

 Adolescent Health 3

## Mental health of young people: a global public-health challenge

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*Lancet* 2007; 369: 1302–13

Published Online

March 27, 2007

DOI:10.1016/S0140-6736(07)60368-7

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This is the third in a [Series](#) of six papers about adolescent health

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Mental disorders account for a large proportion of the disease burden in young people in all societies. Most mental disorders begin during youth (12–24 years of age), although they are often first detected later in life. Poor mental health is strongly related to other health and development concerns in young people, notably lower educational achievements, substance abuse, violence, and poor reproductive and sexual health. The effectiveness of some interventions for some mental disorders in this age-group have been established, although more research is urgently needed to improve the range of affordable and feasible interventions, since most mental-health needs in young people are unmet, even in high-income countries. Key challenges to addressing mental-health needs include the shortage of mental-health professionals, the fairly low capacity and motivation of non-specialist health workers to provide quality mental-health services to young people, and the stigma associated with mental disorder. We propose a population-based, youth focused model, explicitly integrating mental health with other youth health and welfare expertise. Addressing young people's mental-health needs is crucial if they are to fulfil their potential and contribute fully to the development of their communities.

### Introduction

I would there were no age between ten and three-and-twenty, or that youth would sleep out the rest; for there is nothing in the between but getting wenches with child, wronging the ancients, stealing, fighting.

*William Shakespeare, The Winter's Tale*

In this paper, we focus on the mental-health needs of young people aged 12–24 years. Adolescence is a fluid concept: the traditional age-bound definition of this phase of life (10–19 years)<sup>1</sup> is greatly influenced by social, environmental, and cultural factors. Puberty is considered by many as signifying the onset of adolescence and this is often associated, in girls, with menarche; as the age of menarche fell, particularly in the early part of the last century in developed countries,<sup>2</sup> the onset of adolescence also seemed to take place at a younger age. In many cultures, for example in the Hmong culture of southeast Asia, the age of 12 or 13 years denotes the end of childhood and the simultaneous onset of adulthood.<sup>3</sup> In Bangladesh, a child who goes to school and has no economic or social

responsibilities will be regarded as a child up to the age of puberty. However, boys or girls who are employed will no longer be regarded as children, even if they start work aged 6 years.<sup>4</sup> In other societies, adolescence has been used to define the phase of sexual maturity before marriage: thus, once a girl or boy is married, she or he becomes an adult. The duration of adolescence has also increased substantially into early adulthood.<sup>5</sup> Although puberty might be considered a biological marker of the onset of adolescence, no set of clear biological markers is available to indicate its end.

Surprisingly, despite the hundreds of societies in which a stage corresponding to adolescence has been identified,<sup>6</sup> many investigators have questioned whether the notion of adolescence is valid.<sup>7,8</sup> The consensus, which we support, is to consider the health and developmental needs for two age-groups separately: children and young people. Young people are those who are aged between 12 and 24 years.<sup>8</sup> Developmentally, they are emerging adults,<sup>7</sup> sexually mature, in the final stages of their educational career or in the early stages of their employment career, and embarking on several socially accepted adult pursuits including finding and keeping a job, romantic relationships, and, in some cultures, using alcohol and tobacco. The confluence of these experiences helps contextualise the mental-health needs of young people.

Youth is the stage at which most mental disorders, often detected for the first time in later life, begin. Young people have a high rate of self-harm, and suicide is a leading cause of death in young people. A strong relation exists between poor mental health and many other health and development concerns for young people, notably with educational achievements, substance use and abuse, violence, and reproductive and sexual health. The risk factors for mental disorders are well established, and

### Search strategy and selection criteria

We searched two online databases: MEDLINE (1996 to current) and PSYCINFO (1995 to current). The search words covered any aspects of the epidemiology, risk factors or treatment of mental health or illness record for children, adolescents or young people. An example of the search history for epidemiology was to use the following search tree: Epidemiol\* or statistic\* or inciden\*; AND adolesc\* or child\* or young; AND mental\*; AND health or illness or disorder. Only publications in English language were searched.

substantial progress has been made in developing effective interventions for such problems. Yet, most mental-health-service needs are unmet, even in wealthier societies, and the rate of unmet need is nearly 100% in many developing countries.<sup>9</sup> Furthermore, there is a dearth of interventions to prevent mental disorders and promote mental health. We propose a youth-focused model for development of services and integration of mental health with other youth health and welfare concerns; such a model explicitly acknowledges the persistence of risk factors, and psychiatric disorders that often begin during childhood and adolescence, into adulthood.

### Burden of mental disorders in young people

Many investigators reporting prevalence rates of mental disorders in young people include children or older adults in their samples. Furthermore, the prevalence rates have not been stratified to enable the rates applicable to young people to be ascertained. To summarise the data for our age-group of interest is therefore difficult. We tried to identify a set of community epidemiological studies undertaken since 1995 that included a substantial sample of young people aged 12–24 years, and used structured diagnostic instruments to establish Diagnostic and Statistical Manual of Mental Disorders or International Classification of Diseases diagnoses (table 1<sup>10–23</sup>). Rates of mental disorders ranged from 8% (in the Netherlands) to 57% (for young people receiving services in five sectors of care in San Diego, California, USA). The Australian National Survey of Mental Health and Well Being<sup>23</sup> reported that at least 14% of adolescents younger than 18 years were diagnosable with a mental or substance use disorder in 12 months and this figure rose to 27% in the 18–24 year age-group. Taking these studies<sup>10–23</sup> together, at least one out of every four to five young people in the general population will suffer from at least one mental disorder in any given year, although much less information is available on burden in developing countries and substantial crosscultural variations are evident (see later). Another way to show the burden of mental disorders in young people is through disability-adjusted life years (DALY).<sup>24</sup> Five of the ten leading causes of DALY in people aged 15–44 years are mental disorders—unipolar depressive disorders, alcohol use disorders, self-inflicted injuries, schizophrenia, and bipolar affective disorder. In a study from Victoria, Australia, mental disorders in young people aged 15–24 years contributed to 60–70% of the total DALY,<sup>25</sup> reinforcing the notion that mental disorders are the major contributor to disease burden in this age-group.<sup>8</sup>

Evidence is mixed for whether rates of mental disorders in young people have increased during the past few decades. For example, rates of depression in adolescence have been shown to have increased in the most recent birth cohorts.<sup>26</sup> However, much of the evidence in support of this conclusion is based on recall data, for example an increase in the proportion of adults in recent cohorts that

	Ages (years)	Population size	Prevalence
Australia <sup>10</sup>	18–24	10 600	27%
Brazil <sup>11</sup>	7–14	1251	13%
Netherlands <sup>12</sup>	13–18	780	8%
Ethiopia <sup>13</sup>	1–15	3001	18%
Hawaii <sup>14</sup>	13–19	619	26%
USA (high risk Native Americans, Northern Plains Reservation) <sup>15</sup>	14–16	251	29%
India <sup>16</sup>	1–16	2064	13%
USA <sup>17</sup>	13	1420	13%
	14		10%
	15		14%
	16		13%
USA (service recipients in California) <sup>18</sup>	12–15	1618	57%
	16–18		52%
South Africa <sup>19</sup>	6–16	500	15%
Switzerland <sup>20</sup>	1–15	1964	23%
UK <sup>21</sup>	13–15	2624	12%
USA <sup>22</sup>	9–17	1285	21%
Australia <sup>23</sup>	4–17	4500	14%

Studies included are population-based or school-based or based in non-mental-health-care settings.

**Table 1: Selected studies of prevalence of mental disorders in young people, by country**

had their first episode by 18 years.<sup>27</sup> Recall bias is inherent in this approach, such that older people are more likely to forget episodes of depression in their youth. This issue was addressed in a review<sup>28</sup> of 26 studies of rates of depression in children and adolescents born in the 1960s to the 1990s. This meta-analysis, which included nearly 60 000 observations, showed no evidence to support the hypothesis that successive cohorts of children and adolescents report higher rates of depression, at least during the past 30 years. However, a similar review has not been undertaken specifically for young people, particularly those aged 18–24 years. Evidence is available for an increase in the rate of conduct problems in young people in the UK.<sup>29</sup> This evidence comes from three birth cohorts (1958, 1970, and 1983–84), each of which included young people aged 15–16 years. A consistent increase in the proportion with severe conduct problems took place from the earlier to later cohorts.

Apart from disability, mental disorders might also exact a substantial burden on mortality in young people—in many communities, youth is increasingly a period of heightened risk of suicide.<sup>30</sup> Suicide is a leading cause of death in young people in countries such as China<sup>31</sup> and India.<sup>32</sup> The Indian study ascertained cause of death in a rural community of 108 000 people in south India during 10 years from 1992 to 2001. The investigators reported that suicide accounted for a quarter of deaths in boys and between half and three-quarters of deaths in girls aged 10–19 years.<sup>32</sup> Evidence for whether suicide rates have changed over time is mixed. Rates have increased (especially in boys) for most countries where data are available from the mid-1950s until the early 1990s.<sup>33</sup> This

	Risk factors	Protective factors
<b>Biological</b>		
	Exposure to toxins (eg, tobacco, alcohol) in pregnancy Genetic tendency to psychiatric disorder Head trauma Hypoxia at birth and other birth complications HIV infection Malnutrition Substance abuse Other illnesses	Age-appropriate physical development Good physical health Good intellectual functioning
<b>Psychological</b>		
	Learning disorders Maladaptive personality traits Sexual, physical, emotional abuse and neglect Difficult temperament	Ability to learn from experiences Good self-esteem High level of problem-solving ability Social skills
<b>Social</b>		
Family	Inconsistent care-giving Family conflict Poor family discipline Poor family management Death of a family member	Family attachment Opportunities for positive involvement in family Rewards for involvement in family
School	Academic failure Failure of schools to provide appropriate environment to support attendance and learning Inadequate or inappropriate provision of education Bullying	Opportunities for involvement in school life Positive reinforcement from academic achievement Identity with school or need for educational attainment
Community	Transitions (eg, urbanisation) Community disorganisation Discrimination and marginalisation Exposure to violence	Connectedness to community Opportunities for leisure Positive cultural experiences Positive role models Rewards for community involvement Connection with community organisations

**Table 2: Selected risk and protective factors for mental health of children and adolescents, by domain<sup>38</sup>**

trend has been attributed to increases in the rates of depression, increased firearm availability, the diminishing influence of the family, increased freedom, and increased exposure to alcohol and other drugs.<sup>34,35</sup> However, since the early 1990s, the rate of suicide in young people has decreased in countries in which youth suicide prevention programmes have been promoted, such as in the USA.<sup>34</sup> This decrease has been attributed by some investigators to efforts to restrict access to handguns, increased use of antidepressant drugs, falls in rates of substance abuse and violence, and improved economic circumstances.<sup>34</sup> Whether the high rates of suicide in young people reported from India and China in recent years represents a rising trend or an under-reporting bias in older studies is unclear; some investigators have suggested that the risk is associated with rapid social change.<sup>36</sup> Injuries are another leading cause of death in young people; here too, mental disorders, notably substance abuse, are important risk factors.<sup>37</sup>

### Risk factors

Good evidence is available in support of a multifactorial cause for mental disorders in young people (table 2). Poverty and social disadvantage are strongly associated

with mental disorder.<sup>39-41</sup> Evidence for the pathways suggests that this association is complex and bidirectional: growing up in a poor household increases the risk of exposure to adversities such as scarcity of food, poor nutrition, violence, inadequate education, and living in a neighbourhood characterised by absence of social networks, all of which are risk factors for mental disorder. Conversely, mental disorder contributes to educational underachievement, loss of employment, and increased health-care costs. Young people living in families with parental mental disorder<sup>42,43</sup> or substance abuse,<sup>44</sup> discord between parents, marital violence, and breakdown, are at greater risk of mental disorders. Unsurprisingly, violence and child abuse are major risk factors;<sup>45</sup> most sexual violence takes place in the context of trusting relationships (for example, peers or relatives), whereas most violence in general takes place in the school or community; in both instances, older peers are the most frequent perpetrators.<sup>46</sup> In married young people, husbands and in-laws are the most common perpetrators of violence and harassment of young women.<sup>47</sup> Educational pressures, especially in the context of limited employment opportunities for out-of-school young people, is a risk factor for suicide and poor mental health.<sup>30,34</sup> Some people are historically disadvantaged, notably the indigenous people of many countries, migrants from rural to urban areas, internally displaced people and refugees.<sup>48</sup> For example, suicides in aboriginal people in Queensland, Australia, between 1990 and 1997 contributed disproportionately to the suicide rate for the state as a whole, especially for young aboriginal males—though only 4% of the population in this age-group, aboriginal males contributed 16% of the suicide deaths.<sup>49</sup> The central theme is the lack of control that young people in these groups might have in their lives. Cultural factors are a major influence on mental health, as evidenced by the large variations in the prevalence of mental disorder between different cultures; for example, rates of mental disorder in young people of English origin in the UK are four times greater than those of Indian origin.<sup>50</sup> Some cultural factors might be protective, for example parental involvement in young people's decision-making and the tendency to form friendships within one's cultural group,<sup>51</sup> whereas others might have the opposite effect, such as restricted autonomy for women in decision making.<sup>46</sup> The emphasis on certain body shapes, fuelled by the fashion industry—which views young people as a major market—is probably a factor in explaining the finding that eating disorders are more common in developed countries.<sup>7</sup> New evidence suggests that the globalisation of the media is associated with an increase in eating disorders in societies in which they were previously rarely seen.<sup>52</sup>

Although the final pathway for mental disorders might involve a neural basis, the precise nature of this neural basis remains unclear. Reviews and reports of histological and brain-imaging studies support the

notion that brain development, with changes in structure and cognition, is evident in youth.<sup>53,54</sup> However, how these changes relate to mental disorders associated with adolescence is uncertain. Strong evidence is available for the contribution of genetic and biological factors, particularly for depression, psychoses, and severe behaviour disorders. Adolescents who have a history of difficult and disruptive behaviours from childhood have a high rate of neurocognitive impairments.<sup>55</sup> Neurological disorders, such as epilepsy, and developmental disorders, such as learning disabilities, are also associated with an

#### Panel 1: An infant intervention with effects in adolescence<sup>74</sup>

In 1986–87, researchers identified a group of 129 infants aged 9–24 months in Kingston, Jamaica, who were from very poor families and had stunted growth. The infants were randomly assigned one of four groups: control, supplementation, stimulation, and both supplementation and stimulation. The supplementation consisted of 1 kg milk-based formula a week. The stimulation consisted of weekly home visits from trained community-health workers. Both interventions were given for 2 years. The aim was to enhance interactions between mothers and their infants. This was achieved by demonstrating playing techniques, involving the mothers in play with the children, encouraging the mothers to talk to their children, praise them, and give positive reinforcement. Toys and picture books were left in the homes and mothers were encouraged to play with their children on a daily basis.

In 2003, the researchers interviewed 103 of the participants, 80% of those enrolled in the trial. They reported that the children who had received stimulation in infancy were, as adolescents, less anxious, had fewer symptoms of depression and better self-esteem, and fewer attention problems than their non-stimulated counterparts. Furthermore, participants given stimulation were less likely to have been suspended from school or expelled than those not given stimulation. However, the programme did not affect self-reported antisocial behaviour or primary-caregiver-reported oppositional behaviour, cognitive problems, or lack of attention.

Further research is needed to establish the reasons for the beneficial effects. The benefits might have been due to the direct effects of the activities; or the mother's mental health might have improved as a result of involvement in the intervention, which in turn could have benefited their children; or the educational progress of the participants might have been positively affected, with a consequent effect on their mental health. This is the first study to show that stimulation in early childhood produced improvement in mental-health status in adolescence. The intervention constituted mental-health promotion in that it enhanced the parenting capacity of the mothers, thus strengthening an important protective factor for mental health outcomes in children and adolescents.

increased risk,<sup>56</sup> and neuroanatomical abnormalities are associated with psychoses.<sup>57,58</sup> Genetic and biological factors interact with shared (such as family environment) and non-shared (such as school) environmental factors, to modify the risk of mental disorders.<sup>59–61</sup> For example, poor attachment and family discord affect the timing of the onset of puberty, which in turn, could contribute to conflict with parents, low self-esteem and associations with deviant peers.<sup>6</sup> A characteristic feature of the most common mental disorders in young people is the sex differences: young women are 1.5–3 times more likely to have depressive disorders and attempt self-harm, whereas young men are several times more likely to suffer from conduct or behaviour disorders and schizophrenia.<sup>62</sup> These variations might be due to differences in the rates of exposure to biological and environmental risk factors and different interactions between these factors in the sexes. An interaction between genetic and environmental factors, for example, might explain the increased risk of behaviour disorders in boys.<sup>63</sup> A differential rate in exposure to environmental factors may explain the enhanced risk of depression and self-harm in young women; for example, the high rates of gender based violence experienced by young women.<sup>47,64</sup>

We wish to emphasise that most young people do not have any mental disorder—even most of those who face severe adversities and multiple risk factors remain in good mental health.<sup>67</sup> Protective factors are crucial to understanding how the effect of risk factors can be modified and even eliminated. Recent crossnational research from the USA and China<sup>65</sup> has shown the universal role of protective factors in mitigating the risks for risk behaviours (such as delinquency, problem drinking, and substance abuse) in adolescents. These factors were shown to account for a substantial proportion of the variation in problem behaviours in both settings; not only was the size of protection (and risk) similar, but the same measures of protection and risk were related to the problem behaviours in a similar way. In both settings, protective factors played a powerful role in mitigating the effect of risk factors for problem behaviours, suggesting the importance of these factors in promoting mental health. Longitudinal studies have shown that factors such as a sense of connection, low levels of conflict, and an environment in which the expression of emotions was encouraged protected against development of behavioural or emotional disorders.<sup>66,67</sup> Social support might be an important psychosocial buffer in the face of other risk factors.<sup>68–71</sup> These studies, and others, suggest that consistent and engaging parenting styles, parents and friends who model health behaviour, being in fulltime education in a school with a zero-tolerance policy towards bullying and the promotion of a learning atmosphere where individual needs and interests are addressed, and involvement in community activities and religious observance are protective.<sup>72</sup> Perhaps the single most

important factor for building resilience in youth is to enable parents to provide adequate psychosocial stimulation during early childhood; a recent report on resilience concluded that “the key to giving young people a good start in life is to help their parents”, because people’s response to adverse situations are shaped by early life experiences.<sup>73</sup> Evidence in support of this observation is now emerging from developing countries (panel 1).<sup>74</sup>

Developmental epidemiology offers an alternative model to the traditional approach to the study of risk factors (shown in many of the studies we have cited) which compares groups of young people with mental disorders with those without such disorders. Developmental epidemiology aims to incorporate the principles of developmental psychopathology into epidemiology.<sup>28</sup> More specifically, the “task is to understand the mechanisms by which developmental processes affect risk of specific psychiatric disorders and to propose preventive strategies appropriate to the various stages of risk”<sup>75</sup>. This approach requires, among other things, that attention is given to the timing of the onset of disorders and recognition that the relations between causes and outcomes vary across the span of development to be addressed. Longitudinal studies that enrolled cohorts from childhood, such as the National Longitudinal Study of Adolescent Health in the USA, the Dunedin Multidisciplinary Health and Development Study in New Zealand, and the Birth to Twenty Study in South Africa, provide important information about life-course risk and protective factors for health outcomes in young people.<sup>6</sup>

### Public-health significance

The suffering, functional impairment, exposure to stigma and discrimination, and enhanced risk of premature death that is associated with mental disorders in young people has obvious public-health significance. This significance is amplified, since mental disorders in young people tend to persist into adulthood.<sup>28</sup> Conversely, mental disorders in adults often began in youth or childhood, as shown by the National Comorbidity Survey Replication<sup>75</sup> in the USA, which was the first study to examine the temporal concentrations of age of onset. According to the results of this study, 75% of people with a mental disorder had an age of onset younger than 24 years. Furthermore, the ages of onset for most disorders likely to persist into adult life, including depressive and anxiety disorders, psychoses, substance use, and eating and personality disorders, fell within a narrow time frame, notably the 12–24 year age range. Since youth is the period of life when most people complete their academic career, establish themselves in the job market, and establish friendships and romantic relationships, and since mental disorders might reduce the likelihood of these tasks being completed successfully, mental disorders in young people have a substantial effect on economic and social outcomes that extend into adulthood.<sup>76,77</sup> The obvious public-health implication of

these findings is that focus should be on early interventions that aim to prevent the progression of primary disorders and the onset of comorbid disorders. Although we do not know for certain whether interventions for mental disorders in youth reduce the costs attributable to the disorder, some studies indicate that this is the case.<sup>78,79</sup>

Furthermore many of the leading causes of DALY that are not directly due to mental disorder, have mental-health dimensions. For example, young people with mental disorders are at a higher risk of contracting HIV/AIDS than their peers without mental illness.<sup>80,81</sup> For externalising disorders, the increased risk occurs partly through inadequate sexual communication skills and susceptibility to peer norms that encourage sexual-risk behaviour.<sup>80</sup> For internalising disorders, on the other hand, factors such as low perceived self efficacy, decreased assertiveness, and reduced ability to negotiate safe sex are applicable.<sup>81,82</sup> Additionally, mental-health consequences exist for young people with HIV/AIDS; for example, a rate of depression of 44% was documented 6 months after diagnosis in American adolescents.<sup>83</sup> Finally, mental-health consequences of disclosure of positive maternal HIV status also exist, living with an infected family member, and losing one or both parents as a result of an HIV-related cause.<sup>84</sup> Evidence for the mental-health effects of being orphaned as a result of AIDS are inconsistent, partly because of the nature of the control groups. For example, a study of South African 10–19 year-olds<sup>85</sup> aimed to address confounding factors by including two control groups from the same economically deprived communities—non-orphaned adolescents and adolescents orphaned as a result of causes other than AIDS. The study showed that AIDS orphans did not have more psychosocial difficulties than other orphans.

Comorbidity with other disorders can occur at three levels: with other mental disorders, with substance abuse, and with chronic diseases. Young people with learning difficulties or schizophrenia are more likely to develop behaviour or emotional disorders. Substance abuse, which is addressed in more depth in paper 4 in this Series,<sup>86</sup> is a major risk factor for mental disorder. The use of alcohol, tobacco, and other drugs is correlated with psychopathology, especially attention-deficit hyperactivity disorder, psychoses, mood disorders, and anxiety disorders.<sup>87–90</sup> The reasons for the correlations are unclear: substance use can cause the psychopathology or vice versa, or both could be caused by other factors. Chronic diseases in young people, such as diabetes, are associated with increased risk of mental disorders.<sup>91</sup> Injuries and violence are important contributors to the burden of disease in young people. Mental disorders can predispose to exposure to violence as a perpetrator or victim.<sup>92</sup> Externalising problems (especially hyperactivity and poor attention and concentration) before 13 years predict violence into early adulthood.<sup>93</sup>

Mental disorders, such as depression, anxiety, and post-traumatic stress disorder can occur as a result of exposure to violence.<sup>94,95</sup>

### Health-system responses

Treatments for mental disorders in young people have improved substantially during the past two decades with safer and more effective drugs, more practical forms of psychosocial interventions, and reforms in service-delivery models. Several meta-analyses<sup>96–98</sup> have shown support for individual, group, and family psychotherapies, particularly those with a behavioural or cognitive-behavioural orientation, for a range of mental health and behavioural disorders. In terms of evidence for specific interventions for specific disorders, some encouraging developments have taken place in early intervention in psychotic disorders in young people, in terms of early detection, phase-specific treatment, and health-services reform.<sup>99–104</sup> The evidence base for the effectiveness of interventions in other disorders is limited and therefore less clear-cut. Some evidence is available from adult studies (which included young people) that psychological therapies are of benefit, particularly in reducing suicide-related behaviours and substance use, in borderline-personality disorder.<sup>105</sup> Some evidence exists regarding antisocial or conduct disordered youth offenders, for whom family and parenting interventions have been shown to be effective in reducing the time of incarceration.<sup>106</sup> For eating disorders, trials and systematic reviews have not been specific to adolescents and young adults; however, the mean population ages of those with these disorders is generally within the 12–24 year age-range. Cochrane systematic reviews and meta-analyses indicate some evidence for benefit of antidepressants and combined antidepressant-psychological treatment in bulimia nervosa,<sup>107,108</sup> but not for antidepressant use in anorexia nervosa,<sup>109</sup> where family therapy might be an effective intervention.<sup>110,111</sup> In bipolar disorder, a few randomised trials have shown benefits of the use of lithium, divalproex sodium, and quetiapine in adolescents for stabilisation of the acute episode.<sup>112–116</sup>

The evidence base for drug and psychotherapeutic interventions for depression in adolescents is fairly meager. Evidence shows that tricyclic antidepressants are not effective in child and adolescent depression.<sup>117</sup> Although the use of selective-serotonin-reuptake inhibitors in adolescents has been criticised<sup>35,118,119</sup> on the basis of the modest increase in suicidal ideation and suicide attempt shown in pooled data from registration studies, most studies typically combined prepubertal children with adolescents, despite the different phenotypes and underlying origins of mood disorders in these age-groups.<sup>120,121</sup> Conversely, although antidepressants are effective in adult depression, adolescents and young adults are under-represented in studies of adult depression. Some investigators have supported the use of fluoxetine,<sup>119,122–124</sup> for which a small but statistically

significant clinical benefit has been shown. Several trials of psychotherapy in children and adolescents have been undertaken, with results providing evidence for psychotherapy generally, with no one type clearly established as superior to another.<sup>98</sup> Very few studies exist that have compared or combined these treatments, with the notable exception of the US Treatment for Adolescents with Depression Study.<sup>124</sup> In this trial, 439 adolescents aged between 12 and 17 years were randomly assigned one of four treatments (fluoxetine, cognitive behavioural therapy, fluoxetine plus cognitive behavioural therapy, or placebo) and reported that the combination treatment was more efficacious than the other treatments. On the basis of evidence from these studies, we recommend that psychosocial treatments are used as first-line interventions in mild cases, with selective-serotonin-reuptake inhibitors, preferably fluoxetine, being judiciously reserved for patients for whom psychosocial treatment has not worked, or those with severe and complex presentations.<sup>98</sup>

Despite the substantial evidence for the burden, public-health importance, and the emerging evidence of the efficacy of psychosocial and pharmacological treatments for mental disorders in young people, health-system responses to youth mental health have been inadequate. In 2002, a systematic review and interviews with key informants showed that only 7% of countries in the world had a clearly articulated specific child and adolescent mental health policy.<sup>125</sup> Substantial variations exist between WHO regions (table 3) and between developing and developed countries; while 78% of countries in the high-income category have a child and adolescent mental-health policy, not one low-income country does.<sup>126</sup> Notably, these figures probably represent an overestimate for two reasons; first, national figures mask inequities in the distribution of services within countries (for example, with less coverage in rural or disadvantaged areas); and second, services tailored to young people are scarce even in countries with child and adolescent mental-health programmes. In most developing countries, very few child and adolescent mental-health services or resources are available, and even fewer that specifically cater for young people. Even in many developed countries, admission of adolescents to inpatient units for older adults is routine practice.

	Child and adolescent mental-health policy	Child and adolescent mental-health plan	Countries responding to survey (n)
Africa	33%	6%	15
Americas	78%	45%	9
Southeast Asia	50%	63%	8
Europe	96%	67%	25
Eastern Mediterranean	100%	33%	3
Western Pacific	67%	83%	6

**Table 3: Presence of child and adolescent mental-health policies and programmes by WHO region<sup>126</sup>**

Thus, most mental-health care for adolescents and young adults is typically delivered in community and outpatient settings, often within the context of adult services. In developed countries, encouraging development of child and adolescent mental-health services has taken place. However, such services have emerged only fairly recently from an exclusive focus on younger children, and typically still struggle to manage young people in the middle and later stages of adolescence, when adult patterns of disorders generally emerge, whereas adult services are mainly focused on older and more chronic patients, and exclude and neglect younger patients. Iatrogenic effects can take place when adolescents and young adults are mixed with older chronically ill patients, including increased risks of suicide.<sup>127</sup> Initial access and continuing participation of young people in adult mental-health services is problematic and is partly responsible for the long delays in treating first episode psychosis.<sup>128,129</sup>

Even in fairly well resourced countries with established child and adolescent mental health services and adult mental-health services, access to mental-health care is poor, especially for those in late adolescence and early adulthood.<sup>130</sup> Since young people are mainly physically healthy, they generally do not have a regular relation with a general practitioner or other primary-health worker.<sup>131</sup> When help is sought, it is either not available or is typically offered in settings that fail to engage the young person and their family and to deliver effective help.<sup>132</sup> Young people's problems are often diagnostically confusing, and often need multidisciplinary and intersectoral responses. Engaging young people also requires a particular style and therapeutic skill and this is often lacking. For these reasons, a substantial gap exists between efficacy and effectiveness in mental-health care for young people.

### Implications for policy and practice

Although mental and substance use disorders represent the major health problems affecting young people and youth is the period of life during which most mental disorders emerge, provision of mental-health services is weakest during adolescence and youth.<sup>133</sup> Taking a population-health perspective, we advocate a continuum of response with a series of levels, from the community through to specialist services.<sup>134</sup> Self-limiting disorders and milder yet potentially serious disorders in an early stage might respond to simple measures, such as psychosocial support, self-help strategies, and education typically in non-clinical settings. These interventions could be developed in youth-friendly ways and disseminated through community-based channels, such as educational settings and the internet. Schools and colleges in particular offer a unique setting for mental health promotion in young people, via the emphasis on reducing risk factors and strengthening protective factors, which are common to several risk behaviours, such as substance abuse,

self-harm, and sexual risk behaviours (panel 2<sup>135</sup>). The beyondblue schools research initiative in Australia<sup>136</sup> is another example of a school-based intervention that seeks to prevent depression in young people through a complex intervention which addresses both individual and environmental risk factors. A related strategy would be to educate the community to improve knowledge of the onset phase of mental and substance use disorders in young people and how to seek help locally.<sup>137-139</sup> Secondly, general practitioners and other primary care workers need to be educated to better engage young people, to recognise mental and substance use disorders, and to deliver simple treatments, including supportive counselling, cognitive behaviour therapy, and, where appropriate, psychotropic drugs.<sup>140</sup>

#### Panel 2: HealthWise: a school-based intervention to encourage positive free-time behaviour and reduce prevalence of risk behaviours

The aim of HealthWise is to engage young people in a 2-year school-based curriculum that addresses important issues and choices they make. Many young people have much spare time, (ie, time not spent at school or work). During spare time, young people are free to engage in activities including chores, sports, spending time with friends or family, and participating in faith-based activities. Such activities have the potential to produce positive outcomes, for example increased connectedness with peers and adults. However, spare time also has the potential to result in unhealthy choices, such as consumption of alcohol, use of other drugs, such as marijuana, and participation in unsafe sexual practices.

HealthWise is designed to encourage positive free-time behaviour and to reduce the prevalence of unhealthy behaviours. The programme consists of a set of activities to help young people to: use their free time in ways that will benefit themselves, their families and friends, and their community; develop specific skills to make good decisions, control their emotions (such as anxiety and anger), resolve conflicts, and overcome boredom; grasp specific facts about the causes and effects of drug use and sexual risk behaviours; learn specific techniques to avoid peer pressure and to take responsible action in their spare time; and how to link with community resources.

HealthWise has several noteworthy features. First, it follows a comprehensive approach that addresses a wide range of aspects of how young people spend their time. This approach helps identify the reasons why young people engage in healthy and unhealthy behaviours, and teaches them to think about their lives holistically. Second, it focuses on and strengthens positive aspects of young people's lives, with a view to increasing resilience. Third, it incorporates a community approach, introducing young people to members of their school and local communities who can assist them in making important decisions and helping solve problems. The effectiveness of Healthwise is being assessed in South Africa<sup>135</sup>

Specialised and multidisciplinary care will be required for young people who have multiple or complex needs. This care should ideally involve youth-friendly general practitioners and other primary-health workers collaborating closely with mental-health and substance-abuse professionals and an array of support agencies, such as accommodation, educational, and employment services. In view of the poor access and engagement of young people in traditional primary and specialist service structures,<sup>131</sup> a strong case exists for location of this service mix within a single youth-friendly setting, ideally under one clinical-management structure, for example, a broader youth precinct for youth health and welfare, where mainstream youth-oriented activities occur, such as sports and leisure pursuits. This specialised community care alongside generic primary care and in partnership with the tertiary mental-health system, is under active development in Australia through a new Federal National Youth Mental Health Initiative. Some investigators have successfully argued for integration of drug and alcohol services within this youth stream of care.<sup>141</sup> Finally, the tertiary specialist system has an important part to play in the care of young people with potentially serious disorders and must be strengthened. Streamed tertiary care, such as now increasingly exists for old-age psychiatry, is needed for young people, especially inpatient facilities, so that they are no longer placed in older adult inpatient units. The development of a distinct clinical and academic subspecialty of youth psychiatry, best seen as a strengthening of child and adolescent psychiatry, would help to drive these reforms and aid workforce and skill development.

In all regions of the world, major staffing and other resource challenges and a scarcity of a clinical and public-health evidence base, particularly for childhood-onset disorders exists.<sup>142</sup> The scarcity of specialist human resources for mental disorders,<sup>126</sup> the poor awareness of mental disorders, and the stigma associated with them<sup>143</sup> are major challenges for implementing the ideal programme for specialist youth mental-health services that we have discussed. In low-resource settings, the realistic path is to integrate mental-health programmes into general youth health and welfare programmes, in particular those being developed to cater for specific youth issues, such as education and reproductive and sexual health. Youth health and welfare programmes are likely to be less stigmatised and more accessible to young people and they have the advantage of providing a range of youth-friendly services under one roof. Mental-health professionals, where available, would work as part of a youth-health team, delivering specialist interventions and building generic mental-health skills. At their most basic level, screening for high-risk groups, provision of simple, evidence-based, psychosocial treatments, and increasing awareness about mental health and illness, should be within the reach of every youth programme.

Interventions to prevent mental disorders and promote mental wellbeing must not be overlooked. Some evidence is available of the effectiveness of preventive interventions for conduct disorder, depression, anxiety, eating disorders, and suicide and alcohol misuse.<sup>144</sup> The bulk of this evidence is from high-income countries; however, isolated examples exist of successful preventive interventions in low-income and middle-income countries, such as an intervention to combat youth substance-abuse in China.<sup>145</sup> Similarly, evidence exists of the success of mental-health-promotion interventions in high-income countries, although these interventions are generally confined to protective factors at the individual level rather than interpersonal relations, culture, and structural factors, such as poverty.<sup>146</sup> We were unable to identify a single example of an intervention targeted at young people in low-income and middle-income countries that improved mental-health outcomes. However, an intervention in which stimulation was provided in infancy had a positive effect on mental-health outcomes in late adolescence (panel 1).<sup>73</sup>

There is far too little systematic research evidence for the burden, risk factors, protective factors, and interventions and models of care for youth mental disorders from most parts of the world. Cultural differences can have a profound effect on how policies, plans, and specific interventions are formulated and implemented. Major research questions that need to be addressed include: what are the mental health needs and the patterns of risk and protective factors for mental disorders in young people in societies that are witnessing rapid social and economic change? What are the mental-health needs of young people with other health problems, particularly HIV/AIDS? What is the effectiveness of integrating mental health into routine youth health-care programmes? How do child and adolescent mental health services compare with integrated mental health programmes? What is the effect of early-intervention programmes in youth on adult health outcomes? We strongly recommend the need for more pragmatic trials, in which the young people included are representative of those seen in clinics, and where the outcomes measured are clinically and socially meaningful. We also call for more research investment to develop, implement, and assess preventive and promotive youth mental-health interventions. However, although investment in research on youth mental health is important, it must not be at the expense of delaying investment in services for youth mental disorders, for which sufficient evidence is available of the epidemiology, public-health importance, and treatment effectiveness of mental disorders in young people.

### Youth mental health matters in all countries

It is ironic that, although substantial investment has been made in mental-health promotion and interventions

For more information on this Australian initiative see <http://www.headspace.org.au>

for young people in many developed countries, no equivalent acknowledgement of mental health needs of young people exists in developing countries. The priorities for young people seem to be different in rich and poor countries. We disagree with this dualism. Young people in every society have mental health needs; it is imperative that youth mental health is actively supported and championed by international youth health-promotion programmes and donors. The intersectoral nature of youth health is an asset to be maximised: youth mental health is not just a psychiatric issue, but affects all sectors of society.<sup>1</sup> Apart from the arguments about burden and effective interventions, the interface of youth mental health with other important social and public-health policy priorities, for example, crime, suicide, HIV/AIDS, education, and economic productivity, should provide the necessary case to achieve such a shift in attitudes. Country-level models now exist to show such commitment: in New Zealand for example, youth concerns have been integrated within all policy formulation and all government policies are informed in relation to young people, based on principles of youth development, participation, and multisectoral involvement.

For more information on the initiatives in New Zealand see <http://www.myd.govt.nz/publications>

The key to promoting youth mental health is through strengthening of the fundamental nurturing qualities of the family system and community networks while explicitly acknowledging the rights of young people. Such action would mean recognition of families and communities as major players in determining the mental health of young people. Young people themselves must be at the centre of all policy-making, focusing on their concerns. Many young people face difficulties of livelihood, emotional security, education, and violence, and our attention must address these concerns. Policies must explicitly address strengthening capacity for addressing youth mental disorders in family settings, educational settings, in primary health care and in specialist mental health care.<sup>147-149</sup> In conclusion, our single most important recommendation in this paper is the need to integrate youth mental-health interventions with all existing youth programmes, including those in the health sector (such as reproductive and sexual health) and outside this sector (such as education). We must also acknowledge that social systems in almost all societies are changing at an unprecedented pace, partly because of globalisation. The consequent changes in values, culture, and attitudes have contributed to increased expectations by young people. We need to ensure that economic gains are not won at the cost of the mental health of young people.

#### Conflict of interest statement

We declare that we have no conflict of interest.

#### Acknowledgments

VP is supported by a Wellcome Trust Senior Clinical Research Fellowship in Tropical Medicine and acknowledges the support of WHO and the John T and Catherine D MacArthur Foundation for supporting research on youth health in India. AJF is supported by a grant from the UK Department for International Development for a Research Programme

Consortium called The Mental Health and Poverty Project: mental health policy development and implementation in four African countries (contract number. RPC HD6 2005-2010). PM and SH are supported by a National Health and Medical Research Council Program Grant and the National Youth Mental Health Foundation Grant, both from the Australian Government, and by the Colonial Foundation. We thank Robert Goodman for his advice on parts of this review.

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