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Increased rates of psychosocial disorders in youth

Abstract The evidence for an increased incidence of rates of psychosocial disorders including depression, suicide, delinquency, eating disorders, and drug and alcohol abuse is summarized. Findings from prospective studies, family genetic studies, community surveys, repeated cross-sectional surveys, and data from mortality and police statistics suggest that the increase over time of several of these disorders is supported by epidemiological evidence, particularly for suicide, delinquency, addictive behaviors, and depression. Several studies also indicate that an earlier age of onset for these disorders is seen in the most recent birth cohorts, with most of these disorders having their onset in adolescent years. The implications of these findings for child psychiatric treatment and services are discussed

Key words Delinquency · Suicide · Eating disorder · Depression · Drug abuse · Alcohol abuse · Secular trend · Epidemiology · Birth cohort · Age of onset · Psychiatric services

Introduction

In recent years, several reports have been published that have concluded that rates of psychosocial disorders have been increasing (Rutter and Smith 1995). The goal of this article is to review the evidence for the increase in the incidence of several psychosocial disorders in the post-World War II era including: depression, suicide, eating disorders, crime and delinquency, and drug and alcohol abuse. Because the evidence suggests that disorders have an earlier age of onset, the implications of these secular trends for psychiatric services for adolescents are subsequently discussed.

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Depressive disorders

Evidence of a secular trend stemmed initially from two large family genetic studies where lifetime rates of depression among relatives of depressed probands were compared across successive birth cohorts (Klerman et al. 1985; Gershon et al. 1987). Findings suggested increasing rates of depressive disorders in more recent birth cohorts throughout the century with an earlier age of onset. Subsequently, three other family data sets yielded similar results (Coryell et al. 1992; Ryan et al. 1992; Maier et al. 1991). Consistent evidence has also come from surveys of large community samples conducted recently throughout different countries with precise sampling methodologies, comparable diagnostic definitions, and use of standardized diagnostic interviews of known reliability and validity. The Epidemiologic Catchment Area (ECA) study, carried out in the United States in five sites for a total sample size of over 18 000 adults, provided several leads to the question (Robins et al. 1991b). Lifetime rates of any disorder declined with age, with lower rates being found among the elderly. This pattern of decreasing lifetime rate with age was particularly pronounced for affective disorders. Thus, for men and women respectively, the lifetime rates were 6.4 and 10.6% for the 18- to 29-year-olds, 6.6 and 15.3% for the 30- to 44-year-olds and thereafter declined to 3.6 and 9.3% in the 45- to 64-year age group and fell to 1.6 and 3.3% among those over age 65 years (Weissman et al. 1991). These results were found across the five study sites and reflected, at least in part, a younger mean age of onset.

At any age the youngest birth cohorts which have completed the period at risk have higher rates of disorders than the older cohorts, and they also show a progressively earlier age of onset. Similar results were obtained in three other North American studies using diagnostic interviews and criteria different than those of the ECA study and therefore ruling out instrumentation as a major artifact (Bland et al. 1988; Lewinsohn et al. 1993; Kessler et al. 1993). Similar conclusions were reached in the long-term

prospective Lundby study in Sweden (Hagnell et al. 1982) and in community surveys conducted in other countries (Oakley-Brown et al. 1989; Wells et al. 1989; Joyce et al. 1990; Bebbington et al. 1989). Other community surveys which failed to document an increase in the lifetime prevalence of affective disorder were conducted in developing countries (Lee et al. 1987; Chen et al. 1993) or in samples with cultural/ethnic (Karno et al. 1987; Canino et al. 1987) or age (Murphy et al. 1984) characteristics which do not make direct comparisons straightforward.

A cross-national collaborative group recently re-evaluated the temporal trends in nine community samples and three family studies that used very similar diagnostic criteria and psychiatric interviews (Cross-National Collaborative Group 1992). In addition to the already-cited databases, new data sets were included from one German family study and from recent community surveys conducted in Italy, Germany, France, Lebanon, and Taiwan for a total sample of over 43 000 subjects. Using a sophisticated statistical modelling technique, the authors found in *every* dataset a significant "drift" (the term "drift" describes a regular trend in rates which is not attributable to specifically period or cohort influences) in rates of depression over time, i.e., a regular linear increase in the incidence of depressive disorders cutting across generations, historical periods and cultural boundaries. They further identified specific cohort and period effects in some, but not all, sites. Interestingly, none of the family data sets exhibited such non-linear period- or cohort effects, a finding that, according to the authors, could be suggestive either of less sensitivity to environmental factors of depressive disorders occurring in genetically loaded families or of an instrumentation effect (since the psychiatric interview used in these three studies (SADS) differed from that (DIS) used in the community surveys). However, surprisingly, the range and magnitude of the "drift" parameters did not differ between family and community samples. In this combined analysis, the median relative risk for one 10-year birth cohort to experience depression as compared with that of the immediately preceding birth cohort was 1.7 indicating a substantial average increase for each decade.

Repeated surveys of samples representative of the same population is another methodology which was used to test time trends in rates of psychiatric disorders and which is relatively free of methodological problems such as recall bias or memory artefacts. Repeat surveys of 7- to 16-year-old American children conducted over a 13-year interval indicated that parents, and especially teachers, reported recent increases in rates of depressed mood and scores of depressive syndromes among youth, although the absolute magnitude of the increase remained modest (Achenbach and Howell 1993). However, suggesting that these trends were not specific to depressive phenomena, these findings were paralleled by increased reports of many other kinds of behavior problems and syndromes particularly those reflecting disruptive behaviors. Cross-sectional surveys of mental health carried out in 1957 and 1976 on representative samples of American adults also showed that young adult respondents reported less feelings of happiness in the recent survey (Gurin et al. 1960; Veroff et al. 1981 a, b). Similarly, levels of reported happiness in 15 surveys of U.S. nationally representative samples declined from the late 1950s up to the early 1970s and subsequently increased, a trend more pronounced among young respondents (Rodgers 1982). Whereas the difference between the constructs measured in these surveys should be borne in mind, their results run parallel to the other psychiatric surveys.

A detailed discussion of the methodological problems and measurement artefacts which are associated with studies showing a secular increase in rates of depression is out of the scope of this article and has been provided elsewhere (Fombonne 1994, 1995 a, 1998 a). Suffice it to say that convergent results from a wide array of studies conducted with various designs, in different countries and with heterogeneous measures, argue for the validity of this finding. However, the actual magnitude of this secular change is unknown and most probably small since there is also evidence that a sizeable portion of the reported increase is in fact due to several undetected artifacts and study-methods effects. Furthermore, the extent to which this increased incidence applies specifically, or more specifically, to depressive phenomena remains to be established. Whereas one study provided some evidence on specific effects (Ryan et al. 1992), other findings suggest that other psychiatric disorders, be they affective (Lasch et al. 1990) or not (Robins et al. 1991 a, b), exhibited the same recent trends. Reports which could *simultaneously* assess trends of a range of problem behaviors (Achenbach and Howell 1993) or of psychiatric disorders (Simon and VonKorff 1992) do not argue strongly for the specificity of the increase in depressive conditions. Yet, even though the secular increase might not be specific to depression and might reflect increased rates of comorbid depression, the epidemiological data consistently point to a genuine secular increase. The current evidence still suggests that women have twice the risk of men (Leon et al. 1993) but some data point toward a trend for a closing of the gender difference in the incidence of depressive disorders for youngest birth cohorts (Weissman et al. 1993).

Eating disorders

Anorexia nervosa

We reviewed a total of 16 published studies where incidence rates for anorexia nervosa (AN) were derived (Fombonne 1995 b, c). A comparison of female and male rates showed a consistent tenfold increase in incidence for women. Incidence rates for AN consistently peaked for the 15- to 19-year-olds, and decreased somewhat for the 20- to 24-year-olds. Because of the huge impact on rate estimates of study and method factors, no firm conclusion regarding secular trends could be drawn from studies conducted in the same country but at different locations or by different authors. Due to these limitations, time trends in

rates were examined from repeated investigations conducted at a single site. An increase over time has been detected for various periods between 1930 and 1990 at five different sites: Monroe County (Jones et al. 1980; Kendall et al. 1973), northeast Scotland (Kendell et al. 1973; Szmukler et al. 1986), Sweden (Theander 1970), Switzerland (Willi and Grossmann 1983; Willi et al. 1990) and Rochester, Minnesota (Lucas et al. 1988, 1991). An upward trend was shown in every study based on case registers in which incidence could be estimated at more than one point in time. However, four limitations in the interpretation of this data need to be borne in mind. Firstly, most of these register data relied on hospitalized cases and, with few exceptions (Szmukler et al. 1986; Lucas et al. 1988, 1991), no attempts were made to assess the validity and reliability of diagnoses or to ensure that consistent diagnostic criteria had been used throughout the study periods. Accordingly, trends in rates may reflect only changes in diagnostic practice. For example, anorectic patients were recorded as "hysterical neuroses" prior to 1966 in the northeast Scottish register, precluding the derivation of any incidence estimates for AN in the first years of operation of the register (Kendell et al. 1973). Secondly, trends could be caused by an increased use of services. For example, there is some evidence that the increased frequency of AN reported in Monroe County (Jones et al. 1980) could have reflected, at least in part, the improved availability and use of local mental health services by children and adolescents for a range of psychiatric disorders (Roghmann et al. 1982). Similarly, evidence has been produced that the proportion of cases of AN identified as formal psychiatric cases had increased over time, thereby suggesting that upward trends in rates might partially reflect better case identification methods (Szmukler et al. 1986). Thirdly, incidence rates have often been reported as crude, unstandardized estimates. Crude rates may be misleading because they relate the number of cases to the total population, whereas most sections of the population have virtually zero risk of eating disorders. Yet incidence rates for the section of the population mainly at risk (girls and young women) have not consistently been reported and variation in crude rates could merely reflect changes in the demographic structure of the underlying populations (Williams and King 1987). Fourthly, formal tests of the statistical significance of the recorded increases have scarcely been used. This is a striking weakness of several psychiatric case register studies, particularly in light of the limited number of cases often identified in these studies. The study by Lucas et al. (1988, 1991) deserves more attention because it avoided many of these pitfalls. Rates of AN showed a statistically significant linear increase from the 1950s to the 1980s (Lucas et al. 1991), but several serious methodological queries were nonetheless left unanswered in the published findings (Fombonne 1995 b, c).

By contrast, three investigations have suggested that the apparent increase in the incidence on AN could be explained by demographic changes in the general population (Williams and King 1987; Willi et al. 1990) and by higher re-admission rates (Nielsen 1990; Williams and King 1987). Another Danish register study (Moller-Madsen and Nystrup 1992) found a significant increase in rates between 1970 and 1988, but the authors used a broader case definition (including AN and other eating disorders) and a different case identification method. Since most of the reported increase was found after 1982, it is clear that these results might have been confounded by the newly recognized bulimic disorders. In addition, rates were not standardized and the authors provided only weak evidence that their results were not a reflection of a differential pattern of health services used for eating disorders, with more eating-disordered subjects being admitted in psychiatric, rather than somatic, hospitals in the more recent period.

We also reviewed 28 published prevalence surveys of AN and found that the median prevalence estimate of AN for the 15- to 20-year-old young women was 1.3/1000 (Fombonne 1995 b). Half of these studies yielded rates which ranged between 0.35 per 1000 and 2.39 per 1000. In order to gauge time trends, we computed the median rate for studies conducted before 1985 and that for studies conducted from 1985 onwards. For the first period, the median prevalence rate was found to be 1.3/1000, whereas it was 1.8/1000 in the most recent decade. Thus, bearing in mind that in the group of 12 studies conducted previously, several rates had been obtained from surveys of mostly adult respondents or from psychiatric case registers, both of which tend to yield lower prevalence rates, there was therefore no evidence of an increase in prevalence rates of anorexia over the past 20 years. It should also be noted that, in the Epidemiological Catchment Area study designed to assess with precision rates of psychiatric disorders among American adults (Robins et al. 1991 b), only 11 cases of AN were detected in a sample of nearly 20 000 persons; accordingly, prevalence rates could barely be estimated on three sites (Robins et al. 1984). Because this was a very large general population survey that is judged to have provided good data on most psychiatric disorders, its finding of a very low rate of prevalence of AN must be given considerable weight.

It was therefore concluded that for AN the current evidence does not, on average, support the hypothesis of an increased incidence in recent decades.

Bulimia nervosa

Bulimia nervosa (BN) was described as a separate psychiatric disorder in the late 1970s and epidemiological data available to gauge time trends in its incidence are scarce. Of five studies based on medical records and yielding incidence rates for BN, three provided information useful for an assessment of time trends, with two studies showing no increase over time (Soundy et al. 1995; Joergensen 1992).

A few community surveys using diagnostic interviews have provided comparisons between age groups. In one of these in New Zealand, lifetime rates of BN were much higher among younger than among older women (Bush-

nell et al. 1990). However, the reliability of the measure of lifetime occurrence of bulimia using structured diagnostic interviews was poor, since only approximately one third of women aged 18–44 years who had met the diagnostic criteria at the first interview also met them at the second interview (Bushnell et al. 1990). Birth cohort differences have also emerged from the Virginia twin study (Kendler et al. 1991) which found signficantly higher rates of BN among younger than among older members of a sample of 2163 female twins. Kendler et al. (1991) regarded these findings as consistent with a period or cohort effect, but they also speculated that older subjects could have forgotten episodes or else been simply unaware of BN as a disorder. However, one additional difficulty of interpretation lies in the fact that most of those showing symptoms of bulimia also suffered from other disorders. Only 22.8% of the cases of bulimia had no other lifetime history of psychiatric disorder, whereas over half had a history of depressive disorder. The authors did not, unfortunately, try to assess how far the differences between age groups in risk of BN was associated with differences in risk of depression in conjunction with BN. This is particularly unfortunate as in over 80% of their cases of BN comorbid with depression, the onset of depression preceded that of bulimia.

Repeat surveys of similar populations have on average failed to show an increase in rates of bulimic syndromes based on self-administered questionnaires (Pyle et al. 1986, 1991; Cooper et al. 1987; Johnson et al. 1989). Other studies (reviewed in Fombonne 1996) have provided inconsistent results. Evidence for a rising incidence of bulimic disorders is therefore lacking. This conclusion is, however, based on a limited number of studies and a relatively narrow time interval, and future investigations might shed further light on time trends for this disorder.

Suicide

Suicide rates have increased in almost all European countries over the past century. Although rates of suicide are higher among older people, most of the increase is due to more young men committing suicide since rates in older men have fallen (Diekstra et al. 1995; Charlton et al. 1992). In places such as France, the United Kingdom, and North America, suicide is now a leading cause of death among 15- to 24-year-olds. In the U.S., for example, over 67 000 persons aged < 25 years committed suicide from 1980 to 1992 and, in 1992, subjects from this age group accounted for 16.4% of all suicides (JAMA 1995). The increase has been more pronounced recently among the 15- to 19-year-olds (JAMA 1995; McClure 1994). Furthermore, although the incidence of suicide remains low among children aged 10–14 years a strong increase has been registered in this age group with a 120% increase in the U.S. between 1980 and 1992 (JAMA 1995). Suicide rates have increased steadily among minority youths in the U.S. as well, and suicide rates among older black adolescents are catching up with those of white youths. Rates in females have been more inconsistent and trends vary according to country for female gender. Suicidal behaviors are a common antecedent of suicide, and their rate also went up in some countries. Thus, in a large sample of over 1300 male adolescents referred for psychiatric services to a London hospital, suicidal beaviors, defined as suicidal ideas, cognitions or attempts, have significantly increased in the period 1970–1990, from 6.5% in 1970–1972 to 16% in 1988–1990 (E. Fombonne, submitted). Although the rates of suicidal behavior were higher among referred girls, no upward trend was detected for female gender. The upward trend in males appeared to be driven to a large extent by an increased frequency of substance abuse, particularly of alcohol. Rates of adolescent deliberate self-harm have also gone up in several communities, and it was estimated in the UK that nearly 20 000 cases were referred each year to hospitals for these motives (Hawton and Fagg 1992). That suicidal behaviors have become a very serious health, social, and economic problem during adolescent development is confirmed by findings from the Youth Risk Behavior Surveillance System (YRBSS) survey which investigates at regular intervals, since 1990, key health risk behaviors in large representative samples of American youth and young adults (Kann et al. 1995). Approximately one fourth (24.1%) of respondents had experienced suicidal ideation during the 12 months preceding the survey, and 19% of subjects had made specific plans to attempt suicide over the same period of time. The prevalence of reported suicide attempt was as high as 8.6%, and 2.7% reported an attempt resulting in a condition having been treated by a doctor or a nurse. These figures emphasize the magnitude of the phenomenon, as well as the importance of under-detection by health professionals.

Explanatory models for these upward trends in suicide rates among youth are scarce and not empirically validated. In the past decade, rates of other psychosocial disorders, including substance abuse, depression, crime and delinquency, which are all associated with completed suicide at the individual level (Shafii et al. 1985; Shaffer et al. 1996; Runeson 1989, Brent et al. 1993; Rich et al. 1986; Marttunen et al. 1991), have also increased and might therefore explain the rise in suicide rates. A few studies based on individual level data over time point indeed towards the potential role of alcohol abuse (E. Fombonne, submitted) and of comorbid depression (Carlson et al. 1991). Other contextual features of adolescent development have also changed (i.e., patterns of family life, educational expectations, etc.) and no study has thus far analyzed time trends in suicide rates controlling adequately for the joint effects of all these covariates.

Delinquency and crime

Since the Second World War, crime statistics have risen in most countries and, despite differences in crime-recording systems over time and across countries, it is usually acknowledged that crime rates have been multiplied by a factor of around 5 on average (Japan being one exception;

Smith 1995). These trends apply to various types of offenses (homicide, theft, breaking into houses, etc.), and the gender difference in those committing crimes has somewhat narrowed suggesting a steeper rise among females in crime in the past 40 years. Most crimes are committed by teenagers and young adults whose majority desist from criminal activities in their mid-twenties. A strong link exists between criminal activity and conduct disorder and adult antisocial personality, although by no means is all crime related to these psychopathological conditions. Evidence from various studies, including the ECA survey, suggests, however, that rates of conduct disorder and antisocial personality have increased in recent birth cohorts (Robins et al. 1991 a). A more complete discussion of antisocial behavior over the lifespan is provided in Fergusson (this volume).

Substance abuse and alcohol

Alcohol consumption rose in most countries between 1950 and 1980. Rates of death due to liver cirrhosis, which gauges alcohol-related physical problems, rose in parallel (Charlton et al. 1993; Silbereisen et al. 1995). Rates of alcohol consumption rise steadily throughout adolescent years and tend to decline in early adulthood. By age 16 years, 90% of teenagers have tasted alcohol. In the Monitoring the Future survey conducted in America, the 2-week prevalence of binge drinking (defined as five or more drinks in a row) is as high as 28% among 18-year-old high school students, and this figure reaches 52% among male college students (Johnston et al. 1995). A comparable estimate of 30% was determined from the 1-month prevalence of episodic heavy drinking in the Youth Risk Behavior Surveillance System which relies on a different sampling methodology (Kann et al. 1995); moreover, in the YRBSS survey, 5.2% of students admitted having drunk alcohol at least once in the past 30 days on school property. In the UK under-age drinking is associated with larger quantities of alcohol consumption in recent years, even though the prevalence of under-age drinking has not increased (Newcombe et al. 1994). In the period 1990–1995, official NHS statistics documented a rise in the number of hospital discharges for 11- to 17-years olds for a diagnosis of non-dependent abuse of alcohol (Hughes et al. 1997). In addition, so-called designer drinks have spread in some places such as the UK, with studies showing a particular popularity with young adolescents aged 14–16 years, and a pattern of drinking in less secure and controlled environments, greater drunkenness and heavier consumption (Hughes et al. 1997).

Illicit drug use has similarly increased since 1950 in most countries. Large-scale surveys conducted particularly in North America have shown that rates of both occasional and regular consumption of marijuana, cocaine, LSD, heroin, and other drugs went up and reached a peak in adolescents and young adults in the mid 1970s or in the beginning of the 1980s. Thus, in the Monitoring the future surveys, lifetime rates among twelfth graders in 1981 were estimated to be 65.6% for use of any illicit drug, 42.8% for any illicit drug other than marijuana, 59.5% for marijuana, 17.2% for inhalants, 15.3% for hallucinogens, 16.5% for cocaine, 1.2% for heroin, 10.1% for other opiates, 32.2% for stimulants, 16% for sedatives, and 14.7% for tranquilizers (Johnston et al. 1995). A decline followed for most substances in the U.S. in the 1980s, with notable exceptions, such as inhalants, which continued to increase. However, since 1992 all survey results have shown a reversal of the recent downward trend with rates again going up for most substances. Moreover, rates also increased in the much younger age group of eight graders in 1993 and 1994 (Johnston et al. 1995). Similar figures have emerged from other countries, based on trends for drug-related arrests and deaths, or drugs seized by the customs and police, over the same period. Interpol statistics in eight European countries indicate a rise in deaths related to hard drug use since 1980 (Silbereisen et al. 1995). In the UK deaths due to misuse of methadone have increased dramatically in the past 2 years; the death of a 7-year-old boy while sniffing glue was recorded this month (August 1997) becoming the youngest victim ever documented for such a fatal outcome.

All epidemiological data therefore point toward increasing rates of substance misuse and abuse among youth together with a younger age of onset of addictive behaviors in most countries. The levelling off of rates of abuse seen in the 1980s has been followed by a reversal to upward trends in the past 5 years.

Implications for adolescent psychiatric services

The recognition that the incidence of many common psychiatric disorders has increased has implications for services and treatment delivery, on the one hand, and on preventative programms on the other. Although it is out of the scope of this article to discuss them in details, we briefly outline some important considerations for the profession.

Access to psychiatric services should be made easier for children and adolescents. Strong emphasis has been placed throughout this century on improving physical health, education, and living conditions, and many improvements have thus been achieved. It is, however, very clear from this review that, at a time where economic conditions and physical health were improving, psychosocial disorders in youth were also increasing in most developed countries. Many of these psychiatric disorders with an onset in adolescence have a strong continuity with adult disorders and therefore contribute to a sizeable proportion of adult psychiatric morbidity. Thus, depression with an adolescent onset has a strong and specific link with adult depression, and it is associated with increased suicide mortality and increased psychosocial impairments as indexed by the use of psychotropic drugs and medical services in adult life. Conduct disorders also predict juvenile delinquency, adult antisocial personality, substance abuse, and poor adjustment in adult life. Insofar as effective treatments exist for these conditions in adolescence and suc-

cessful treatment is associated with an increased likelihood to alter maladaptive developmental trajectories, then more intensive treatment should be available for youth suffering from these disorders. Adolescent depression illustrates these benefits well. There is now evidence that current treatments, both psychopharmacological and psychological, are effective in the treatment of the acute phase of depression (Fombonne 1998 b). Thus, access to treatment might help to decrease the short-term detrimental impact of adolescent depression, both through a reduction in suicidal death risk and through a reduction in missed developmental opportunities and the negative chain effects which inevitably ensure. Adult studies have also documented the longer-term efficacy of treatments in the prevention of relapses (Elkin et al. 1989), and current adolescent treatment packages also focus on these longer-term goals (Kroll et al. 1996), with a potential reduction in recurrence risk and a global improvement of subsequent adult mental health for the individuals concerned. Other effective treatments exist for adolescent disorders that might have the same short-, and long-term effects on adult mental health. It is noteworthy that many of the treatments currently available for adolescent psychiatry represent downward extensions of adult treatments of proven efficacy. Thus as an example, interpersonal therapy (IPT) has been tested as an effective treatment for adult depression (Klerman et al. 1974; Weisman et al. 1979) much before it was adapted (Mufson et al. 1993) and then successfully tested (Mufson et al. 1994; Mufson and Fairbanks 1996) in the treatment of adolescent depression. The same considerations apply to psychopharmacological interventions, and to other disorders. It is noteworthy that treatments need to be adapted to younger populations and to be developmentally sensitive. An important area for the future consists also in addressing issues of cost-effectiveness in child and adolescent psychiatry (Knapp 1997) and to identify characteristics of youth and of their environments which are associated with better response to treatment in order to optimize resources allocation.

Because most of the psychosocial disorders reviewed above have increased within a few decades, changes in the psychosocial context must have played a crucial role in this secular increase. Although the precise mechanisms are not well understood for many of these disorders, there are pointers suggesting that changes in the familial, educational, and social context of adolescent development might be implicated (Rutter and Smith 1995). Preventative measures and programs should therefore be devised and rigorously tested in the next decade. Examples of the beneficial impact of such programs is accumulating. For example, the Perry Preschool Project, conducted as part of the assessment of the Head Start program, showed that poor children randomly allocated to an active preschool program had in their late teens improved educational attainments and employment opporunities, as well as lower rates of crime, delinquency, and, for females, of teen pregnancies as compared with controls (Berrueta-Clement et al. 1984). Other programs or interventions for suicide prevention, or prevention of depression, are currently being assessed in various communities and several large-scale multi-modal community trials are in their way in samples of preschool children in order to prevent the onset of disruptive behaviors in school-age years.

Perhaps, in an attempt to maximize the cost-effectiveness of such community interventions, it will become increasingly important to devise interventions on high-risk samples of children showing early signs of behavioral disturbance or exposed to multiple psychosocial risk indicators. As research develops, it might also prove fruitful to promote interventions that, rather than reducing exposure to risk factors and symptom levels, aim at building up resilience in the child, his family, and his community. Limiting the impact of risk factors might prove easier to achieve than a reduction in the overall levels of risk exposure. Research in developmental psychopathology is accumulating evidence which might lead in the near future to these public health advances.

References

Achenbach TM, Howell CT (1993) Are American children's problems getting worse? A 13-year comparison. J Am Acad Child Adolesc Psychiatry 32(6):1145–1154

Bebbington P, Katz R, McGuffin P, Tennant C, Hurry J (1989) The risk of minor depression before age 65: results from a community survey. Psychol Med 19:393–400

Berrueta-Clement JR, Schweinhart LJ, Barnett WS, Epstein AS, Weikart DP (1984) Changed lives: the effects of the Perry Preschool Program on youths through age 19. Monographs of the High Scope Educational Research Foundation, no. 8. High/Scope Press, Ypsilanti, Michigan

Bland RC, Orn H, Newman SC (1988) Lifetime prevalence of psychiatric disorders in Edmonton. Acta Psychiatr Scand (Suppl 338) 77:24–32

Brent DA, Perper JA, Moritz G et al. (1993) Psychiatric risk factors for adolescent suicide: case-control study. J Am Acad Child Adolesc Psychiatry 32:521–529

Bushnell JA, Wells JE, Hornblow AR, Oakley-Browne MA, Joyce P (1990) Prevalence of three bulimia syndromes in the general population. Psychol Med 20:671–680

Canino GJ, Bird HR, Shrout PE, Rubio-Stipec M, Bravo M, Martinez R, Sesman M, Guevara LM (1987) The prevalence of specific psychiatric disorders in Puerto Rico. Arch Gen Psychiatry 44:727–735

Carlson GA, Rich CL, Grayson P, Fowler RC (1991) Secular trends in psychiatric diagnoses of suicide victims. J Affect Disord 21:127–132

Charlton J, Kelly S, Dunnell K, Evans B, Jenkins R, Wallis R (1992) Trends in suicide deaths in England and Wales. Popul Trends 69:10–16

Charlton J, Kelly S, Dunnell K, Evans B, Jenkins R (1993) Suicide deaths in England and Wales: trends in factors associated with suicide deaths. Popul Trends 71:34–42

Chen CN, Wong J, Lee N, Chan-Ho MW, Tak-Fai Lau J, Fung M (1993) The Shatin community mental health survey in Hong-Kong. II. Major findings. Arch Gen Psychiatry 50:125–133

Cooper PJ, Charnock DJ, Tayloer MJ (1987) The prevalence of bulimia nervosa: a replication study. Br J Psychiatry 151:684–686

Coryell W, Endicott J, Keller M (1992) Major depression in a non-clinical sample: demographic and clinical risk factors for first onset. Arch Gen Psychiatry 49:117–125

Cross-National Collaborative Group (1992) The changing rate of major depression: cross-national comparisons. J Am Med Assoc 268:3098–3105

Diekstra RFW, Kienhorst CWM, Wilde EJ de (1995) Suicide and suicidal behaviour among adolescents. In: Rutter M, Smith D (eds) Psychosocial disorders in young people: time trends and their origins. Wiley, Chichester, pp 686–761

Elkin I, Shea MT, Watkins JT, Imber SD, Sotsky SM, Collins JF, Glass DR, Pilkonis PA, Leber WR, Docherty JP, Fiester SJ, Parloff MB (1989) National Institute of Mental Health Treatment of Depression Collaborative Research Program: general effectiveness of treatments. Arch Gen Psychiatry 46:971–982

Fombonne E (1994) Increased rates of depression: update of epidemiological findings and analytical problems. Acta Psychiatr Scand 90:145–156

Fombonne E (1995a) Depressive disorders: time trends and possible explanatory mechanisms. In: Rutter M, Smith D (eds) Psychosocial disorders in young people: time trends and their causes. Wiley, Chichester, pp 544–615

Fombonne E (1995b) Anorexia nervosa: no evidence of an increase. Br J Psychiatry 166:462–471

Fombonne E (1995c) Eating disorders: time trends and possible explanatory mechanisms. In: Rutter M, Smith D (eds) Psychosocial disorders in young people: time trends and their causes. Wiley, Chichester, pp 616–685

Fombonne E (1996) Bulimia nervosa: Is its frequency increasing? Int J Eat Disord 19(3):287–296

Fombonne E (1998a) Time trends in affective disorders: In: Cohen P, Slomkowski C, Robins L (eds) Where and when: the influence of history and geography on aspects of psychopathology. Lawrence Erlbaum Associates, Mahwah, New Jersey

Fombonne E (1998b) The management of depression in children and adolescents: In: Checkley S (ed) The management of depression. Blackwell, London

Fombonne E (submitted) Suicidal behaviours in vulnerable male adolescents: time trends and their correlates

Gershon ES, Hamovit JH, Guroff JJ, Nurnberger JI (1987) Birth-cohort changes in manic and depressive disorders in relatives of bipolar and schizoaffective affective patients. Arch Gen Psychiatry 44:314–319

Gurin G, Veroff J, Feld SC (1960) Americans view their mental health. Basic Books, New York

Hagnell O, Lanke J, Rorsman B, Ojesjö L (1982) Are we entering an age of melancholy? Depressive illnesses in a prospective epidemiological study over 25 years: the Lundby study, Sweden. Psychol Med (12):279–289

Hawton K, Fagg J (1992) Deliberate self-poisoning and self-injury in adolescents: a study of characteristics and trends in Oxford, 1976–1989. Br J Psychiatry 161:816–823

Hughes K, MacKintosh AM, Hastings G, Wheeler C, Watson J, Inglis J (1997) Young people, alcohol, and designer drinks: quantitative and qualitative analysis. Br Med 314:414–418

Joergensen J (1992) The epidemiology of eating disorders in Fyn County, Denmark, 1997–1986. Acta Psychiatr Scand 85:30–34

Johnson CL, Tobin DL, Lipkin J (1989) Epidemiologic changes in bulimia behavior among female adolescents over a five-year period. Int J Eat Disord 8:647–656

Johnston LD, O'Malley PM, Bachman JG (1995) National survey results on drug use from The Monitoring the Future Study, 1975–1994. Volume I: Secondary school students. NIDA, US-DHHS, NIH Publication no. 95–4026

Jones DJ, Fox MM, Babigian HM, Hutton HE (1980) Epidemiology of anorexia nervosa in Monroe County, New York: 1960–1976. Psychosom Med 42:551–558

JAMA (1995) Suicide among children, adolescents, and young adults: United States, 1980–1992 (editorial). JAMA 274:451–452

Joyce PR, Oakley-Browne MA, Wells JE, Bushnell JA, Hornblow AR (1990) Birth cohort trends in major depression: increasing rates and earlier onset in New Zealand. J Affect Disord 18:83–89

Kann L, Warren CW, Harris WA, Collins JL, Douglas KA, Collins ME, Williams BI, Ross JG, Kolbe LJ (1995) Youth Risk Behavior Surveillance – United States, 1993. MMWR Morb Mortal Weekly Rep, vol 44, no. SS-1, 24 March, pp 1–57

Karno M, Hough RL, Burnam MA, Escobar JI, Timbers DM, Santana F, Boyd JH (1987) Lifetime prevalence of specific psychiatric disorders among Mexican Americans and non-Hispanic whites in Los Angeles. Arch Gen Psychiatry 44:695–701

Kendell RE, Hall DJ, Hailey A, Babigian HM (1973) The epidemiology of anorexia nervosa. Psychol Med 3:200–203

Kendler KS, MacLean C, Neale M, Kessler R, Heath A, Eaves L (1991) The genetic epidemiology of bulimia nervosa. Am J Psychiatry 148:1627–1637

Kessler RC, McGonagle KA, Swartz M, Blazer DG, Nelson CB (1993) Sex and depression in the National Comorbidity Survey. I. Lifetime prevalence, chronicity and recurrence. J Affect Disord 29:85–96

Klerman GL, DiMascio A, Weissma MM, Prusoff BA, Paykel ES (1974) Treatment of depression by drugs and psychotherapy. Am J Psychiatry 131:186–191

Klerman GL, Lavori PW, Rice J, Reich T, Endicott J, Andreasen NC, Keller MB, Hirschfield RMA (1985) Birth-cohort trends in rates of major depressive disorder among relatives of patients with affective disorder. Arch Gen Psychiatry 42:689–693

Knapp M (1997) Economic evaluations and interventions for children and adolescents with mental health problems. J Child Psychol Psychiatry 38:3–25

Kroll L, Harrington R, Jayson D, Fraser J, Gowers S (1996) Pilot study of continuation cognitive behavioral therapy for major depression in adolescent psychiatric patients. J Am Acad Child Adolesc Psychiatry 35:1156–1161

Lasch K, Weissman M, Wickramaratne P, Bruce ML (1990) Burth-cohort changes in the rates of mania. Psychiatry Res 33:31–37

Lee CK, Kwak YS, Rhee H, Kim YS, Han JH, Choi JO, Lee YH (1987) The nationwide epidemiological study of mental disorders in Korea. J Korean Med Sci 2:19–34

Leon AC, Klerman GL, Wickramaratne P (1993) Continuing female predominance in depressive illness. Am J Public Health 83(5):754–757

Lewinsohn PM, Rohde P, Seeley JR, Fischer SA (1993) Age-cohort changes in the lifetime occurrence of depression and other mental disorders. J Abnorm Psychol 102(1):110–120

Lucas AR, Beard CM, O'Fallon WM, Kurland LT (1988) Anorexia nervosa in Rochester, Minnesota: a 45-year study. Mayo Clin Proc 63:433–442

Lucas AR, Beard CM, O'Fallon WM, Kurland LT (1991) 50-year trends in the incidence of anorexia nervosa in Rochester, Minn.: a population-based study. Am J Psychiatry 148:917–922

Maier W, Hallmayer J, Lichtermann D, Philipp M, Klingler T (1991) The impact of the endogenous subtype on the familial aggregation of unipolar depression. Eur Arch Psychiatry Clin Neurosci 240:355–362

McClure GMG (1994) Suicide in children and adolescents in England and Wales 1960–1990. Br J Psychiatry 165:510–514

Marttunen MJ, Aro HM, Henriksson MM, Lönnqvist JK (1991) Mental disorders in adolescent suicide: DSM-III-R axes I and II diagnoses in suicides among 13- to 19-year-olds in Finland. Arch Gen Psychiatry 48:834–839

Moller-Madsen S, Nystrup J (1992) Incidence of anorexia nervosa in Denmark. Acta Psychiatr Scand 86(3):197–200

Mufson L, Moreau D, Weissman W, Klerman G (1993) Interpersonal psychotherapy for depressed adolescents. Guilford Press, New York

Mufson L, Moreau D, Weissman MM, Wickramaratne P, Samoilov A (1994) Modification of interpersonal psychotherapy with depressed adolescents (IPT-A): phase I and II studies. J Am Acad Child Adolesc Psychiatry 33(5):695–705

Mufson L, Fairbanks J (1996) Interpersonal psychotherapy for depressed adolescents: a one-year naturalistic follow-up study. J Am Acad Child Adolesc Psychiatry 35(9):1145–1155

Murphy JM, Sobol AM, Neff RK, Olivier DC, Leighton AH (1984) Stability of prevalence: depression and anxiety disorders. Arch Gen Psychiatry 41:990–997

Newcombe R, Measham F, Parker H (1994) A survey of drinking and deviant behaviour among 14/15 year olds in North West England. Addicition Res 2:319–341

Nielsen S (1990) The epidemiology of anorexia nervosa in Denmark from 1973 to 1987: a nationwide register study of psychiatric admission. Acta Psychiatr Scand 81:507–514

Oakley-Brown MA, Joyce PR, Wells JE; Bushnell JA, Hornblow AR (1989). Christchurch psychiatric epidemiology study. Part II. Six-month and other period prevalences of specific psychiatric disorders. Aust N Z J Psychiatry 23:327–340

Pyle RL, Halvorson PA, Newman PA, Mitchell JE (1986) The increasing prevalence of bulimia in freshman college students. Int J Eat Disord 5:631–647

Pyle RL, Neuman PA, Halvorson PA, Mitchell JE (1991) An ongoing cross-sectional study of the prevalence of eating disorders in freshman college students. Int J Eat Disord 10:667–677

Rich CL, Young D, Fowler RC (1986) San Diego suicide study. I. Young versus old subjects. Arch Gen Psychiatry 43:577–582

Robins LN, Helzer JE, Weissman MM, Orvaschel H, Gruenberg E, Burke JD, Regier DA (1984) Lifetime prevalence of specific psychiatric disorders in three sites. Arch Gen Psychiatry 41:949–958

Robins LN, Tipp J, Przybeck T (1991a) Antisocial personality. In: Robins LN, Regier DA (eds) Psychiatric disorders in America: the Epidemiologic Catchment Area study. The Free Press, New York, pp 258–290

Robins LN, Locke BZ, Regier DA (1991b) An overview of psychiatric disorders in America. In: Robins LN, Regier DA (eds) Psychiatric disorders in America: The Epidemiologic Catchment Area study. The Free Press, New York, pp 328–366

Rodgers W (1982) Trends in reported happiness within demographically defined subgroups, 1957–1978. Social Forces 60(3):826–842

Roghmann KJ, Babigian HM, Goldberg ID, Zastowny TR (1982) The increasing number of children using psychiatric services: analysis of a cumulative psychiatric case register. Pediatrics 70:790–801

Runeson B (1989) Mental disorders in youth suicide: DSM-III-R axes I and II. Acta Psychiatr Scand 79:490–497

Rutter M, Smith DJ (eds) (1995) Psychosocial disorders in young people: time trends and their causes. Wiley, Chichester

Ryan ND, Williamson DE, Iyengar S, Orvaschel H, Reich T, Dahl RE, Puig-Antich J (1992) A secular increase in child and adolescent onset affective disorder. J Am Acad Child Adolesc Psychiatry 31:600–605

Shaffer D, Gould MS, Fisher P, Trautman P, Moreau D, Kleinman M, Flory M (1996) Psychiatric diagnosis in child and adolescent suicide. Arch Gen Psychiatry 53:339–348

Shafii M, Carrigan S, Whittinghill JR, Derrick A (1985) Psychological autopsy of completed suicide in children and adolescents. Am J Psychiatry 142:1061–1064

Silbereisen RK, Robins L, Rutter M (1995) Secular trends in substance use: concepts and data on the impact of social change on alcohol and drug abuse. In: Rutter M, Smith D (eds) Psychosocial disorders in young people: time trends and their causes. Wiley, Chichester, pp 490–543

Simon GE, VonKorff M (1992) Reevaluation of secular trends in depression rates. Am J Epidemiol 135:1411–1422

Smith DJ (1995) Youth crime and conduct disorders: trends, patterns, and causal explanations. In: Rutter M, Smith D (eds) Psychosocial disorders in young people: time trends and their causes. Wiley, Chichester, pp 389–489

Soundy TJ, Lucas AR, Suman VJ, Melton LJ III (1995) Bulimia nervosa in Rochester, Minnesota, 1980 through 1990. Psychol Med 25:1065–1071

Szmukler G, McCance C, McCrone L, Hunter D (1986) Anorexia nervosa: a psychiatric case register study from Aberdeen. Psychol Med 16:49–58

Theander S (1970) Anorexia nervosa: a psychiatric of 94 female patients. Acta Psychiatr Scand (Suppl) 214:1–194

Veroff J, Douvan E, Kulka R (1981a) The inner American. Basic Books, New York

Veroff J, Kulka RA, Douvan E (1981b) Mental health in America. Patterns of help-seeking from 1957 to 1976. Basic Books, New York

Weissman MM, Prusoff BA, DiMascio A, Neu C, Goklaney M, Klerman GL (1979) The efficacy of drugs and psychotherapy in the treatment of acute depressive episodes. Am J Psychiatry 136:555–558

Weissman M, Livingston Bruce M, Leaf PJ, Florio LP, Holzer C III (1991) Affective disorders. In: Robins LN, Regier DA (eds) Psychiatric disorders in America: the Epidemiologic Catchment Area study. The free Press, New York, pp 53–80

Weissman MM, Bland R, Joyce PR, Newman S, Wells JE, Wittchen HU (1993) Sex differences in rates of depression: cross-national perspectives. J Affect Disord 29:77–84

Wells JE, Bushnell JA, Hornblow AR, Joyce PR, Oakley-Browne MA (1989) Christchurch psychiatric epidemiology study, part I: methodology and lifetime prevalence for specific psychiatric disorders. Aust N Z J Psychiatry 23:315–326

Willi J, Grossmann S (1983) Epidemiology of anorexia nervosa in a defined region of Switzerland. Am J Psychiatry 140:564–567

Willi J, Giacometti G, Limacher B (1990) Update on the epidemiology of anorexia nervosa in a defined region of Switzerland. Am J Psychiatry 147:1514–1517

Williams P, King M (1987) The “epidemic” of anorexia nervosa: another medical myth? Lancet I:205–207