented approaches to cultivating normal, healthy mental states. At the time, psychiatry effectively localized the study of social stratification, conceptualizing place (such as a city) either as a determinant of mental disorders or as a source of resilience for individuals and populations,[2] and psychiatric epidemiology in the USA investigated mental health prevalence in specific communities, despite somewhat restricted notions of community.[3]

In contrast to current psychiatric epidemiological survey research were two particularly prominent and critical postwar investigations, the Midtown Manhattan and the Stirling County (Nova Scotia) studies, both begun at approximately the same time in the late 1940s and early 1950s. They conceptualized mental disorders as on a continuum from normal to abnormal, and were particularly interested in the sociocultural factors that either precipitated or protected against mental problems. These studies grew out of a *zeitgeist* that considered communities to be the best locus of prevention, diagnosis and treatment of psychiatric disorders. In this paper, we focus primarily on the Midtown Manhattan study, placing it in its historical context—a complex narrative of social institutions, professional formation and scientific norms in psychiatry and epidemiology, and social welfare theory that begins during the Progressive era (1890-1920) in the USA.

The Midtown Manhattan and Stirling County studies were interdisciplinary epidemiological investigations of variations in mental health status in two contrasting communities, with a particular interest in sociocultural and life-course factors as possible determinants or correlates of mental health. They represented a unique application of quantitative social science in the service of psychiatry and

an ameliorative impulse to epidemiology, redolent of post-war optimism; they also had deep historical roots, some from the early 20th century. They grew out of a holistic conception of mental health that necessarily depended on social context and had a strong historical affiliation with: the Mental Hygiene Movement and the philosophy of Adolf Meyer; the epidemiological formation of field studies and population surveys beginning early in the 20th century, often carrying a strong health policy agenda; the recognition of the growing weight of chronic disease in the USA; and the radical change in orientation within psychiatry during and directly following World War II. Explicit in both community studies was an interest in the status of normal mental functioning in a given place and what macro- and micro-level environmental factors led individuals and groups within a population to deviate from it to some measured degree. This interest can be traced to the Mental Hygiene Movement and an influential set of actors who shaped psychiatry and an important paradigm in the history of psychiatric epidemiology.

Psychiatry and the Mental Hygiene Movement

The Mental Hygiene Movement is linked closely to Clifford Beers (1876-1943), a middle-class businessman and psychiatric patient who authored the classic *The Mind that Found Itself*,[4] based on his treatment in an asylum for manic depression. His express purpose was to initiate and lead a social movement to reform asylum care in the USA. Supported by the Harvard psychologist and philosopher William James and eager to enlist members of the psychiatric profession, Beers formed a contentious but fruitful relationship with Adolf Meyer (1866-1950), one the most influential figures in North American psychiatry during first half of the 20th century. It was Meyer who convinced Beers to change his goal from the improvement of the conditions under which the insane were treated to the broader but more amorphous objective of furthering mental hygiene.

Mental hygiene became the grist of a social and political movement, guided by key figures like Meyer and organizations like the National Committee for Mental Hygiene (NCMH) that he and Beers help found. The NCMH promulgated its aims in 1908: fostering healthy ways of living, preventing the onset of mental illness and offering efficient care and treatment to those who succumbed. The Mental Hygiene Movement, as reflected in the aims of the NCMH, fed a number of important interests. It fitted neatly into the contemporary Progressive ideology, which saw the solution to pressing urban problems in the application of science by elite experts. For psychiatrists, the Mental Hygiene Movement justified their shift away from institutionalized custodial care and incurable patients while offering them new possibilities for service and status within the urban community. At the heart of this goal was the promotion of a context in which both individuals and populations remained normal, where normal was not simply the converse of abnormal. Within the community, psychiatry could claim for itself the prevention and treatment of social pathologies and new classes of clients.[5] Thus, issues like alcoholism, family dysfunction, child guidance and educational reform, as well as surveys of 'social maladjustment', became areas demanding psychiatrists' expertise. Here their intervention drew support from that segment of the public fearful of immigrants, the poor, venereal disease and urban populations of psychopaths, truants, delinquents, prostitutes and other deviant elements.[6]

The protean influence of Adolf Meyer

The man responsible for deflecting Beer's primary interests in hospital reform, Adolf Meyer, was himself a man of institutions. A Swiss-born and educated psychiatrist and neurologist, Meyer began his American professional life at a number of venerable mental hospitals before taking a permanent position as the inaugural director of the Henry Phipps Psychiatric Clinic at Johns Hopkins University, where he was also appointed professor of psychiatry in the medical school. Meyer's influence derived in part from his 'broad eclecticism',[7] which allowed him to incorporate into his psychiatric worldview multiple scientific and philosophical currents from behaviourism to Freudian psychoanalysis, as well as from his role in diffusing European psychiatric theories in the USA and his importance as an educator of hundreds of psychiatrists, including those who took leading academic positions in the USA and abroad. Among his students were Alexander Leighton (1908-2007), associated with the landmark Stirling County study, and Thomas A.C. Rennie (1904-56), progenitor of the Midtown Manhattan study.

The historian of psychiatry, George Mora, characterized Meyer as one who 'built psychiatry on a firm clinical basis and viewed mental illness as the result of the interplay of constitutional, developmental and environmental factors'.[8] Meyer stressed a psychobiological approach that physicians, in treating patients, should trace the life course in as much detail as possible.[6] Psychiatrists' diagnoses and treatment should be based on a patient's biography, not solely on his or her current signs and symptoms. He fervently believed that individuals could be studied scientifically by empirical observation of their natural histories and the use of clinical episodes, 'with their emphasis on testing

by multiple, accurate observations' to uncover 'dynamic processes'.[9] Recognizing the complexity of human behaviour, he advocated interdisciplinary dialogue and cooperation across the social sciences.[10]—This was manifest in later neo-Freudian work interpreting psychoanalytical theory through social and cultural lenses, such as Karen Horney's treatise on the origins of modern neurosis, *Our Inner Conflicts*,[11] and Erich Fromm's theoretical and philosophical exposition of alienation in contemporary society, *The Sane Society*[12]—and prefiguring the teams of workers who would undertake the Stirling County and Midtown Manhattan investigations.

Meyer stressed the importance of human adaptation and the centrality of interaction between the person and his/her environment, so that the individual functioned efficiently and effectively.[13] For Meyer:

> The whole man includes all levels of integration from the biochemical to the psychological, and the total environment includes all levels from the physical to the social. The social factors, in turn, embrace not only personal relationships with particular individuals, but also the culture and nature of the group to which the patient and these individuals belong.

This holism extended to the sociocultural environment as a unit or place, which Meyer recognized could affect the production of psychopathology in populations, much as poor local hygiene could affect the rates of infectious diseases.[10] Few other psychiatrists in his time stressed the importance of social and cultural factors in the genesis and prevention of mental disorders or appreciated the importance of social scientists in mental hygiene.

Meyer, however, had a strong interest in sociology and personal ties with members of the Chicago school of sociology, based at the University of Chicago, with its focus on the dynamic structural and ecological relations that framed cities, their communities and subcultures. Robert Park, one of the formative members, highlighted this complex of relations and human integration in his influential essay 'Human migration and the marginal man',[14] drawing attention to the transition and crises affiliated with migration and assimilation in a new context, which he describes as 'inevitably a period of inner turmoil and intense self-consciousness'.[14] Ernest Burgess, another member of the Chicago school, wrote of 'the tendency at present…to think of the city as a living organism…This notion of the city in terms of growth and behavior gives the character of order and unity to the many concrete phenomena of the city which otherwise, no matter how interesting, seemed but meaningless flotsam and jetsam in the drift of urban life'.[15] Although the Chicago school was particularly interested in the sources and consequences of urban dysfunction, among which was which conflict within the individual, it did not focus expressly on mental disorders. Among the exceptions were Robert Faris and H. Warren Dunham; they examined the ecological distribution of mental disorders in Chicago and the association of patients with diagnosed mental disorders with the degree of urban social organization or disorganization in the neighbourhoods in which they resided.[16] Their study, published as *Mental Disorders in Urban Areas*,[17] came to be an important predecessor to the Midtown Manhattan study.

Meyer's thesis of organic holism, in which different levels interact within the individual and between the individual and social institutions and culture, also pervades the Stirling County study, as Alexander Leighton readily acknowledged.[18] Thus, psychological disorders may progress because of limitations within the person or because of sociocultural conditions that help initiate and sustain disease or, more usually, a combination of the two.[9] The mental status of individuals was the consequence of accumulated reactions or adaptations to internal (individual) and external (social) environments, mediated by the person's biological susceptibilities and strengths. A similar argument was made by Thomas Rennie, who underscored the linkage between sociocultural environment and mental health and called for 'a working relationship between the social scientist and the psychiatrist',[10] a type of synergistic social science collaboration concerned with the plight of modern man and social relations within the structures of urban industrialized society. This was notable in landmark studies such as August Hollingshead and Frederick Redlich's *Social Class and Mental Illness*[19] and *The Lonely Crowd* by David Reisman with Nathan Glazer and Reuel Denney.[20] Both studies recognized that psychiatric disease, like somatic disorders, arose in a particular space with its own conflicts, history and dynamic changes; to understand the prevalence of mental illnesses, one had to comprehend that rich and complex context. These conceptions of psychiatric disease stand in marked contrast to research that has dominated the past half-century of aetiological investigation with a strong emphasis on biological and genetic determinants.

Community and population surveys: capturing morbidity in epidemiological field studies

As Meyer was aware, the Chicago school of sociology developed survey instruments and indices in various field studies. This was part of a trend dating to the turn of the century when reformers like Jane Addams of Hull House conducted surveys on the plight of impoverished

Chicagoans.[21] As Mervyn Susser has pointed out, field surveys were also an important component of cross-sectional community studies, the most important research design in epidemiology in the USA prior to World War II.[22] Such studies form another historical stream influencing the Midtown Manhattan and the Stirling County studies.

In fact, scientific field studies in the USA were pioneered by Edgar Sydenstricker (1881-1936) of the US Public Health Service. A Progressive social scientist and statistician, he was one of the most important US epidemiologists of the interwar period, anxious to develop techniques to capture the rate of morbidity where hitherto researchers had depended upon mortality data. With Joseph Goldberger (1874-1929), Sydenstricker created a household canvassing method to capture the incidence of pellagra and family-level socioeconomic data in seven mill villages in South Carolina. Community studies allowed Goldberger and Sydenstricker to collect information on those most at risk of pellagra, poor southern labourers, within their habitual environment. Through close analyses of income and food consumption, controlling for family size and structure, Sydenstricker firmly linked pellagra, whose sequelae included dementia, to dietary deficiency and poverty.[23] He thereafter applied household canvassing to field studies of the influenza epidemic of 1918-19, working with Wade Hampton Frost (1880-1938), soon to be appointed by Johns Hopkins University as the first US professor of epidemiology.[24] Sydenstricker subsequently initiated a prospective survey of self-reported morbidity in a sample of 7200 White inhabitants of Hagerstown, Maryland, between 1921 and 1924. His work directly influenced a survey by the Committee on the Costs of Medical Care (CCMC), a convenience sample of 9000 White households to measure the prevalence and duration of illnesses and the cost and accessibility of medical resources, conducted between 1927 and 1931,[25] and also the Depression era National Health Survey of 1935-36, a non-random sample of 2.5 million individuals, focusing specifically on chronic disease and disabilities.[26] Both studies concluded that the poor suffered disproportionately from illnesses, providing evidence for a national system of health insurance favoured by Sydenstricker and other organizers of the Survey. Although the National Health Survey was not a community study, its findings did allow for investigating prevalence in communities or within community groups. For example, the psychiatrist and health administrator Paul Lemkau and his colleagues drew on the Survey's data for the Eastern District of Baltimore to analyse the age-, race-, gender- and income-specific prevalence of 'mental hygiene' problems, including psychoses, psychoneuroses, epilepsy and mental deficiency in children and adults. Although many of these individuals had been previously diagnosed, the Survey discovered untreated cases as well.[27]

In the mid 1930s, Sydenstricker and Frost also designed a longitudinal field survey of the prevalence and incidence of chronic disease, including psychiatric disorders, in a sample of White households residing in Baltimore's Eastern Health District.[22] With the premature death of both men, the survey of the incidence and prevalence of chronic disease was fielded from 1938 to 1943 by Jean Downes, a long-time colleague of Sydenstricker's. Among her findings was that the index cases suffering psychiatric disorders tended to also experience a greater frequency of acute health events, and that their families had a higher rate of chronic disorders than the totality of families in the survey.[28] According to historian George Weisz, the results garnered by the National Health Survey and the Baltimore Longitudinal Study probably helped catalyze renewed interest in chronic disease within the Public Health Service—and subsequently the National Institutes of Health—after World War II.[26]

Early in the next decade, the Commission on Chronic Illness, established, like the CCMC, by the leading US health care associations, set out to publicize the importance of long-term illnesses and disabilities, their distribution and treatment. It sponsored classic field surveys in the Sydenstricker mould, including a Baltimore study that included data on the prevalence of psychoses, psychoneuroses and other psychological illnesses, one of the first to provide a considerable level of detail.[29] The work of the Commission, published in multiple volumes, of which the Baltimore survey was the fourth and last, was according to Mervyn Susser 'largely incorporated in the continuing National Health Survey repeated at intervals since 1956'.[22] On the heels of earlier community studies, the work of the Commission on Chronic Illness, in which for example interviews were completed in all but 2% of the Baltimore addresses selected for sampling, demonstrated the willingness of 'free-living' populations to be surveyed for chronic disorders, including mental disease.

Wartime lessons

Along with the long-term influence of Adolf Meyer and that of community surveys, World War II had a profound effect on psychiatry; it provided, for example, substantial evidence that neuropsychiatric disorders were more prevalent than anticipated, owing to developments in illness detection. Of 16 million men who received pre-induction medical examinations, 12% were rejected for psychiatric or cognitive reasons, a third of those found unfit to serve by military physicians.[30] More personnel were discharged

after induction, underscoring the need for continuous psychiatric screening during different phases of uniformed service and sounding the alarm for pre-induction screening tests with greater sensitivity. The search for more effective tools produced sceptics who held that screening criteria were often capricious and arbitrary and based on incomplete information; the unsuccessful attempt by the military to deal with these objections by creating a national surveillance and data gathering system, the Medical Survey Program, only aided the opponents of mass screening.[31] Adding to the problems of the induction centres was the insufficient number of psychiatrists available for screening, the subsequent turn to physicians without relevant training or experience and, given the sheer number of potential inductees, the need to diagnose psychiatric status in a matter of minutes.

As a partial solution, the military through the Surgeon General's Office sought to develop a paper-and-pencil screening test, an inventory that could be self-administered by groups of inductees and which 'referred to the existence, past and present, of psychosomatic manifestations, psychiatric symptoms, antisocial behavior and the like'.[32] By 1944 such an instrument, one that reduced the number of psychiatrists' screening interviews by two-thirds, was officially adopted. Called the Neuropsychiatric Screening Adjunct (NSA), the test correctly identified an estimated 80% of those unfit for military service because of psychoneuroses (but did less well with other diagnoses). In part based on previous symptom reviews like the Cornell Medical Index which followed upon the Minnesota Multiphasic Personality Inventory, items from the successful NSA were later culled for the construction of the Midtown study's research instrument for community-dwelling individuals, the Home Interview Survey, a forerunner to structured and semi-structured interviews used in contemporary psychiatric survey research, discussed below.[33]

Wartime experience also convinced psychiatrists of the acute importance of environmental factors, especially those arising from prolonged combat, in the aetiology of neuropsychiatric problems; by changing key environmental features through practical measures, they discovered that battlefield-related psychiatric casualties could be successfully treated.[31] In addition, they realized that where and when therapy was initiated made a vital difference. Faced with untenable rates of mental deterioration under the stress of warfare, military psychiatrists found that with early diagnosis and supportive treatment in non-psychiatric military facilities, the vast majority of cases could be rehabilitated for combat duty or, failing that, for non-combatant roles. By keeping psychiatric casualties close to their fighting units and critical social relationships, combining sedation with psychotherapy and emotional support, and adding rest and creature comforts, military psychiatrists enjoyed considerable success.

The practical success of military psychiatrists led many to believe that the wartime experience should and could be applied to civilian populations. In particular they argued that prompt identification of psychiatric symptoms and treatment in the community, close to family and friends, could successfully forestall further mental deterioration and with it the need for psychiatric hospitalization, still the major locus of American psychiatry.[31] That therapeutic optimism also included a turn towards the psychodynamic approaches to treatment that had been so useful in dealing with wartime neuroses and psychosomatic issues. After 1945, according to Gerald Grob, historian of mental health policy and medicine:[34]

> The traditional preoccupation with the severely mentally ill in public hospitals slowly gave way to a concern with the psychological problems of a far larger and more diverse population…Persuaded that there was a continuum from mental health to mental illness, psychiatrists shifted their activities away from the psychoses toward the other end of the spectrum in the hope that early treatment of functional but troubled individuals would ultimately diminish the incidence of more serious mental illness.

The lessons that wartime psychiatry extrapolated from hard-won experience could only become policy with the support of powerful allies, especially within the federal government. Here a key figure was Robert Felix, a protégé of Lawrence Kolb, whom he succeeded during the war as head of the US Public Health Service's Division of Mental Hygiene. Having been sent to Johns Hopkins University to study public health, he was influenced by Adolf Meyer and impressed with the importance of a public health approach to mental health that included prevention. With the backing of Thomas Parran, the powerful US Surgeon General, and the formidable lobbying power of Mary Lasker and Mary E. Switzer, champions of federal support for biomedical research, Felix subsequently received critical support from key congressmen who pushed the passage in 1946 of the National Mental Health Act. The purpose of the Act was to foster mental health research, award grants for professional training and development and provide funds to the US states to underwrite clinics and demonstration projects. To accomplish these goals, Felix envisioned and created the National Institute of Mental Health (NIMH), inaugurated in 1949, which he headed until his retirement in 1964. Without championing a particular school of psychiatry, he favoured a public health approach that focused on community well-being, particularly through the proliferation of outpatient community clinics to treat all

mental disorders. Gerald Grob describes the hope Felix and the NIMH placed in these new facilities:[31]

> In the eyes of their advocates, community clinics were the institutional embodiment of the continuum and psychodynamic model of mental illness; the presumption was that early diagnosis and treatment would obviate subsequent institutionalization.

Robert Felix also envisioned interdisciplinary research that included psychiatrists and behavioural and social scientists to assay the effect of the community environment on the development of mental health and disease. Here he could draw on quantitative sociologists and psychologists who, during the New Deal and especially the War, had been critical along with statisticians in the development of sophisticated survey research methodology and the elaboration and application of random sampling techniques that were gaining wide acceptance by the late 1940s.[35] Felix was a strong proponent of epidemiology, perceiving it as the tie that bound the clinical and social scientific disciplines. The NIMH thereby provided the powerful policy and funding platform that made the study of the spectrum of mental disorders in the community possible.[34] Under Felix, an institutional and research context took shape in which the dynamic between community psychiatry and public policy would play out. Generations of key studies, offering snapshots of mental disorders at a given time in the USA, were born of this marriage.

Like other psychiatrists who served their country, World War II deepened Rennie and Leighton's professional commitments. During the war Leighton worked in the Office of War Information, heading the Morale Analysis Division that among other tasks studied Japanese Americans interned in Arizona; he also served as a member of the US Strategic Bombing Survey after Japan's surrender. From these experiences, Leighton developed an increasing interest in the effect of community disintegration on the mental health of its citizens. Rennie, a civilian, was drawn to the psychological rehabilitation of men suffering war-related disabilities.[9,30] He served in many capacities, becoming director of the Division of Rehabilitation of the National Committee for Mental Hygiene for whom he co-authored a widely read lay pamphlet.[36] By August 1943, he established and directed the New York Hospital Rehabilitation Clinic, one of the first psychiatric venues for treating veterans and a model for other cities.[37] These clinics provided brief therapy for veterans who did not require hospitalization. This was in keeping with the military's approach in the theatres of war and stressed non-institutionalized care in the community. Here was an opportunity for men who had been caught in the destabilizing experience of combat and military culture to reintegrate psychologically and socially. And in the Midtown study, these men had an opportunity to bring the armamentarium of military mental health approaches and skills to bear on an investigation in service of mental illness prevention and mental health promotion in civilian society.[37]

The burdens of proof: the Midtown Manhattan and Stirling County studies

Leighton and Rennie took the opportunity to collaborate with others in what would become the apogee of a holistic approach to conceptualizing mental health, as opposed to psychiatric disorder, and its sociocultural determinants in the context of survey research. When they launched their research in the early 1950s both Leighton and Rennie were professors at Cornell University, the former in Ithaca, New York, the latter at its medical college in New York City. The Stirling County and Midtown Manhattan studies bore many similarities and the stamp of Adolf Meyer, although they were independent of each other. Until Rennie's early death in 1956, each man served as an *ad hoc* adviser to the other's project. Thereafter, Leighton became Midtown's director and coordinator, supervising the data analysis and the penning of its famous report published in 1962.[38]

Both investigations continued and expanded upon the scientific study of mental disorders in the community emphasizing the enumeration of previously unrecognized cases, and thus moving towards capturing the true prevalence of mental disorders, not just 'treated prevalence' or the prevalence of disorders among those presenting for treatment. (The difference between the two measures would constitute a vigorous debate in psychiatric epidemiology.) Both studies sought to contextualize mental health, as previously stated, within a social and cultural environment perceived as either 'benign' or 'noxious'.[39] And each either implicitly or explicitly returned to the ultimate goal of mental hygiene, namely finding a scientific basis for preventing mental disorders and supporting mental health in a social space—specific, concrete communities. In his introduction to the Midtown Manhattan Study, published posthumously, Rennie made that clear:[39]

> We must realize that psychiatric disorder occurs in persons nurtured in a particular family constellation and living in a highly specific sociocultural environment…If psychiatry is truly to move into a vigorous period of real preventive work, it must begin to look beyond the individual to the forces within the social environment which contribute to the personal dilemma.

That point was echoed by Leighton who wrote, in his introduction to the first volume on the Stirling County

study, 'We look forward to the day when enough will be known about sociocultural factors to allow prevention in a public health sense through deliberate change in the human environment'.[18]

This perspective was hardly germane to Americans only. In France for example, as Nicolas Henckes demonstrates in this issue, psychiatrist Henri Duchêne promoted an 'ecology of mental disorders' approach, arguing that contemporary civilization bore a responsibility for an increase in mental illness[40]—although ultimately French researchers rejected an American-type approach in favour of a more qualitative, psychoanalytically and Marxist-influenced perspective. Similarly in the UK, John Ryle's support for a social medicine that would replace clinical medicine assumed that disease and health, physical or mental, were a consequence of the relationship between populations and the whole of their environment.[41]

As part of their stress on prevention, both Leighton and Rennie were interested in positive mental health. Normality was considered one end of a continuum of function and dysfunction, and they aspired to understand it through their research:[38]

> [M]ental illness involves a particular function which relates the individual to his social environment. Society emphasizes the individual's ability to maintain socially acceptable behavior, to care for himself, and to refrain from interfering with others. Mental health might accordingly be defined as the freedom from psychiatric symptomatology and the optimal functioning of the individual in his social setting.

Leighton expressed that wish when noting:[18]

> The selection of disorder rather than mental health…rests on the judgment that we do not yet have concepts and methods adequate for making a direct advance on the nature of health…It is hoped that through advancing on the problems of disorder a foundation can be laid for the eventual study and understanding of health in positive rather than negative terms.

The power of that statement lies in its strong advocacy for understanding mental health, like psychiatric disorder, as a product of a context with specific boundaries, structures, values and history. Indeed, Midtown investigators regarded the individual 'as a functional unit, with adaptation to life's circumstances as an important theme in his existence'.[38] This ecological perspective, resting on the particular experiences of populations in a defined place, was potentially at odds with a subsequent epidemiological and clinical approach that sought to generalize beyond the study community to larger, even national populations.

The social environment that Rennie and his colleagues set out to investigate was a residential section on the east side of Manhattan, beginning just north of the central business district, that was economically heterogeneous, a factor reflected in its housing stock of tenements, townhouses, and middle-class and luxury apartments. Midtown was 99% White and therefore racially homogeneous, but ethnically diverse, comprising one-third foreign-born Europeans and another one-third migrants from elsewhere within the USA. In its densely populated blocks the number of children was unexpectedly small, reflecting the relatively large proportion of single adults and of married couples who were either childless or with a single offspring in mid-Manhattan, and the high percentage of women, single and married, in the workforce.

In the 'Goals and Guidelines' section of the study, its lead author Leo Srole, a sociologist trained at the University of Chicago in the 1930s and on the faculty of the Cornell University Medical College during the period of the Midtown study,[42] located the investigation at the crossroads of three distinct lines of scientific inquiry. First was medical epidemiology, which relied heavily at the time on ecology and the social environment as it pertained to the 'whole man'. Second was psychiatry, which was bifurcated in its study of biological and genetic determinants and the dynamic interplay of psychological processes and life experience. Third were the social sciences including: sociology which focused on the interrelationships among social structures and systems and deviant behaviour, emphasizing therein the normative view of both culture and personality; and social psychology, which focused on the entire range of variability in behaviour in specific interpersonal settings.

The purpose of the Study, initiated in 1952, was tripartite: to canvas the community with the aim of measuring the prevalence of mental health in the urban population of Midtown; to examine sociocultural determinants of mental health with the hope of explaining the varying prevalence found between group environments and proposing public policies supporting primary prevention and social change; and last, to establish the need for psychiatric services in the community. (Leighton's study of Stirling County, a locus of small towns and farms, had similar goals.[18])

Because of the large study population of approximately 170 000 people, the challenge for Midtown investigators according to Leo Srole was to find a middle way between two modes of community study previously employed within the social sciences: ecological investigations of large cities, such as Faris and Dunham's work in Chicago which depended upon documentary data sources like the Census, and ethnographic research in small communities. Yet another mode of research built on social science surveys like those supported by the National Opinion Research Center, beginning in the 1940s.[43] The Midtown team merged these

traditions, drawing both upon published works and a representative probability sample of 1660 adults selected randomly from 1911 Midtown dwellings. That sample was similar in race, ethnicity, sex and age to the overall Midtown population.

From the start, the outcomes of Midtown were framed and defined in terms of mental health 'both sound and impaired'.[44] Rennie rejected the impulse to define disorders as discrete entities and bucked the typical emphasis on pathology. As Kirkpatrick and Michael elaborate:[38]

> Rennie was fully aware that the special preoccupation of the physician is primarily with pathology and secondarily with health, that the medical man is trained and tends almost unthinkingly to describe health in terms of pathology, and that the pathologic, whether physical or mental, has a way of making itself much more obvious than the more pedestrian normal. So that the staff would keep alert to the functional (rather than the malfunctional), in the sense of positive mental health and the strengths of the personality, Rennie chalked relevant criteria on a blackboard by the staff conference table. Although these were not intended as instructions for questionnaire design, they did serve to express the staff psychiatrists' intention that their evaluation of respondent mental health should take into account assets as well as liabilities of the personality.

Investigators comprising psychiatrists and social scientists devised a composite classification of mental health that they called the Global Judgment of Mental Health, which relied in part on results from the Home Interview Survey, a major innovation in psychiatric epidemiology at the time. An assessment incorporated the following information collected on each individual: the participant's symptoms, his or her freely associated, spontaneous or elicited elaborations; the interviewer's observations, reported descriptively and systematically in a prepared outline; data from a treatment census file of psychiatric care; and any results of a check by the New York City Social Service Exchange for family problems brought to the attention of any city agency. One or more psychiatrists evaluated all of these components to arrive at a holistically informed global judgment, which ranged from extremes of 'symptom free' to 'incapacitated' and included intermediate grades of symptom severity. Impairment in one or more areas of social functioning was chosen, according to the investigators, as the 'arbitrary benchmark of morbidity'.[44]

By and large, Alexander Leighton in his Stirling County Study used the same ecological approach and set of methods employed by the Midtown Manhattan study. The Stirling County Study also collected interview-derived information that was used by psychiatrists to rate mental status based on the first edition of the *Diagnostic and Statistical Manual* (DSM-I). Although this diagnostic technology that both studies employed was systematic, the sheer amount of information collected could lead to overestimates of impairment and, critically, reliability was a central issue. Moreover, the diagnostic process itself was potentially subject to circularity. For example, social adjustment was viewed as an important indicator of mental health, which could obfuscate study of the relation between social adjustment and mental health.

Purely ecological studies in the US (e.g. Faris and Dunham's) used institutionalization rates; the Midtown team used treated rates (i.e. based on hospitalization and outpatient treatment) and attempted to capture true prevalence, that is, prevalence based on diagnosis, whether or not those diagnosed were in treatment. In addition, Midtown investigators sought to circumvent some of the limitations of cross-sectional studies by attempting to pinpoint symptom onset, a conundrum for those studying chronic diseases insidious in their development. They were also well aware of recall issues regarding lifetime psychiatric symptoms or disorders. Thus, a conscious decision was made to employ point prevalence of psychiatric morbidity. This would become a standard metric in the major psychiatric epidemiological studies that would follow.

The Midtown Study found a high point prevalence of psychiatric symptoms in the population sampled. It reported that over 80% of those surveyed had some form of psychopathology. About a quarter (23.4%) were classified as impaired, signifying the presence of marked, severe or incapacitating symptoms—mostly anxiety. The researchers discovered that about three-quarters of those who were impaired had never sought assistance from professional psychotherapists for their symptoms. In Stirling County, lifetime prevalence of any DSM-I mental disorder was about 57%. It estimated point prevalence at 90% of the lifetime prevalence. Like Midtown, substantial impairment was found in about 24% of participants.

These rates, reflecting a preoccupation with anxiety in 1950s North American psychiatry (and perhaps indicating that the studies transcended their aims), were initially controversial. However, the Midtown investigators believed the results were reasonable, given the composition of the community and its environment—its population density, the degree of crowding in its public places and the pace of life in New York City. To find low prevalence of psychiatric symptoms, particularly anxiety, would be abnormal given the context. In fact, the team argued, a given amount of psychopathology which exhibited variation within the population studied was normal and adaptive in Midtown Manhattan in the 1950s. The Stirling Country Study was conducted in a much less urbanized area in Nova Scotia (which happened to be the location of Leighton's summer

home) but rates were comparable, reflecting a troubled environment in which people were experiencing economic decline and limited opportunities and suffering a pervasive sense of loss of control over their lives.[18]

Despite experiencing less adversity than Stirling County residents, citizens of Midtown were burdened with a range of mental problems and the availability of mental health services was inadequate. According to the Midtown team:[44]

> Focusing on the Impaired category of sample respondents, it was assumed that they were in a state of professional help-need…Among these Impaired people in the aggregate, only one in twenty could be considered a current patient. Another one in five were ex-patients, and roughly three in four had never come to the attention of such a specialist. On the criteria of impairment and readiness for professional help, we discerned a large potential demand for such intervention.

Despite the fact that psychopathology was normal and adaptive, it still required some modicum of treatment—aligned with, yet distinct from current issues of 'diagnostic creep' and the normalization of psychopathology ushered in by increased screening and prescription of psychotropic medications by psychiatrists (addressed by Horwitz and Wakefield in *The Loss of Sadness*).[45]

Epidemiology and the burden of chronic disease in communities

During the postwar decades, the National Institute of Mental Health was joined by other segments of the NIH in recognizing the population burden of chronic non-infectious diseases. To measure their incidence, prevalence and possible determinants, those other institutes also funded epidemiological studies. Among the critical areas of epidemiological research at the time was that of cardiovascular disease, the leading cause of death in the USA.[46] Here community studies proved critical, including those in Framingham, Massachusetts, Techumseh, Michigan and Evans County, Georgia. Researchers in Framingham and other communities initially shared with Leighton and Rennie a broad aetiological perspective, hypothesizing possible social, clinical and constitutional causes for heart disease. For example, Thomas Francis and Frederick Epstein, epidemiologists and principal investigators, explained, 'The town of Tecumseh, Michigan, and its surrounding area were chosen to study a complete natural community including the population and its biological, physical, and social environment';[47] and the first publication of the Framingham study team, in defining epidemiology, called it 'the ecology of disease'.[48]

The metaphor of ecology implied a balancing of forces.[49] Because the equilibrium attained was dynamic and fragile, disease occurred when the response of a host to other elements of the triad became maladaptive. Heart disease, like mental disorders, could be perceived as just such an imbalance. Looking at a secular rise in serum cholesterol in a rural Georgian population, the leaders of the Evans County study ascribed those changes to modernization and industrialization of predominantly agrarian communities.[50]

Community studies were critical to the development of cardiovascular epidemiology, but very quickly they unmoored themselves from researching the sociocultural basis of heart disease. Their dependent variables—angina, stroke, heart attacks—were identified based on increasingly agreed-upon signs and symptoms and were linked to well-demonstrated, underlying pathology. By the late 1950s, measurable individual attributes, increasingly well-defined as clinical entities, were recognized as risk factors for cardiovascular disease and the key to disease prevention. As longitudinal studies, Framingham and the other community investigations sought to provide, with considerable difficulty, the data to demonstrate that the risk factors played a causal role. The struggle to establish aetiology—and initially, to define and measure disease—was a common problem in chronic disease epidemiology, hardly limited to psychiatric disorders. Nonetheless, by the mid 60s, heart disease was captured by the medical model: its solution lay not in social ecology but in modifying personal clinical parameters through behavioural change and, increasingly, pharmaceuticals. A similar pattern would later be observed in the trajectory of psychiatric epidemiology. However, cardiovascular disease epidemiology had a sharper rise to epidemiological maturity—it played a key role in the discipline's methodological maturity[22,51]—while psychiatric epidemiology held tightly onto cross-sectional designs.

The proof of burden: the next generation of epidemiological studies

As controversial as they were, the results of these key studies highlighted important differences from previous studies,such as the Committee on Chronic Illness's Baltimore Morbidity Study, mentioned earlier, which found rates of psychiatric disorders in the community to be about half those of the Midtown Manhattan and Stirling County Studies.[52] The latter two set the stage for increasingly sophisticated psychiatric epidemiology research that prioritized systematic data collection with signature measurements of increasingly discrete outcomes involving the use of symptom checklists and, later, structured and semi-structured diagnostic interviews. Those allowed

investigators to measure rates of disorders in ever larger and more representative populations.

The Epidemiologic Catchment Area (ECA) study was a signal study of this new era. The ECA, launched in 1980, was a collaborative effort between NIMH and a group of established psychiatric epidemiologists which surveyed the prevalence of mental disorders and service need and use in five US communities that had been designated Community Mental Health Center catchment areas in: Baltimore, New Haven, St Louis, Durham and Los Angeles, respectively.[53] Each site collected data on a common set of core questions and sample characteristics, and sampled over 3000 community residents and 500 institutionalized residents. Together, the five-site ECA collected diagnostic and service need and use data on 20 861 adults, aged 18 and over. The ECA used the lay-administered structured NIMH Diagnostic Interview Schedule (DIS) (version III)[54] and determined diagnoses according to the third edition of the DSM for diagnostic classification.[55] The ECA was the first large-scale study to document the prevalence of DSM-III disorders. The ECA also determined the epidemiological burden and service use patterns in these five communities, and provided benchmarks for the success of community-based treatment programmes for mental illness.

The ECA was critical in determining the prevalence of specific psychiatric disorders, as well as service needs and use patterns in the five communities studied. Overall, the ECA found a burden of mental illness somewhat similar to that documented by the Midtown Manhattan and Stirling County studies: lifetime diagnoses of anxiety disorders were reported in nearly a third of respondents, compared with mood disorders in about 8%. The rich information provided by the study once again supported the notion that services were inadequate relative to need; under 20% of respondents with recent mental disorders accessed services in the year prior to study participation.[56] However, because the samples in the ECA were not collected to be nationally representative, there was an imperative to address epidemiological gaps regarding the prevalence and distribution of psychiatric disorders in the USA. Moreover, the ECA could only provide basic information regarding the comorbidity of psychiatric disorders; it was, therefore, necessary to determine patterns of comorbidity and the complexities of the affiliated need for and use of services in subsequent investigations.

The ECA also made great strides with respect to the reliability and validity of psychiatric diagnoses. Emblematic of a technological advance in survey research in psychiatric epidemiology, scholars addressed empirical questions regarding the psychometric performance of the DIS, the use of lay and clinical interviewers, and the choice of diagnostic classification system.[57–59]

Some of the limitations of the ECA, in conjunction with the need to account for the complexities of psychiatric morbidity, deeply influenced the National Comorbidity Survey (NCS), a study of the prevalence, causes and consequences of comorbidity between psychiatric and substance use disorders.[60] The NCS, which began in 1990, was the first survey of mental and substance use disorders in the USA to use a structured diagnostic interview, the Composite International Diagnostic Interview (CIDI, which generated both ICD and DSM diagnoses), to determine the prevalence and correlates of DSM-III-R disorders in a sample of 8098 individuals nationally representative of adults aged 18-54 years. The prevalence estimates of lay-administered CIDI-diagnosed psychiatric disorders in adults aged 18-54 years were higher than those reported by the ECA, with the exception of psychotic disorders and lifetime anxiety disorders. Almost half of those surveyed reported at least one lifetime disorder, and about 30% endorsed a psychiatric disorder within the past year. Notably, over 50% of all lifetime disorders occurred in a small proportion of the respondents with a history of three or more comorbid disorders.[61] Like the ECA, the NCS reported underuse of mental health services—about 13% of respondents accessed outpatient services in the prior 12 months. Notably, the NCS excluded individuals younger than 18 and adults older than 54—life stages that are critical for mental health and psychiatric disorders.

Conclusion

The impulse in what psychiatric epidemiologists Bruce and Barbara Dohrenwend called the 'third generation' of psychiatric epidemiology studies[62] (e.g. the ECA, NCS) was to assess rates of mental illness in the general population—that is, samples representative of the general population. Those studies also aimed to support community psychiatry by determining the population need for treatment and other services. Their methodology was based on surveys of symptoms that sought to achieve reliable, discrete diagnoses and that could be administered at relatively low cost by trained laypersons interviewing large numbers of people.

We contend, however, that this research represented a radical departure from the rich ecological understandings of mental illness—and mental health—that a set of studies in the immediate postwar period in midtown Manhattan and Stirling County (Nova Scotia) exemplify. Although they, too, identified the burden of mental illness in populations, their aims included disease prevention and a holistic approach to 'mental health'. In this respect they adhered to the larger epidemiological project of the postwar years, made possible by federal funding through the NIH, to

define and understande the aetiology of chronic disease. Like the architects of Framingham and other community investigations of cardiovascular disease, the initiators of the Midtown and Stirling County studies appreciated that chronic disease had an insidious onset with important and multiple determinants, including social determinants, over the life course. It was important to capture the particular ecology of factors that protected against, promoted and sustained chronic disease in populations living in particular places.

Midtown and Stirling County represent a rejection of the impulse to define disorders as discrete entities over broad populations. The specificity of the two studies is at the core of their richness; what Leighton and the Midtown team call a general population is really a specific population. One had to understand the dynamics of equilibrium and disequilibrium within and between individuals and a particular community, and to comprehend what Leighton called its organistic and the dysorganistic status. For him and Rennie, what was adaptive in one context was not normal in another (e.g. anxiety in the context of Midtown was adaptive and maintained equilibrium), underscoring the importance of the specificity of context. 'Positive mental health' was not a universal but a social adaptation to a particular time and place. As the Midtown psychiatrists Stanley Michael and Price Kirkpatrick wrote, good mental health included 'the optimal functioning of the individual in his social setting'.[39] For Leo Srole, who in 1980 reflected on data gathered from the panels of Midtown participants followed longitudinally, social setting remained the axis along which mental health turned, and social welfare policy was inextricably linked to population mental health, offering a potential corrective for societal ills and harking back to the historical origins of the study:[63]

> Improvements in a group's social position and role in a society's objective system of status allocations are conducive to improvements in that group's subjective well-being and other dimensions of health.…[W]e hold that a substantial part of the psychopathology at large in the population is precipitated by long refractory, discriminatory dysfunctions that are foisted on specific, power-weak community subgroups, damaging their members and subverting the most basic Judeo-Christian canons of a democratic society. Since these social pathologies are legally and politically correctable, it can hardly be denied that in the calculus of both humanist and cost/benefit values the surest primary preventive medicine lies in a general policy of making accessible larger dosages of social equality to groups where it is in less than health-sustaining supply.[63]

DSM-5 has just appeared, amid a rumbling debate about whether to move towards a dimensional conceptualization of disorder. At the same time, there is a growing interest in psychological wellbeing as an area of scientific enquiry and potential target of intervention and focus of social policy. Both of these conceptions, companions to the sustained current of criticism regarding the pathologization of normal behaviour,[45] have roots in the first seven decades of the 20th century, budding in studies addressing social problems tied inherently to place. It remains to be seen what the new century does with them—scientifically, socially, politically—and whether psychiatry excludes studies like the Midtown Manhattan Study from discussion of such a rich heritage.

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