Psychological Medicine (2009), **39**, 1055–1064. © 2008 Cambridge University Press
doi:10.1017/S0033291708004625 Printed in the United Kingdom

REVIEW ARTICLE

Anxiety: its role in the history of psychiatric epidemiology

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Background. The role played by anxiety in the history of psychiatric epidemiology has not been well recognized. Such lack of understanding retarded the incremental growth of psychiatric research in general populations. It seems useful to look back on this history while deliberations are being carried out about how anxiety will be presented in DSM-V.

Method. Drawing on the literature and our own research, we examined work that was carried out during and after the Second World War by a Research Branch of the United States War Department, by the Stirling County Study, and by the Midtown Manhattan Study. The differential influences of Meyerian psychobiology and Freudian psychoanalysis are noted.

Results. The instruments developed in the early epidemiologic endeavors used questions about nervousness, palpitations, sweating, trembling, shortness of breath, upset stomach, etc. These symptoms are important features of what the clinical literature called 'manifest', 'free-floating' or 'chronic anxiety'. A useful descriptive name is 'autonomic anxiety'.

Conclusions. Although not focusing on specific circumstances as in Panic and Phobic disorders, a non-specific form of autonomic anxiety is a common, disabling and usually chronic disorder that received empirical verification in studies of several community populations. It is suggested that two types of general anxiety may need to be recognized, one dominated by excessive worry and feelings of stress, as in the current DSM-IV definition of Generalized Anxiety Disorder (GAD), and another emphasizing frequent unexplainable autonomic fearfulness, as in the early epidemiologic studies.

Received 2 July 2008; Revised 23 July 2008; Accepted 13 September 2008; First published online 22 October 2008

Key words: Autonomic hyperactivity, depression, DSM-V.

Introduction

The purpose of this review is to revisit the early history of psychiatric epidemiology because the crucial role played by indicators of anxiety has not been adequately understood. The early studies were often interpreted as having measured a vague condition not easily perceived as mental illness in any clear-cut way.

The period we describe began during the Second World War when psychiatry, especially in the USA, was much influenced by psychoanalysis in which 'unconscious anxiety' was a fundamental underpinning to numerous aspects of mental illness (Freud, 1936). Later, Lewis (1970) indicated that in the psychoanalytic framework, anxiety was so pervasive as to constitute the 'alpha and omega of psychopathology'.

The first American Psychiatric Association's *Diagnostic and Statistical Manual* (DSM-I; APA, 1952) was formulated largely on the basis of psychoanalytic thinking. DSM-I's introduction to the major category called 'Psychoneurotic Disorders' indicated that 'the chief characteristic of these disorders is anxiety'. The subcategories were called 'Reactions', with Anxiety heading the list followed by Dissociative, Conversion, Phobic, Obsessive-Compulsive, and Depressive Reactions. The category of Anxiety Reaction refers to anxiety that 'is diffuse' ('not restricted to definite situations or objects as in the phobic reactions and is not controlled by any specific psychological defense mechanism as in the other psychoneurotic reactions') and is characterized by 'anxious expectation and frequently somatic symptoms'.

For the purposes of this history, three aspects of this definition are notable: (1) the word 'panic' does not

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https://doi.org/10.1017/S0033291708004625 Published online by Cambridge University Press

appear; (2) the 'somatic symptoms' are not described; and (3) depression is presented as the last-in-line 'defense mechanism' in which anxiety is 'allayed' and 'partly relieved' by self-depreciation. Such a depressive condition was 'precipitated by a current situation, frequently by the loss of a loved one, and often associated with feelings of guilt'. However, depression appeared prominently in DSM-I's Psychotic Section as 'Involutional Psychotic Reaction' and 'Psychotic Depressive Reaction'. Thus, in these years, depression was usually thought of as a psychotic rather than a neurotic disorder.

The concept of anxiety used here involves a conscious, objectively identifiable and discrete pattern of symptoms, or syndrome, as in the psychobiological approach developed by Meyer (Muncie, 1948; Winters, 1951). We define anxiety as consisting of fearful apprehension that is mainly out of proportion to external circumstances and that is accompanied by autonomic hyperactivity symptoms such as palpitations, sweating and other indicators of the body's 'alarm system'. This definition is similar to one also endorsed by Lewis, Roth, and others (Roth & Argyle, 1988).

Our review mainly concerns three studies, each of which produced a measurement instrument for use in psychiatric survey research. The first was carried out in the US War Department (Stouffer *et al*. 1950) and led to the Army's Neuropsychiatric Screening Adjunct (NSA; Star, 1950). Second was the Stirling County Study (Leighton, 1959; Hughes *et al*. 1960; Leighton *et al*. 1963; Murphy, 1980), which developed the Health Opinion Survey (HOS): a technique for estimating prevalence of psychoneurotic and related types of disorder in communities (Macmillan, 1957). Third was the Midtown Manhattan Study (Srole *et al*. 1962; Langner & Michael, 1963) from which was derived 'a twenty-two item screening score of psychiatric symptoms indicating impairment', known mainly as the Langner Scale (Langner, 1962).

The Stirling and Midtown Studies were the first to use general population samples, lay interviewers and structured schedules, techniques that are now common in psychiatric epidemiologic research. The Meyerian psychobiological approach was central to the orientation of the Stirling Study whereas the framework of the Midtown Study was markedly influenced by Freudian psychoanalysis. Both studies used longer and more complex procedures for psychiatric assessment than the HOS and Langner Scale but it was these brief instruments that came into general use later.

At the present time, effort is under way to create DSM-V. It seems timely to review past work as a contribution to current and future thinking about the psychiatric phenomena of anxiety.

The Army's NSA

In 1941, the US War Department was asked to set up a Research Branch charged with investigating the combat experiences of soldiers and their psychiatric vulnerabilities. Based on a request from the Surgeon General, the Research Branch constructed the NSA to assist in the process of selecting recruits who were psychiatrically fit for duty.

The construction of the NSA started with a list of 107 questions suggested by psychiatrists and designed as scales on different themes. Over half of them dealt with childhood. The scales dealing with the current emotional state were called 'worrying', 'oversensitivity', 'personal adjustment' and 'psychosomatic complaints'.

The 'psychosomatic complaints' scale consisted of questions concerning 'nervousness', 'palpitations', 'dizziness', 'shortness of breath', 'cold sweats', 'fainting spells', 'nightmares', 'pressure in the head', 'hands trembling', 'sick headaches', 'hands sweating', 'upset stomach', 'health troubles', 'fingernail biting' and 'sleep difficulties'; in other words, mainly the autonomic hyperactivity indicators associated with anxiety. There were five questions about worries. Depression was not entirely absent because it had two questions but it was not nearly as prominent as anxiety. The wording of the NSA questions was simple and included categories for response. An example is: 'Are you ever bothered by nervousness? Never? Sometimes? Often?' The questions asked for broad generalizations, facilitated by the word 'ever', and most of them included the concept of 'being bothered' by the symptom.

The complete set of 107 questions was administered to active duty soldiers and soldiers hospitalized for 'psychoneurotic' breakdowns. The 'psychosomatic complaints' scale was found to differentiate more sharply between these two groups than any of the other scales. In fact, the 'psychosomatic complaints' scale discriminated about as well as the entire combination of scales. Its 15 questions became the NSA.

It is not clear why the scale was called 'psychosomatic complaints' because its affiliation with conscious anxiety was well recognized. Many of the NSA symptoms had been used in a 'Fear Scale' for reactions of combat veterans under fire, as well as an 'Anxiety Scale' for studying adjustment to army life.

Considerable testing of the NSA was carried out. The internal and retest reliabilities were good, at $\geqslant 0.90$. A cutting point was developed to separate cases from non-cases. This division was used in an assessment of validity in one induction center.

For the validity study, the decisions to accept or reject a recruit were not standardized in the modern

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sense but the fact that these psychiatrists served in the same induction center probably produced some consensus about criteria for rejection. The sensitivity and specificity values were, in each case, close to 85%. Thus the NSA gave results that closely approximated clinical judgment about psychiatric fitness.

In light of the large number of psychiatric breakdowns and discharges that occurred among Army inductees, suggestions were made later that the NSA must have been a failure. This was a mistake, however, because the NSA was never used as a replacement for psychiatric examination. The events that came closest to being an application of the NSA for its intended purpose occurred during the final month of the war. The 100 000 recruits seen in all induction centers across the USA responded to the NSA but each was also examined by a psychiatrist. The NSA results were available to the psychiatrists but the research staff believed that many of the psychiatrists either 'completely ignored' them or treated them with 'tolerant amusement'.

Later analysis of the psychiatrists' decisions in that final month indicated great variability in the rejection rates from one induction center to another, probably reflecting the types of psychiatric training and orientation that characterized different parts of the USA. The NSA scores themselves showed much more similarity across centers and, insofar as there was variation, it tended to reflect factors, such as low educational level, that have been found to be correlated with the prevalence of psychiatric disorders in many subsequent studies.

Shortly after the war, the NSA was administered to a group of soldiers who were also asked to fill out the Cornell Selectee Index, which, like the NSA, had been developed for screening during the war (Weider *et al*. 1944; Leavitt, 1946). The results were highly correlated and suggestions were made for creating a new instrument that would amalgamate the best features of each. This task was not, however, undertaken. As an outgrowth of the Selectee Index, the Cornell Medical Index (CMI) became a comprehensive questionnaire used widely in clinic settings (Brodman *et al*. 1949). Despite its excellent credentials, the NSA, with its focus on autonomic anxiety, did not become well known among clinicians after the war and, where known, was not highly regarded. It was never used as an independent instrument, but it strongly influenced psychiatric epidemiologists.

The Stirling County Study

One of us (A.H.L.), who had been Meyer's last chief resident, started the study in 1948. Our first epidemiologic survey was conducted in 1952 when J.M.M. joined the research. The survey subjects are adult residents of a county in Atlantic Canada named fictitiously 'Stirling' to protect identity.

A goal of the preparatory period was to develop a set of questions for gathering psychiatric information in the survey. Macmillan (1957) reviewed existing instruments, including being advised against using the Minnesota Multiphasic Personality Inventory (MMPI) because its authors thought the questions would be too threatening to community residents (Meehl & Hathaway, 1946). Where depression was concerned, this fit with the view that it was usually a psychotic disorder. However, a 75-item inventory was designed that included the 15 NSA items as well as selections from a Chicago instrument and the list of questions developed by Eysenck (1947). The latter questions were the basis for what became the 'Neuroticism Scale' (Eysenck & Eysenck, 1975) but, as formulated at this time, they emphasized the somatic symptoms and worries about health that characterized neurotic patients. Inquiry regarding the dysphoric component of depression was absent from these sources except for an Eysenck question about 'sometimes feeling happy, sometimes depressed without any apparent reason'.

The 75 questions were tested in order to select the best discriminators between a community sample screened for healthiness and psychiatric patients diagnosed as psychotic, personality, psychosomatic or neurotic. The questions failed to distinguish between the groups until the patients were limited to the neurotics, at which point 20 questions discriminated at a statistically significant level and were selected for the HOS. Three-quarters of the neurotic patient charts gave the diagnosis of 'general anxiety state' or 'chronic anxiety'. Most of the others were shown as 'neurotic'. 'Depression' was mentioned in a few charts but was absent from the diagnostic summaries.

An important feature is that when the 15 NSA items were compared to the other 60 questions, an odds ratio showed that an NSA item was 16 times more likely to be selected as a discriminator than was an item from the other sources. This emphasized that nervousness associated with palpitations, sweating, trembling, etc., was a reportable indicator of the psychopathology of patients diagnosed as having chronic anxiety.

A validity investigation was carried out in which a psychiatrist interviewed a group of community residents who had responded to the HOS. Using the psychiatrist's decisions as the standard, the HOS had a sensitivity of 83% and specificity of 76%. Thus, the construction of the HOS replicated the results of the NSA but it also suggested that the tests were as useful among women as men and among older as younger

https://doi.org/10.1017/S0033291708004625 Published online by Cambridge University Press

people, thus extending applicability well beyond the Army population.

In preparing the structured interview schedule for the Stirling Study itself, it was recognized that the questions represented anxiety well. Some of the symptoms associated with depression (disturbances of sleep, energy and appetite) were also selected but the lack of a straightforward question about dysphoria was seen as a serious deficiency. To compensate, a question about 'poor spirits' was added, as were questions about everyday functioning.

Although DSM-I was published in the same year as our first survey, it was not used as a guide for making psychiatric decisions because criteria based on theory were not distinguished from observable phenomena. A major goal of the study was to investigate relationships between psychiatric disorders and social experience, including the kinds of loss events that DSM-I indicated precipitated depression. We believed it imperative to avoid building into the definitions of disorders those very relationships that were to be investigated. As our data included both anxiety and depression, it was equally important to avoid reporting the presence of anxiety because of a theory that it always underlay depression as in DSM-I.

Because of these difficulties, descriptive definitions were prepared in a chapter entitled 'Patterns of Psychiatric Disorder'. The category labels of DSM-I were used but the definitions were based on the Meyerian approach to classification. Meyer was critical of diagnoses that implied knowledge of etiology and prognosis but, for purposes of communication, favored using the established nosology in the descriptive way presented in this chapter.

The centerpiece of the chapter was an extended account of an 'anxiety attack'. The attack would be called a 'panic attack' today but at that time the word 'panic' tended to be reserved for 'homosexual panic' and so was not used for the description of a severe episode of anxiety. Chronic anxiety was described as:

> Most anxiety does not, however, come in attacks. If anxiety is defined as the subjective feelings and physiological signs characteristic of fear arising in a situation in which there is no plausible, common-sense, and conscious source of that fear, then we may say there occur cases of chronic anxiety. It may be added that these make up the great bulk of the conditions that can be tagged as anxiety reaction … which includes … suffering most of the time, not just in crises, from inner feelings of apprehension, accompanied by a rapid heart, sweating, broken sleep, nightmares, pallor, general nervousness, or other related symptoms, but lacking the extreme intensity and short duration of the 'attack' (Leighton, 1959, p. 99).

In Meyerian thinking, 'chronic anxiety' and 'anxiety attacks' were linked by the commonality of symptoms. Attacks were conceptualized as episodes of a severe florescence of those symptoms that make up a substratum of anxiety. In other words, chronic anxiety was to anxiety attacks what today dysthymia is to major depression.

For assessment of the interviews given by the subjects a procedure was designed by which psychiatrists read and evaluated a summary of the responses. The decisions concerned the psychiatrists' confidence that the patterning of the symptoms constituted the different categories of psychiatric syndromes in terms of essential and associated features, that the symptoms persisted over time and that they involved impaired functioning. Another fundamental principle was that the symptom patterns should be recorded 'without any restriction on multiplicity'. If the record indicated the co-occurrence of anxiety and depression, this was to be recognized even though it was at variance with the prevailing clinical view of selecting only one diagnosis.

Although we emphasize the categorical quality of this approach, three concepts were dimensional: (1) a continuum of 'confidence' from doubt to certainty in the minds of the psychiatrists about the clarity of the syndromal pattern; (2) a dimension from short to long duration; and (3) a gradient from none to severe impairment.

As the Stirling Study progressed over time, computerized diagnostic algorithms were developed that adequately replicated the psychiatrists' judgments (Murphy *et al*. 1985, 1998). The longitudinal work of the study consists of cross-sectional surveys of samples drawn respectively in 1952, 1970 and 1992 as well as cohort follow-up of members of earlier samples at each new phase of data gathering (Murphy *et al*. 1986, 1987, 2000, 2004).

In each of the three samples, the prevalence of anxiety was 10%, with women outnumbering men. Consistently, about half of those diagnosed as anxiety also had depression, and it was rare to find depression unaccompanied by anxiety. Anxiety alone, however, showed the same syndromal completeness, symptom persistence, and everyday impairment as pertained to the co-morbid disorders. The long-term work indicated that the questions had adequate retest reliability (0.87 over 2 months) and considerable chronicity (0.73 over 3 years, 0.57 over 16 years, and 0.43 over 24 years). The chronic nature of these disorders was also indicated in the long durations offered by the subjects themselves. When the questions were combined into a score, the scores gave a highly skewed distribution in the population, with most people having only one or two symptoms and only a few people having many symptoms – thus emphasizing pathology.

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The Midtown Manhattan Study

This study was started by psychiatrist Rennie, who had worked with Meyer but had become progressively impressed with the importance of psychoanalysis. Prior to the survey of adult residents of Manhattan conducted in 1954, a structured interview schedule was designed. It contained 120 psychiatric questions that had been drawn from the CMI, the MMPI, and the Army's work (not only the 15 NSA items but also questions about childhood fears).

A summary of the responses to the 120 questions was read and assessed by the Midtown psychiatrists to produce the findings about mental health. A major difference between Stirling and Midtown existed in the way the interviews were evaluated. The influence of psychoanalysis was largely responsible for Midtown's 'anti-diagnostic' approach and its reliance on Menninger's (1959) 'unitary concept of mental illness'. This dimensional approach was favored by Srole, who, following Rennie's death in 1956, was responsible for the first volume of the study.

The psychiatric assessments involved placing subjects on a continuum of six levels of symptom formation. The fact that the interview information concerned only symptoms of which subjects were aware was the feature that gave Rennie pause with regard to using a diagnostic approach.

> It was Rennie's position that symptomatic information of this kind offered the psychiatrist no firm perceptual footing to discern intrapsychic dynamics. The latter, of course, are the *sine qua non* of operable data for diagnosis within psychiatry's rapidly evolving nosological framework (Srole *et al*. 1962, p. 134).

However, to insure against the loss of possibly valuable information, the evaluating psychiatrists were asked to apply a supplementary classification called a 'Gross Typology'. Definitions of the Gross Typologies were described in the second volume. Where anxiety was concerned, 'Free-floating anxiety' was assigned 'when no evidence could be found that the anxiety was evoked by, or attached to, specific psychological defense mechanisms'. 'Mixed anxiety', although not defined, probably meant a mixture of manifest and unconscious anxiety. 'Mixed anxiety' had been assigned to 70% of the respondents, and in searching for an explanation as to why so many were shown in this category, psychiatrist Michael observed:

> an interpretation was reached consistent with the Freudian theory that anxiety is the basis of most symptoms. Consequently, the symptom 'mixed anxiety' was also checked on that theoretical basis. With the benefit of hindsight, it is now recognized that it would have been to greater advantage had we defined a more rigid interpretation of anxiety and limited ourselves, for instance, only to manifest anxiety to the extent that it might have been recognized from the data (Langner & Michael, 1963, p. 59).

To produce a short instrument that could be used in its own right, Langner (1962) developed the 22-item instrument known by his name. The 120 questions were administered to a group of psychiatric patients described as 'neurotics and remitted psychotics' and also to a group of patients on medical wards evaluated as normal by a psychiatrist. Comparing the responses of the psychiatric patients to the normal group identified 22 questions as being statistically significant discriminators.

A feature of interest is that the selection favored NSA questions. Comparing the 15 NSA questions to the 105 others, it was found that an NSA item was seven times more likely to be selected than were the other questions. The construction of the Langner Scale was, in many regards, another confirmation of the NSA items as pertinent for civilian adults. The autonomic anxiety focus of the NSA, along with questions about depression, seemed to provide a way for psychiatric patients, mainly neurotics, to report symptoms that differentiated them from persons who were free of mental illness. And in the general population, scores of the Langner Scale, like those of the HOS, were highly skewed.

Subsequent history

In commenting on the studies described here, Klerman (1990) spoke of the period as a 'golden age' but progress in American psychiatric epidemiology 'drew to a halt in the late 1960s' because the studies had used a dimensional approach for reporting findings rather than producing rates of specific psychiatric disorders (Weissman & Klerman, 1978).

Although the Stirling Study had been categorical in its orientation, there were several reasons why the period was viewed as dimensional. A main one was the fundamental role dimensionality played in Midtown. The studies that used the HOS or Langner Scale in the 1960s and 1970s treated these methods as dimensional scales (Phillips, 1966; Schwab *et al*. 1979). In addition, the Stirling findings about relationships between psychiatric disorders and the social environment used the *dimension* of doubt to certainty about the *categories* of specific syndromes.

Other factors also accounted for the 'halt'. The early instruments were rarely understood as measures of anxiety and depression. Failure to perceive this was due partly to the non-specific names the instruments bore. It is regrettable that the NSA was associated with the phrase 'psychosomatic complaints', which 'smacks' of malingering, and that the word 'psychoneurotic' was not more prominent for the HOS.

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A criticism of the instruments was cast as, 'if we define mental illness by the permanence and irreversibility of the symptoms, we can wonder how an instrument covering a range of mild to moderate symptoms can indicate disabling mental illness' (Tousignant *et al*. 1974). The instruments were interpreted as measuring 'psychophysiologic symptoms' or 'non-specific psychological distress' or a construct called 'demoralization' (Dohrenwend *et al*. 1980; Link & Dohrenwend, 1980). A main criticism was that they lacked 'face validity'.

The issue was rendered still more ambiguous because anxiety largely disappeared as a focus of interest and was replaced by depression. Important in this shift was evidence that the diagnostic characteristics of those seeking psychiatric treatment were changing. Psychiatrists began to see 'depressed patients who are younger, less severely ill, and more commonly neurotic than psychotic; and these patients presented in outpatient and ambulatory settings rather than at inpatient hospital facilities' (Klerman & Paykel, 1970; Klerman, 1976). Clear reasons for this change are not known but it occurred at about the same time that the psychoanalytic emphasis on anxiety was waning and the new psychotropic medications for depression were beginning to be widely used.

At about the same time, a growing interest emerged in the question of whether depression and anxiety could be distinguished from one another. Psychologists had shown that symptoms of anxiety and depression often loaded on a common factor (Costello, 1970). On the contrary, in studies that used interview schedules where anxiety included the autonomic indicators, the distinctiveness of the two disorders was demonstrated (Zubin & Fleiss, 1971; Schapira *et al*. 1972).

In the 1970s, The National Institute of Mental Health (NIMH) began to play a more central role in instrument construction. The Center for Epidemiologic Studies Depression Scale (CES-D) was designed (Radloff, 1977). Its development by the government and for epidemiology reflected the degree to which attention had shifted away from the early instruments to one that explicitly named depression and that had considerable 'face validity' for that syndrome.

Of paramount importance in focusing on specific psychiatric disorders was the publication of DSM-III (APA, 1980). With it, a new era of psychiatric epidemiology was launched. NIMH's Diagnostic Interview Schedule (DIS) was designed to implement DSM-III diagnostic criteria and was used in the Epidemiologic Catchment Area (ECA) Program (Robins *et al*. 1981; Robins & Regier, 1991). Momentum was clearly evident when the Composite International Diagnostic Interview (CIDI) was created as part of the World Health Organization (WHO) involvement in psychiatric epidemiology (Robins *et al*. 1988) and was used not only in the U.S. National Comorbidity Survey (NCS) and its replication (NSC-R; Kessler *et al*. 1994, 2003) but also in the World Mental Health 2000 Initiative (World Mental Health Survey Consortium, 2004).

In terms of nosological developments, 'Anxiety Disorders' became a major category in DSM-III. In contrast to its absence in DSM-I, Panic Disorder was elevated to a separate diagnosis that took precedence over the diffuse anxiety that earlier had headed the list and was now labeled Generalized Anxiety Disorder (GAD). The essential feature of Panic Disorder was 'recurrent attacks' involving mainly autonomic hyperactivity, the specification of which was a far cry from the vague reference to 'somatic symptoms' in DSM-I. GAD required persistence over at least 1 month of symptoms involving 'motor tension', 'autonomic hyperactivity', 'apprehensive expectation' and 'vigilant scanning'.

After DSM-III, research about anxiety disorders began to increase (Klein, 1981; Hoehn-Saric, 1982; Barlow *et al*. 1986; Eaton & Ritter, 1988). Where GAD is concerned, duration was extended to 6 months in DSM-III-R (APA, 1987), and in DSM-IV (APA, 1994) the essential feature focused on excessive and uncontrollable worry with the associated symptoms being at least three of the following: (1) restlessness or feeling keyed up or on edge; (2) being easily fatigued; (3) difficulty concentrating or mind going blank; (4) irritability; (5) muscle tension; and (6) sleep disturbance. Importantly, this definition does not include the autonomic indicators.

The changes in GAD between DSM-III and IV were supported by a number of studies (Breslau & Davis, 1985; Breier *et al*. 1985; Garvey *et al*. 1988; Noyes *et al*. 1992; Brown *et al*. 1994; Barlow & Wincze, 1998; Hoehn-Saric, 1998; Turvey *et al*. 1999). Like Lewis's 'alpha and omega of psychopathology', GAD began to be seen as so ubiquitous as to be better conceptualized as prodromal, residual, or as a severity marker of other disorders rather than as a distinct disorder. GAD was sometimes a prolonged forerunner to Panic Disorder, and it was thought that recognizing the GAD might lead to failure in recognizing the Panic condition.

Based on a growing amount of evidence that comorbidity among psychiatric disorders is common, factor analytic studies indicated that Social Phobia, Simple Phobia, Agoraphobia, and Panic Disorder formed a factor with the suggested name of 'Fear' whereas GAD affiliated with Major Depressive Episode and Dysthymia in a factor named 'Anxious-Misery' or 'Distress' (Krueger, 1999; Vollebergh *et al*.

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2001; Slade & Watson, 2006). If Alcohol, Drug and Anti-Social Diagnoses were added, they loaded on a factor of 'Externalization' whereas 'Fear' and 'Anxious-Misery' were sufficiently correlated to suggest an 'Internalization' factor.

It has been suggested that these factor results give a better way to 'carve psychopathology at its joints' than DSM categories. This idea has brought considerable interest to issues about dimensional *versus* categorical measurement (Goldberg, 2000; Brugha, 2002; Kessler, 2002). With this new emphasis on dimensionality, the phrases 'Common Mental Disorders' and 'Neurotic Disorders' have appeared in titles of several articles (Andrews *et al*. 1990; Vollebergh *et al*. 2001).

Contributing to the view that these more comprehensive groupings of symptoms relate to the core of psychopathology is evidence that GAD and Major Depression share the same genetic liability (Kendler *et al*. 1992; Roy *et al*. 1995; Kubarych *et al*. 2005). In addition, when the Eysenck Scale for Neuroticism was analyzed in conjunction with GAD, again shared genetic liability was observed (Hettema *et al*. 2004).

Bearing in mind that an early version of the Eysenck Inventory was a parent instrument for the HOS and at that time included some of the autonomic indicators, it can be noted the Neuroticism Scale does not now include any of them but rather items about feeling miserable, worrying, being irritable, tense, high-strung, touchy, and sleepless.

At the present time DSM-V is being developed in light of much expanded research about the nature and divisions of psychopathology, but the details of the new Manual are not yet known.

Discussion

The years since the Second World War have witnessed many changes. The interplay between clinical, psychological and epidemiologic approaches that created the field of ideas at that time has been expanded to include psychopharmacology, genetics and neurobiology. The DSM has moved from its first to the approach of its fifth edition.

Over these years anxiety lost the interest it had inspired as thinking shifted away from the unconscious. Depression gained attention as thinking about it shifted away from its psychotic manifestations to milder features that responded to psychotropic medicines. These shifts were not matched by changes in prevalence. Anxiety was present in the population despite diminution of psychoanalysis, and non-psychotic depression was present even when it was generally thought to be a psychotic disorder. With return of interest in anxiety, it has acquired a new definition that relegates to panic the autonomic indicators with which this history started and the general form has become centered on cognitive worry in place of the over-alertness of the body's alarm system.

Current issues about categorical *versus* dimensional measurement are, however, somewhat similar to those that swayed psychiatric epidemiology in its earlier phase, although now the arguments are more based on empirical evidence whereas earlier they were more often rooted in theory. The Midtown Study took a dimensional approach that had its underpinning in the psychoanalytic thinking of those times. It was much broader than the 'Common Mental Disorders' that are being discussed in dimensional terms now, and it seems unlikely that there will be a return to viewing all mental disorders as a continuum.

Influenced by Meyerian psychobiology, we of the Stirling Study emphasized the syndromal quality of anxiety, in which the cardinal feature is unwarranted fear, and differentiated it from depression, which is pervaded by sadness. The distinction between the two syndromes seemed important to us and allowed observation of what we consider to be the most important time-trend our data have yet suggested. The background is steadiness of the overall prevalence rates of the two disorders and their brand of co-morbidity, but at the beginning in 1952, depression was about as prevalent among men as women and anxiety was distinctly a disorder of women. Over the new samples drawn in 1970 and then another in 1992, depression came to resemble anxiety as a disorder significantly more common among women.

Our categories of anxiety and depression are broader than those in the recent DSMs. As long as the autonomic indicators were part of GAD, we thought our definition gave a reasonable fit with it. Now if our 'anxiety' subjects were interviewed with the most recent diagnostic schedule, it is probable that some would be found to have Social Phobia, Simple Phobia, Agoraphobia, Panic Disorder, or a combination of these. We suspect, however, that a residue would still meet our criteria for autonomic anxiety and, in that regard, would appear to be frequently fearful of many things in many places. Furthermore, we suggest that our depression, which tends to be chronic, is a combination of what today would include Major Depressive Episode and Dysthymia. In other words, our definitions are not as specific as Panic, Social Phobia, Dysthymia, etc., but also not as broad as Neurotic Disorders or Internalization.

A question raised by this review is whether there will be a place for a chronic and generalized form of disorders that involve fear and autonomic arousal. In clinical studies, it has been reported that such a

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pattern is often a prodrome or underlying condition for discrete episodes of Panic. However, the prodrome is excluded from the nosology in order to focus on the more specific diagnosis. Such an exclusion seems understandable for clinical practice but might not be equally reasonable for epidemiologic research.

Data gathering in epidemiology is conducted through interviews with subjects who, for the most part, have never been psychiatric patients. Usually, the data derive from a single interview. Pinning down a history of episodic illnesses requires greater detail and dependence on recall than pertains for chronic disorders. The nosological needs of epidemiology may be different from those of clinical, genetic, psychopharmacological or neurobiological psychiatry (Marshall & Klein, 1999). Some consideration has been given to the concept of a 'genetic nosology' that might incorporate both the categorical and dimensional traditions (Smoller & Tsuang, 1998). Although we do not propose an 'epidemiologic nosology', it might be fruitful to create standardized adjustments of a common classification for different types of research. For epidemiology, this might mean greater attention to chronic disorders.

As improvements in nosology continue to move forward, it may also be worthwhile to bear in mind that non-specific autonomic anxiety has had a more demonstrably robust history in studies of community populations than has sometimes been appreciated. The disturbances that accompany the syndrome's defining characteristic of fearfulness seem to be the types of symptoms that people are able to report accurately and reliably; that correspond well to validity assessments; and have led to a steady prevalence over time.

Perhaps there are two different types of general anxiety that belong in a new classification – one dominated by persistent worries and another by frequent autonomic fearfulness.

Acknowledgments

This report draws on experience in the Stirling County Study, which is currently supported by NIMH Grant R01 MH39576-23 (J.M.M.) and on NIMH Contract 80M0142800101D 'Psychiatric Screening Development for Primary Care' (J.M.M.).

Declaration of Interest

None.

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