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EDITORIAL

Epidemiological study of eating disorders: time for a change of emphasis[1]

Twenty years have passed since epidemiological methods were first applied to the study of eating disorders. Interest in this approach has been intense in part related to speculation that anorexia nervosa has become more common. In spite of considerable effort research workers have encountered a variety of methodological problems which have left fundamental questions unanswered. Difficulties such as low participation rates, questionable methods of case ascertainment and the study of unrepresentative groups were avoidable. Others are intrinsic to this type of research. Anorexia nervosa is an uncommon disorder and achieving adequate and representative samples outside the hospital setting is difficult. Furthermore, in non-clinical settings eating disorders are often not accompanied by severe weight loss or all features of bulimia nervosa. Clinically derived classification systems are thus rendered of limited use.

STUDIES IN THE CLINIC SETTING

As anorexia nervosa is an uncommon and often severe disorder it is understandable that data on patients attending hospital services should first have attracted interest. Three psychiatric case registers have provided demographic data on anorexia nervosa: North-East Scotland (Kendell *et al.* 1973; Szmukler *et al.* 1986), Monroe County, New York State (Kendell *et al.* 1973; Jones *et al.* 1980) and Camberwell in London (Kendell *et al.* 1973). The data substantiate clinical impressions that anorexia nervosa is a disorder primarily of young women albeit with a two-fold variation in sex ratio between registers. Counter to clinical impression, little evidence has emerged in support of an association with higher social class. The one register reporting a significant relationship was based on only seven patients with anorexia nervosa (Kendell *et al.* 1973).

Data derived from case registers provide the strongest evidence that anorexia nervosa has increased in incidence. In Monroe County, annual incidence increased by 80% between the decades 1960–69 and 1970–78 (Jones *et al.* 1980). In North-East Scotland a 150% increase in incidence was observed between the periods 1966–69 and 1978–82. These findings have been taken as evidence that changing cultural influences, in particular pressures to achieve and maintain a slim body shape, are important aetiological factors.

Although these figures are striking, caution is necessary in interpreting this apparent upward trend in incidence. As a means of case identification the psychiatric case register is limited, as many patients present to paediatric, medical and gynaecological services. The register approach is also handicapped by poor case definition, exemplified in North-East Scotland where only 23% of patients with a register diagnosis, fulfilled standard criteria for anorexia nervosa (Szmukler *et al.* 1986).

Williams & King (1977) challenged the view that anorexia nervosa has become more common. Using data from the Mental Health In-patient Enquiry for England and Wales between 1972 and 1981 they demonstrated that the increased number of new cases could be accounted for by demographic changes in the general population, particularly by the relative increase in the numbers of young women. An associated finding of rising rates for re-admission provided an explanation for

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clinical impressions of increasing prevalence. Subsequent studies in Rochester and Zurich have also revealed that many people with these disorders are not seen by psychiatrists and when a broader patient group, derived from paediatric and medical as well as the psychiatric setting is considered, a trend towards higher incidence is not shown (Lucas *et al.* 1988; Willi *et al.* 1988).

Although case control methods are an economical way of detecting possible causal associations in uncommon disorders they have been applied in only a limited way in the field of eating disorders. Because of difficulties in achieving representative groups, studies to date have generally been conducted on patients attending psychiatrists. When applied to the study of weight and eating behaviour in the families of patients (Halmi *et al.* 1978; Garfinkel *et al.* 1983; Hall *et al.* 1986), parental personality (Garner *et al.* 1982), and pre-morbid personality (Strober, 1980) the case control method has failed to yield important associations. On a more positive note, results of controlled family studies have indicated an association with a history of a broadly defined eating disorder, found to occur five times more commonly in the first degree female relatives of patients with anorexia nervosa (Strober *et al.* 1985). In conjunction with findings of a recent twin study, this provides support for a genetic risk factor in anorexia nervosa (Holland *et al.* 1988).

STUDIES IN NON-CLINICAL SETTINGS

The use of school personnel to identify cases was an early approach to the study of eating disorders outside clinical settings (Crisp *et al.* 1976). More recently, medical personnel have been used as informants (Cullberg & Engstrom-Lindberg, 1989). This strategy has usually been limited by selective identification of cases with severe weight loss and a failure to confirm the diagnosis by clinical interview. However, in a recent Swedish study the key informant approach was extended through the use of growth charts by school nurses for case identification followed by adequate clinical assessment of pupils who were thought to be affected (Rastam *et al.* 1989). The reported prevalence of 0·7% for anorexia nervosa in 15-year-old schoolgirls in Göteborg is likely to be the most accurate estimation in a Western population.

Self-report questionnaires applied in the 1960s to the study of dieting in American teenagers have subsequently become widely used in the study of eating disorders (Huenemann *et al.* 1966; Dwyer *et al.* 1967). Ease of administration and acceptability to respondents made self-report questionnaires an attractive means of gathering data on a large scale. The questionnaires commonly used are of two main types: those designed *de novo* for a specific study and those standardized in a clinical population. The Eating Attitudes Test (EAT) (Garner & Garfinkel, 1979) is the most well-known example of the second approach and, perhaps because of its proven validity in a clinic setting, has achieved greater prominence than other questionnaires. Unfortunately, the validity coefficients of the EAT used in the general population have been too low for it to be effective as a screening instrument. Instruments validated on clinical populations to distinguish 'caseness' will not always perform well in classifying individuals of intermediate degrees of disorder, particularly when applied to populations containing very low prevalences of the disorder sought (Williams *et al.* 1982; Goldberg, 1986). This seems a likely explanation for the great discrepancy in reported rates of abnormal eating attitudes based on the EAT in developed countries, estimates ranging from 5% in London schoolgirls (Szmukler, 1983) to 22% in Canadian schoolgirls (Leichner *et al.* 1986).

The two-stage survey, in which a population is initially screened with a self-report questionnaire and high and low risk subjects are later selected for interview is potentially very useful, but until recently under-utilized in this field. It enables the study of large populations while retaining the clinical assessment necessary for careful evaluation and diagnosis. Studies of this type have been applied in general practice (King, 1989), with adolescent schoolgirls (Mann *et al.* 1983; Szmukler, 1983; Johnson-Sabine *et al.* 1988) and with university students (Button & Whitehouse, 1981; Clarke & Palmer, 1983) leading to reliable point prevalence estimates for broadly defined eating disorders of 4–5% in young British women (Button & Whitehouse, 1981; Johnson-Sabine *et al.* 1988; King, 1989). One weakness of the two-stage survey has been the failure to identify clinical anorexia

nervosa, perhaps reflecting a tendency for these patients to avoid participation in surveys (Johnson-Sabine *et al.*1988).

KEY ISSUES

Progress in epidemiological research has led to a changing view of the nature of eating disorders. Anorexia nervosa represents a relatively uncommon but important point on a spectrum of eating disorder, most of which does not come to clinical attention (King, 1989). Prevalence rates for elements within this spectrum in young women with a Western cultural background seem established. Beyond this, most important questions remain unanswered.

Little can be said with certainty about the natural history of these conditions. Most prospective studies have enlisted patients taking part in treatment programmes (Hsu, 1980; Touyz & Beaumont, 1984; Clinton & McKinlay, 1986; Hsu & Sobkiewicz, 1989). Outside the clinic setting volunteers have sometimes been used in prospective studies of eating disorders (Yager *et al.* 1987), but because of the atypical nature of this population and inadequate diagnosis and follow-up, conclusions are open to criticism.

A more robust approach, based on an extension of the two-stage survey within a prospective design has been attempted in populations of general practice attenders and schoolgirls. Data from a 2- to 3-year follow-up study in British general practice has indicated that, in contrast to findings for treated groups, attitudes and behaviour of subjects with the full syndrome of bulimia nervosa remain relatively entrenched (King, 1986, 1989, 1991). Improvement in subjects with less severe syndromes is similarly uncertain, a proportion of normal dieters becoming more obsessional in their behaviour with time. A link between dieting and eating disorder was further substantiated in a 12-month follow-up of a representative sample of adolescent schoolgirls in which dieters were reported to have an eight-fold increased risk of developing an eating disorder over 12 months (Patton *et al.* 1990). The progression to eating disorder in these community groups was associated with the development of psychiatric symptoms, but recovery was not always linked to an improvement in the latter.

Aside from findings that the development of eating disorder is linked with earlier dieting and associated with general psychiatric symptomatology, there are few clues to aetiology. With the exception of an association with familial eating and affective disorder, most links considered clinically important have not been verified when put to more rigorous tests in case–control studies of clinic groups or two-stage surveys in the general population. In fact, many of the factors conventionally associated with eating disorder, such as pre-morbid obesity and obsessional personality traits, appear to be more closely identified with dieting than eating disorder (Patton, 1988, Patton *et al.* 1990).

The nosological status of the most commonly occurring eating disorder, that of the partial syndrome, remains uncertain. On the basis of a shared psychopathology with anorexia nervosa, those eating disordered subjects without weight loss have generally been viewed as part of the same spectrum with a similar aetiology. However, the occurrence of prominent depressive and neurotic symptoms in these subjects raises the question of whether the neurotic disorder may be better viewed as primary. The crucial question of how often those subjects with a partial syndrome progress to anorexia nervosa has not yet been answered.

Prospective epidemiological study remains a promising strategy but has been limited by the difficulty of achieving representative samples of adequate size, particularly of the severe syndromes with weight loss. Even general population studies of a size several times the largest to date may not provide sufficient numbers to address adequately the most interesting questions. One possible solution might be to concentrate on populations considered to be at higher risk for the development of an eating disorder. This would allow more economic study of the inter-relationships between the different types of eating disorder as well as further insight into possible pathogenic influences associated with each high risk group. Dancers and racing jockeys, who for career reasons must maintain a low weight, have so far attracted interest in this respect (Garner & Garfinkel, 1980;

Abraham & Mason, 1987; King & Mezey, 1987). Despite a lack of rigorous epidemiological study, certain populations of medical patients are also thought to be at greater risk of eating disorder (Patton *et al.* 1986). The most well known of these are young diabetic women, where the development of eating disorders following the onset of diabetes raises the interesting possibility that the special diet of these subjects may be contributory (Steel *et al.* 1987, 1990).

Cultural factors as determinants of eating pathology can be studied in people living in developing countries or in those who have emigrated to the West. Reported prevalence rates in these groups vary considerably, depending on methods of ascertainment. When clinic records or the memories of psychiatrists are used, very low prevalences of eating disorders emerge (Elsarrag, 1968; German, 1972; Okasha *et al.* 1977; Buhrich, 1981). With two stage screening methods, however, high rates have resulted (Nasser, 1986), including a claim that bulimia nervosa in Asian schoolgirls living in Bradford is almost six times more common than in equivalent English girls (Mumford & Whitehouse, 1988). King & Bhugra (1989) found that even when carefully translated into local languages the use of the EAT questionnaire in a population of schoolgirls living in Northern India led to grossly contradictory scoring with poor internal reliability. Structured interviews derived in the West are subject to the same conceptual errors as questionnaires (Sen & Mari, 1986). Further it appears that many concepts of eating disorder familiar to Western society are misunderstood by immigrant Asian people living in the UK (N. Prinjha – personal communication). Thus, the cultural gap may be the explanation for the unaccountably high rates of eating disorder obtained in some cross-cultural studies.

A SHARPER FOCUS

It is clear that fundamental epidemiological questions have not yet been adequately addressed, a failure which indicates a need for a change in the emphasis of epidemiological research. Further large cross-sectional studies in the general population, particularly those based on a single-stage procedure, are unlikely to be an economic use of resources. Preferable are prospective surveys which allow the delineation of the natural history and inter-relationships between syndromes and symptoms of eating disorder. Such studies might usefully examine the development of attitudes to dieting and changing perceptions of body image. Given the difficulties in case identification in the general population, particularly of severe syndromes of eating disorder, this approach could be extended to the study of high risk groups (e.g. adolescent dieters, dancers, young diabetics), where the relationship between full and partial syndromes may be more easily observed.

The difficulty in collecting adequate samples of the severe syndromes points to a continuing role for the application of epidemiological methods in the clinic setting. Here, for example, the use of the case control method with less common presentations, such as eating disorder in men, in older people and those from non-western cultures may provide important aetiological clues.

The methodological problems of this area of research endeavour are nowhere more evident than the study of eating disorder in non-western cultures. Neither Western methods of case definition nor Western instruments will necessarily be appropriate for use in these populations. More might be gained from a study of local concepts of psychological disorder with the aim of developing and testing instruments on this basis (Littlewood, 1990). In spite of the difficulties, the study of these groups is likely to offer the greatest insight into the cultural determinants of eating disorder.

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