

EDITORIAL

Prevention of the common mental disorders: a public health perspective¹

From a public health perspective, there is probably no more important or daunting challenge than reducing the prevalence of the most common mental disorders, namely anxiety and depression. These disorders have a combined community prevalence rate of between 15% and 30% (Cox *et al.* 1987; Robins *et al.* 1991; Goldberg & Huxley, 1992; Kessler *et al.* 1994; Meltzer *et al.* 1995) and account for one-third of days lost from work due to ill health (Jenkins, 1985*a*) and one-fifth of all consultations in general practice in the UK (Williams *et al.* 1986). The common mental disorders are associated with impairments in physical and social functioning at least as severe those associated with chronic physical illnesses (Wells *et al.* 1988; Klerman, 1989; Wohlfarth *et al.* 1993; Ormel & Costa e Silva, 1995; Spitzer *et al.* 1995; Martin *et al.* 1996), and a mortality rate nearly twice that of the general population (Murphy *et al.*, 1987; Klerman, 1989; Lloyd *et al.* 1996). The public health importance of these disorders, even in mild form, is further demonstrated by the finding that low levels of depression resulted in 51% more days lost from work than major depression (Broadhead *et al.* 1990). The total annual cost of the common mental disorders in the UK may amount to £6 billion, of which two-thirds arises from lost productivity (Croft-Jefferys & Wilkinson, 1989). Despite the availability of simple, cheap and effective treatments (Paykel & Priest, 1992; Effective Health Care, 1993; Brugha, 1995), one study found that the prevalence of these disorders in Britain may have increased recently (Lewis & Wilkinson, 1993).

The most commonly advocated approach to the prevention of psychiatric disorders involves targeting individuals at high risk of disorder (Harris, 1989; Brown, 1992; Goldberg, 1992; Jenkins, 1992; Paykel & Jenkins, 1994), which Rose (1993*b*) likened to ‘attempting to control icebergs by sending warships to shoot off their visible portions’. Clinicians, whether in primary or secondary care, are generally unenthusiastic about population-based interventions, partly because of aetiological uncertainty, but also because of widely-held perceptions that these are either wasteful of scarce resources or synonymous with Utopian political change (Goldberg, 1992; Scott & Leff, 1994; Freeling & Kendrick, 1996). Unfortunately, failure to resolve the ‘prevention paradox’ (Rose, 1992) continues to impede the development of effective strategies for preventing the common mental disorders.

SICK INDIVIDUALS AND SICK POPULATIONS

It has been shown that the prevalence of disorder is significantly correlated with the population mean for a variety of conditions, including hypertension, obesity, alcohol dependency and the common mental disorders (Kreitman, 1986; Rose & Day, 1990; Anderson *et al.* 1993). Furthermore, differences between populations in, for example, mean blood pressure are accounted for by differences in the relative positions of the respective population distributions of blood pressure, rather than differences in their shape. On the basis of these findings, it has been argued that the health of a population reflects the characteristics of all its members, and not simply the ‘deviant’ minority (Rose, 1985).

These findings have important implications for our understanding of the aetiology of specific

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disorders, since they draw attention to the ways in which this may be influenced by the nature of the samples in which risk factors are studied (Anderson *et al.* 1993; Rose, 1993*a*). When there is inequality of exposure to causal risk factors *between* and *within* populations, personal vulnerability factors tend to dominate the occurrence of individual cases but explain little of the difference in incidence between populations (Anderson *et al.* 1993). Just as a study of lung cancer in a population where everyone smoked 20 cigarettes a day could not evaluate the risk associated with smoking itself (Rose, 1985), so studies of the common mental disorders restricted to individuals at high risk of disorder (especially working class women) are precluded from investigating the risk associated with gender or low socio-economic status (Dohrenwend, 1990; Anderson *et al.* 1993). Since much of our knowledge about the social origins of the common mental disorders derives from studies conducted in such settings (Brown & Harris, 1978; Brown *et al.* 1986, 1995), risk factors that have emerged from this research may be different from those that account for the greatest proportion of disorder in the general population (Anderson *et al.* 1993).

RISK FACTORS FOR THE COMMON MENTAL DISORDERS

The two most consistently identified risk factors for common mental disorders in community studies are low socio-economic status (Blaxter, 1990; Robins *et al.* 1991; Rodgers, 1991; Power & Manor, 1992; Meltzer *et al.* 1995; Eachus *et al.* 1996) and female sex (Jenkins, 1985*b*; Paykel, 1991). Although inconsistencies have been reported in the association with occupational social class (Brown & Harris, 1978; Bebbington *et al.* 1981; Dohrenwend, 1990; Power & Manor, 1992; Stansfeld & Marmot, 1992), associations have been identified with forms of socio-economic adversity that could conceivably be corrected, including low income and financial hardship (Platt *et al.* 1990; Bruce *et al.* 1991; Murphy *et al.* 1991; Rodgers, 1991; Romans *et al.* 1993; Bruce & Hoff, 1994), unemployment (Surtees *et al.* 1983; Warr, 1987), poor housing (Brown & Harris, 1978; Huxley *et al.* 1979; Birtchnell *et al.* 1988; Goldberg *et al.* 1990; Platt *et al.* 1990) and lack of education (Blazer *et al.* 1994). Conclusions about the aetiological importance of different types of socio-economic adversity are restricted, however, by the dearth of longitudinal population-based studies, in contrast to the literature on socio-economic inequalities in mortality and physical morbidity (Davey Smith *et al.* 1990; Townsend & Davidson, 1992; Wilkinson, 1994; Eachus *et al.*, 1996). This issue has been given added saliency recently by the suggestion that the association between relative poverty and increased mortality (Townsend & Davidson, 1992; Wilkinson, 1992; Davey Smith & Egger, 1993; McCarron *et al.* 1994) may be mediated by adverse psycho-social health (Marmot & McDowall, 1986; Wilkinson, 1992).

The higher prevalence of common mental disorders among women cannot be explained by measurement artefact or response bias (Weissman and Klerman, 1977, 1985; Briscoe, 1982; Jenkins, 1985*b*; Robins & Regier, 1991; Goldberg & Huxley, 1992; Kessler *et al.* 1993), and the balance of evidence points towards environmental rather than biological causes (Jenkins, 1985*b*; Thoits, 1986; Wilhelm & Parker, 1989; Paykel, 1991). Although one study reported an association between parity and first admission rate for affective psychosis (Gater *et al.* 1989), a community-based survey found that the effect of parity on the prevalence of 'minor affective disorder' was confounded by marital status (Bebbington *et al.* 1991), while a community survey in New Zealand found that the prevalence of psychiatric disorder was significantly lower among women with, compared with those without, children (Romans-Clarkson *et al.* 1988).

Among women, associations between the prevalence of the common mental disorders and employment, marital status and parenthood are highly complex, and vary according to the specific permutation of social roles occupied (Kessler & McRae, 1981; Warr & Parry, 1982*a, b*; Surtees *et al.* 1983; Romans-Clarkson *et al.* 1988; Rosenfield, 1989; Arber, 1991; Elliott & Huppert, 1991; Popay *et al.*, 1993). This complexity is demonstrated most clearly in the case of employment, the effect of which appears not only to be strongly context-dependent, but may also have changed direction as more women have entered the workforce (Brown & Harris, 1986; Link & Phelan, 1995).

Early studies reported that employment had little effect on rates of common mental disorders among married women and mothers (Parry, 1986), although employment was noted to be of benefit for working class mothers (Warr & Parry, 1982b), and for married women with rewarding jobs (Kessler & McRae, 1981). It was also found that employment protected working class mothers against the effects of severe life events (Brown & Harris, 1978; Parry, 1986). More recent evidence indicates that married women with young children and full-time jobs may be at higher risk of disorder than either unemployed married women with children or employed married women without children (Rosenfield, 1989; Arber, 1991; Elliott & Huppert, 1991), although confounding by, or interactions with, low socio-economic status and poor social support have yet to be fully explored (Smith & Weissman, 1992).

One of the most appealing attempts at making sense of this complexity comes from a sociological perspective, and addresses not only the numbers of social roles occupied, but also their meaning in terms of the power and demands they bring (Rosenfield, 1989). Although men generally occupy more social roles than women (Thoits, 1986; Popay *et al.* 1993), there is evidence that the association between numbers of social roles and the prevalence of common mental disorders may be U-shaped for both sexes (Thoits, 1986; Rosenfield, 1989). Though by no means conclusive, such findings are consistent with the hypothesis that the common mental disorders are associated with low power and excessive demand, referred to as 'role overload'. One aspect of women's lives which tends to be overlooked is their responsibility for domestic chores, and it has been suggested that for married women, employment only has a beneficial effect on mental health if it leads to a reduction in these domestic demands (Rosenfield, 1992). Research is currently underway to test the hypothesis that the number of social roles (including domestic chores) is associated with the prevalence of common mental disorder after adjusting for socio-economic status, and to identify combinations of social roles that are associated with adverse mental health. If successful, such research could lead to social policy recommendations and specific interventions, such as health education about the harmful effects of role overload.

POPULATION-BASED INTERVENTIONS

While the household division of labour might be at least partly amenable to educational interventions, it is not clear at first sight how low income or poor housing might be rectified except by targeting those living in the direst circumstances. One controversial approach to this problem was Rose's suggestion that the prevalence of many disorders might be reduced by population-wide attempts to reduce mean levels of specific risk factors. Taking alcohol dependency as an example, he predicted that a 10% reduction in the prevalence of heavy drinkers (≥ 300 ml/week) in the UK could be achieved by means of a 10% (15 ml/week) reduction in the mean level of alcohol consumption in the general population (Rose & Day, 1990). Though intuitively appealing, this suggestion has been criticised on at least four grounds (Duffy, 1993). First, the distribution of alcohol consumption may not be normal or log-normal. Secondly, the effect of a specific intervention on the shape and dispersion of a distribution can only be evaluated empirically. Thirdly, it is unclear exactly how a reduction in mean alcohol consumption could be achieved, given the heterogeneity of individuals and subgroups contained within any large population. Fourthly, the dose-response association between alcohol consumption and mortality is probably non-linear, and moderate drinking may increase life expectancy.

Flawed though Rose's suggestion may have been, it would be mistaken to dismiss population-based interventions altogether. Instead, it must be acknowledged that the relative merits of high risk and population-based interventions are disorder- and population-specific, and depend on risk factor distribution and the shapes of dose-response curves. A population-based approach is likely to have the greatest impact where the latter is linear, or where the risk of disorder reaches a plateau above a certain level of exposure. A high risk approach is likely to be most appropriate where the risk of disorder increases exponentially, or rises sharply above a threshold of exposure (Strachan & Rose,

1991). Where the dose-response curve is linear, 'preventive yield' is likely to be directly proportional to the number of subjects targeted for intervention (Weich *et al.* 1997). The size of this group will depend on the availability and acceptability of effective interventions (Koepsall *et al.* 1995), and the costs and benefits associated with intervention. The fundamental dilemma, however, is that while the benefits of a population-based intervention may outweigh its costs, and may greatly exceed the absolute benefits of an intervention restricted to those at the highest risk of disorder, the absolute cost of intervention is likely to be high.

WHICH INTERVENTIONS?

We can be certain of one thing: a high risk approach to prevention on its own is incapable of reducing the prevalence of the common mental disorders to any significant extent (Rose, 1992; Watt, 1996). But what are the alternatives? Egalitarian political interventions, such as changes in taxation or housing policy (Benzeval *et al.* 1995; Watt, 1996), are likely to be opposed on the grounds that they are costly and as yet unsupported by empirical evidence (Goldberg, 1992; Paykel & Jenkins, 1994). If a population-based approach is to gain credibility, interventions must be developed which are economically feasible and acceptable to populations (Koepsall *et al.* 1995). Unfortunately, there have been no previous trials of interventions designed to alleviate low income or housing problems in the general population, and neither do we know whether it would be more effective to address such 'fundamental' socio-economic causes or individual characteristics which may mediate their effect on mental health, such as cognitive style (Link & Phelan, 1995). To the best of my knowledge, there has been only one study which has evaluated a population-based preventive intervention for a common mental disorder. In the San Francisco Depression Prevention Research Project (Munoz, 1993; Munoz *et al.* 1995), 150 public sector primary care attenders who did not meet criteria for any psychiatric disorder were randomized to either training in cognitive-behavioural skills or a control condition. Unfortunately, no statistically significant difference was found in the incidence of depression, primarily because of the rarity of this end-point.

In addition to such 'universal' individual-level interventions aimed at all members of an identified population (Rose, 1992, 1993*a, b*) or structural interventions (such as changes in taxation or housing policy), it is possible to conceive of population-based interventions which may be prioritised or modified on the basis of individual risk assessment (Lewis & Rose, 1991). A report commissioned by the US Congress (Mrazek & Haggerty, 1994) argued for a 'risk reduction' approach analogous to that employed in the prevention of cardiovascular disease (e.g. Langham *et al.* 1996). Randomized trials provide limited evidence that both the social risk factors for the common mental disorders, and (in some cases) the prevalence of these conditions, may be reduced by interventions targeted at those who have experienced job loss and unemployment (Price *et al.* 1992), marital separation (Bloom *et al.* 1985), bereavement (Raphael, 1977; Vachon *et al.* 1980) and teenage pregnancy in the context of poverty (Olds *et al.* 1988). Another interesting study was a randomized trial of prioritization for re-housing on the grounds of (non-psychotic) mental ill health in Salford (Elton & Packer, 1986). Fifty-six subjects were allocated alternately, in pairs according to the order of assessment, to either high or low 'medical priority' groups. After 1 year, 23 high and six low priority subjects had been re-housed. The high priority group had a significantly better outcome in terms of anxiety and depression scores, and those that were re-housed did best of all. Clearly, one question that now needs to be answered is whether high risk interventions such as these can be combined in an effective population-based risk reduction programme.

In contrast to the paucity of research on psychiatric prevention, several large community-wide trials have now been completed in the field of cardiovascular prevention (Koepsall *et al.* 1995). One of the most important messages to emerge from these studies is that such interventions need to be 'owned' locally, since effectiveness depends on acceptability. To this end, members of the community, its leaders and institutions must be mobilized during the design phase of any intervention (Koepsall *et al.*, 1995). The aim must be to produce a locally-tailored, multi-domain package of risk reduction measures, in collaboration with purchasers and providers, users, GPs,

public health physicians, elected representatives, social services and housing departments, voluntary organizations and the media (Elton & Packer, 1986; Lewis & Rose, 1991; Mrazek & Haggerty, 1994; CRAG Working Group on Mental Illness, 1995; Koepsall *et al.* 1995).

EVALUATING OUTCOMES

Having designed a potentially feasible, acceptable and effective population-based package of risk reduction measures, the next challenge is to conduct a scientifically meaningful evaluation of its cost effectiveness. Although data must be collected on individuals, the units of allocation and analysis in a population-based evaluation will be whole communities (Green *et al.* 1995). Given the logistics and costs involved, randomized controlled trials may only be possible for smaller populations such as residents of a housing estate, factory employees, or primary care attenders, though one trial of cardiovascular prevention has been conducted where the units of randomization were towns with approximately 150 000 residents (Fortmann *et al.* 1995; Green *et al.* 1995). Though preferable to non-random allocation, cluster randomization is less likely to result in random distribution of confounders than individual randomization, particularly where the number of clusters is very small (Green *et al.* 1995). Trials of this nature face two significant problems in analysis and interpretation: first, observations on individuals within clusters tend to be correlated, and may lead to a biased over-estimate of the effect of intervention. The second, more intractable, problem is that of monitoring, and trying to reverse or accelerate, secular trends in the exposure(s) of interest before and during the intervention trial (Murray, 1995). At least one trial of cardiovascular prevention in the USA during the 1980s was 'defeated' by the rate at which exposure to risk factors such as smoking declined in the general population (Murray, 1995).

CONCLUSION

The common mental disorders are arguably the most costly to society, and it has been suggested that they may even mediate the association between socio-economic deprivation and increased mortality (Wilkinson, 1992). The dilemma for psychiatrists is whether to target resources in a way which will benefit a small number of individuals but will not have a significant impact on the prevalence of these disorders, or to develop strategies which may be capable of achieving this but will require scarce resources to be targeted at individuals at low risk of disorder (Goldberg, 1992; Rose, 1993*b*).

Since community-wide interventions will only be implemented when there is sufficient evidence of their likely effectiveness, four tasks are crucial. First, we must foster a greater awareness of the importance of populations, both in terms of understanding the aetiology of disorder and as a locus for intervention. Secondly, longitudinal, population-based quantitative and qualitative studies are needed to clarify associations between specific socio-economic risk factors and the common mental disorders, and to identify economically feasible interventions that are acceptable to populations (Koepsall *et al.* 1995). Thirdly, we must devise and refine methodologies for evaluating the effectiveness of population-based psychiatric interventions. Lessons can be learnt on all these counts from work on cardiovascular prevention (Mrazek & Haggerty, 1994; Koepsall *et al.* 1995). Finally, we must succeed in mobilizing the communities in which we seek to intervene, along with their leaders, opinion-formers and institutions, a task made difficult by the low priority generally afforded to mental health issues.

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