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European Psychiatric Association (EPA) guidance on prevention of mental disorders

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ABSTRACT

There is considerable evidence that various psychiatric conditions can be prevented through the implementation of effective evidence-based interventions. Since a large proportion of lifetime mental illness starts before adulthood, such interventions are particularly important during childhood and adolescence. Prevention is important for the sustainable reduction of the burden of mental disorder since once it has arisen, treatment can only reduce a relatively small proportion of such burden. The challenge for clinicians is to incorporate such interventions into non-clinical and clinical practice as well as engaging with a range of other service providers including public health. Similar strategies can be employed in both the European and global contexts. Promotion of mental well-being can prevent mental disorder but is also important in the recovery from mental disorder. This guidance should be read in conjunction with the *EPA Guidance on Mental Health Promotion*. This guidance draws on preparatory work for the development of England policy on prevention of mental disorder which used a wide range of sources.

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1. Introduction

Prevention of mental disorder and promotion of mental health should be a key part of the work of mental health professionals. However, this has often been ignored partly because training is focused on diagnosing and managing mental disorder but also because of insufficient resources. There is considerable evidence in the literature suggesting that prevention has the potential to significantly reduce the onset of and subsequent burden related to mental disorder as well as associated personal, social and economic costs.

The distinction between prevention and promotion is important to bear in mind when comparing mental disorder and mental health which are not simply opposite ends of a spectrum. Instead, mental disorder and mental health are distinct although related dimensions so that absence of either mental health or mental disorder does not imply the presence of the other. Prevention of mental disorder is closely related to and can occur as a result of promotion of mental health and associated resilience.

Prevention can be categorised in a number of ways: primary prevention focuses on addressing wider determinants across whole populations. Selective prevention focuses on targeting groups at higher risk of developing disorder. Secondary prevention involves early detection and intervention and corresponds to indicated prevention. Tertiary prevention involves working with those with established disease to promote recovery and reduce risk of relapse.

2. Impact of mental health

Good mental health is the basis of all health. Positive mental health results in health, social and economic benefits which are not simply due to absence of mental disorder [116,148,153,167]. Although positive mental health may be more difficult to define, it is associated with a number of factors:

- improved educational attainment and outcomes [212,219];
- greater productivity and less sickness absence [108,149];
- improved cognitive ability [164];
- better physical health [50];
- reduced mortality [45];
- increased social interaction and participation [128,237];
- reduced risk of mental illness or suicide [150,158,168];
- reduced risk-taking behaviour such as smoking [147,167];
- increased resilience to adversity [92].

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3. Impact of mental disorder

- In the UK, mental disorder accounts for 22.8% of total disease burden, compared with 15.9% for cancer and 16.2% for cardiovascular disease, as measured by disability adjusted life years (DALYs) [297].
- One in two people experience mental illness during their lifetime [8,115] and each year, 38% of the EU population suffers at least one mental disorder [302].
- Mental disorder impacts at all levels: individuals, families, communities and wider society indirectly, and there is often a treatment gap [296] which may be related to stigma [278].
- Mental disorder results in higher levels of risk-taking behaviour, health inequalities and reduced life expectancy [30,100,182,196].
- Mental disorder has a trans-generational effect leading to educational failure in children and subsequent ill-health [188,194].

4. Sub-threshold disorder

A large proportion of the population also experiences sub-threshold symptoms which can be debilitating and also increases the risk of transition to threshold disorder. The proportion of adults with sub-threshold common mental disorder in England is similar to those with common mental disorder (17%) [183], while the median prevalence rate for subclinical psychotic experiences is 5% [282].

5. Economic cost of mental illness

- Wider annual economic cost of mental illness is £105 billion in England [42,153].
- Mental illness is the single largest cause of disability and cost to the NHS (10.8% of the NHS budget). In England in 2007 service costs, which include NHS, social and informal care, were £22.5 billion [176].
- In England, annual costs of depression are £7.8 billion, anxiety £8.9 billion [176], schizophrenia £6.7 billion [171], medically unexplained symptoms £17.4 billion [23] and dementia £14.8 billion [176].
- Total average costs per suicide are £1.3 million in Scotland [234] and £1.5 million in Ireland [144].
- UK annual costs of mental illness during childhood and adolescence vary between €13,000 to €65,000 per child [270].
- Mental illness during childhood also has longer-term economic impacts across the life course. For instance, cost of crime by those who had conduct problems in childhood is £60 billion a year in England and Wales [247].

6. Case for prevention

As is clear, the burden due to mental illness is significant. Hence, the prevention of mental illness is important. Analysis of a large population survey found that treatment at current levels reduced burden of mental illness by 13% while even treating all those with mental disorder with the best available treatment only reduced burden by 28% [7]. Therefore, up to 70% of the burden of mental disorder cannot be reduced through treatment. In view of the high and increasing burden of mental and behavioural disorders and the recognised limitations in their treatment, the only sustainable method for reducing their burden is prevention [248].

Promotion and prevention can be used as effective strategies to reduce the burden of mental disorders and bring about health, social and economic development to the society [293,294]. As the Mental Health Declaration for Europe highlighted the promotion of mental health and the prevention, treatment, care and rehabilitation of mental health problems are a priority and mental well-being is fundamental to the quality of life and productivity of individuals, families, communities and nations [295]. In addition, promotion and prevention interventions are a cost-effective use of resources and represent a strong case for policy investment [293–295]. By 2030, neuropsychiatric conditions will account for the greatest overall increase in DALYs [297]. Although future costs of mental illness will increase over next the next 20 years, this could be reduced by greater focus on whole-population mental health promotion and prevention, alongside early diagnosis and intervention [176].

7. Age of onset of mental disorder

Age of onset is important when examining opportunities for prevention. Half of lifetime mental illness (excluding dementia) starts by the age of 14 [145,151] and 75% by mid 20s [146]. Childhood and adolescence are therefore particularly important periods of opportunities for prevention of mental illness with some estimates suggesting that between a quarter and a half of adult lifetime mental illness may be preventable through prevention of and early intervention for mental problems and disorders in childhood [151].

8. Protective factors for mental health

A public health approach recognises the protective factors for mental health as well as the wider determinants and lifelong impact of mental ill-health (Table 1).

9. Risk factors for mental illness

Risk factors for mental illness in childhood include child, parental and household factors. With regards to parental factors, use of alcohol, tobacco and drugs during pregnancy are associated with increased risk of a wide range of poor outcomes including long-term neurological and cognitive-emotional development problems [294]. Maternal stress during pregnancy is associated with increased risk of child behavioural problems [224–226], low birth weight with impaired cognitive and language development, poor parental mental health with 4–5 fold increased emotional/conduct disorder [186], while parental unemployment is associated with 2–3 fold increased risk in emotional/conduct disorder in childhood [186].

Child abuse and adverse childhood experiences results in several fold increase risk of mental illness and substance misuse/dependence [41,51,136]. High levels of cannabis use in adolescence are associated with a several fold increased risk of schizophrenia [305].

Table 1
Protective factors for mental health.

Genetic background, maternal (ante-natal and post-natal) care, early upbringing and early experiences including attachment patterns, good parenting [15,224,227,272]
Personality traits [1,103]
Age, gender and marital status [26,27,48,65]
Strong social support and networks [12,21,31,172]
Socioeconomic factors including access to resources [12,65,300]
Reduced inequality [92,174,188]
Employment and other purposeful activity [17,149,184,210]
Relationships [12,21,239]
Community factors such as levels of trust and participation, social capital [15,191,292]
Self-esteem, autonomy, values such as altruism [128]
Emotional and social literacy [15,16,28]
Physical health [59]

Household factors include lone parent families (2-fold increase), occupation of parents and living in low income, high unemployment areas [101]. Compared to children from the highest socioeconomic class, children from the lowest socioeconomic class have three-fold increased risk of mental health problems [101].

In adulthood, risk factors include lower income [183], debt [132], violence [19], stressful life events [188], housing [188], fuel poverty [107] and unemployment [112,188]. Suicide is associated with mental illness, physical illness, alcohol and drug misuse, certain personality traits, experience of abuse [20], unemployment, occupational social class, poverty, stressful life events and [181].

Poor mental health is also associated with higher rates of risk-taking behaviour such as smoking [182] which is the largest cause of premature death in the UK. Increased alcohol and drug misuse [54], lack of physical activity [243] and unhealthy eating occur at higher rates in those with poor mental health [202].

10. High risk groups

Looked after children (those who are in the care of a local authority or another organisation) show a five-fold increased risk of mental disorder [187], children with learning disability show a 6.5-fold increased risk of mental health problems [75] and 15–17-year-old men in custody with 18-fold increased risk of suicide [84].

In adulthood, black and minority ethnic communities show three-fold increased risk of psychosis [152] with seven-fold increased risk in those from black Caribbean groups [85] as well as a 2–3-fold increased suicide risk [24]. Those with learning disability have three-fold increased risk of schizophrenia and two-fold increased risk of depression [261]. Prisoners have 20-fold higher risk of psychosis [83,268], more than 160-fold higher risk of antisocial personality disorder for male prisoners and more than 100-fold higher risk in female prisoners [182,257]; for suicide, there is five-fold increased risk for male prisoners [84] and 20-fold increase for female prisoners [82].

11. Inequalities and mental health

Economic and social positions are also major determinants of both health and mental health; people living in the poorest neighbourhoods die seven years earlier than people living in the richest neighbourhoods and have 17 years less in disability-free life expectancy [174]. Social and economic inequalities influence health and well-being and risk of mental disorder; those from the lowest income levels are at increased risk of mental disorder compared with those from the highest income levels [101,183]. Higher income inequality is also associated with as reduced well-being [3], trust and social connectedness as well as increased hostility, violence and racism [300]. Furthermore, the annual cost of inequality amounts to £56–58 billion in England alone [174].

Mental disorder contributes to further inequality as highlighted by 20-year lower life expectancy in men with schizophrenia and 16-year lower life expectancy in women with schizophrenia [30]. This can be attributed to several factors such as higher levels of obesity and diabetes although smoking is responsible for the largest proportion of this health inequality [30]. Social inequality is therefore a significant factor in the genesis and maintenance of disorder [172,183,188].

12. Childhood and adolescence

In the UK, one in 10 children and young people has a mental health disorder at any one time [101]. These include conduct disorders (6%), emotional disorders (4%), hyperkinetic disorders (2%) and less common disorders such as autism (1%). These disorders are associated with reduced school, health and social skills outcomes, increased smoking, alcohol and drug use [101] and subsequent higher rates of adult mental disorder (see below), unemployment, low earnings, teenage parenthood, marital problems and criminal activity [241].

Outcomes are worse for conduct problems with nearly half of children with early onset conduct problems developing persistent, serious life-course problems including violence, drug misuse and unemployment [87]. Conduct problems in early life are strongly associated with later criminal activity [241] with children with conduct disorder during childhood being 70 times more likely to receive a prison sentence by age 25 [87]. Overall, 30% of all criminal activity is related to conduct disorder and 50% to other conduct problems in childhood and adolescence [247].

Conduct disorder is associated with increased risk of subsequent mental illness including mania, schizophrenia, obsessive compulsive disorder [203], depression and anxiety [51], suicidal behaviour [87], substance misuse [87] and personality disorder [96,164,214]. Although Anti-Social Personality Disorder (ASPD) has similar prevalence rates to schizophrenia in the general population, this increases many fold in male sentenced and remand prisoners [257]. However, ASPD can be prevented by interventions for conduct disorder [214].

Emotional disorder in childhood also increases risk of self-harm or suicide (5-fold increased risk) and time off school (4-fold increase) [199]. Up to 75% of adolescents with major depression experience recurrence in adulthood [89].

13. Impact of improved mental health in children and adolescents

In children and adolescents, positive mental health is associated with a range of improved outcomes including psychosocial functioning [147], learning and academic achievement and physical health [212,219]. Good social, emotional and psychological health also reduces risk of emotional and behavioural problems [228], violence and crime, teenage pregnancy and misuse of drugs and alcohol [101,219,221]. Resilience occurs at individual, family and community levels although parenting is particularly important and has a significant effect both onset and persistence of emotional and conduct disorder [228,266]. Therefore, interventions which increase positive mental health and resilience impact across a wide range of areas.

14. Prevention and promotion interventions during childhood and parenthood

Prevention and promotion improves long term outcomes and also results in financial benefits to society particularly through reduction in costs to the criminal justice system and health care as well as increased revenue from improved employment outcomes [154].

- Promoting parental mental and physical health: home visiting programmes [73] and parenting programmes [13,14,260] are effective in reducing maternal depression as are post-partum support [60], home visitation and peer support [252], health visitor training [192] and telephone peer support [61] as well as effective detection and treatment [204]. Reduced maternal smoking is associated with reduced infant behavioural problems and Attention Deficit Hyperactivity Disorder (ADHD), improved birth weight and improved physical health [72,195]. Breastfeeding is associated with reduced risk of behavioural problems [113], higher intelligence scores and later reductions in hypertension, obesity and diabetes [127].

- Supporting good parenting skills: parenting programmes improve parental efficacy and practice [13,269], maternal sensitivity [10], child emotional and behavioural adjustment in the first three years [24] as well as improved behaviour in high risk children [57] and those with conduct problems [67]. Parenting programmes also contribute to improved safety at home [143], reduced antisocial behaviour [130] and reduced re-offending [303].
- Preschool and early education programmes; these programmes [6,273] lead to improved cognitive skills, school readiness, improved academic achievement and positive effect on family outcomes including for siblings as well as prevention of emotional and conduct disorder [276]. Similarly, home visiting programmes improve child functioning and reduce behavioural problems [33,73]. Combined programmes may be more effective [139,200].
- School-based mental health promotion is effective in improving well-being, reducing conduct problems and emotional distress [2,289] as well as preventing conduct disorder and anxiety [276] and depression [32,126,189]. Secondary school curriculum approaches to promote pro-social behaviours and skills can also prevent development of anxiety and depression [86,219]. Meta-analysis of more than 270,000 students participating in the US social and emotional programme found reduced conduct problems and emotional distress, improved social and emotional skills, attitude about self, social behaviour and academic performance [70]. Peer mediation is effective in promoting pro-social and behavioural skills in the long term [28] with systematic reviews also highlighting effectiveness of peer-led approaches in schools to enhance pro-social skills [69,163].
- Prevention of conduct and emotional disorder; systematic review of interventions to prevent conduct disorder, anxiety and depression before adulthood find the programmes targeting at-risk children in the early years using parent training or child social skills training are the most effective [285]. A review of 27 systematic reviews to promote mental health and prevent mental health problems shows the effectiveness of high quality pre-school programmes [276]. Meta-analytic level evidence highlights the effectiveness of Triple P (Positive Parenting Programme) in producing sustainable behavioural improvements for high-risk children aged 2–11 years with sub-threshold behavioural disorder [57].
- Preventing violence and abuse; meta-analyses highlight effectiveness of school-based interventions to reduce violence [197], prevent sexual abuse [306] and bullying [279].

15. Economics of interventions

Prevention and early intervention show lifetime benefits for the child, the child as an adult and their capacity to parent thereby breaking cycles of inequality running through generations of families [231], particularly significant for early years interventions [139] with economic returns exceeding cost by an average ratio of six to one [214]. In primary schools, an integrated approach, using universal and targeted interventions is cost-effective [212] and can prevent negative behaviours which otherwise have costly consequences for NHS, social services and the criminal justice system.

Effective interventions for at-risk children become increasingly cost-effective over time, partly because the economic benefits particularly increase once participants starting working. The majority of savings from interventions usually accrue in areas outside health [154] thus any plans will need to be cross-departmental, working closely with education, justice and other departments. The England cross-government mental health strategy 'no health without mental health' [99] highlighted that each pound spent, the following returns were accrued [154]:

- school based social and emotional learning programmes to prevent conduct disorder (£84);
- school-based interventions to reduce bullying (£14).

16. Early interventions for mental disorder

- Early intervention for conduct disorder with individual parenting programmes [67,203] results in improved child behaviour, family relationships, educational outcome and reduced conduct disorder antisocial behaviour and crime. Early intervention for ADHD with parenting programmes is also effective [215].
- School-based prevention and intervention programmes for children with sub-threshold disorder results in improved mental health, behaviour at school and home, social skills and academic skills [240].
- Early intervention for psychosis is effective [25] with 8-year follow-up showing fewer psychotic symptoms and better course of illness [190]. Higher employment rates following EI (36%) compared to standard care (19%) [169].
- Treatment of earliest stage of psychotic illness (At Risk Mental State) reduces transition to psychosis from 35 to 15% (NNT 4) [178,179].
- Early intervention for borderline personality disorder results in improved functioning for adults, reduced psychopathy and suicidal behaviour [43,109]

Early intervention can thereby break down cycles of inequality running through generations of families [173].

17. Economics of early intervention

The England cross-government mental health strategy 'no health without mental health' [99] highlighted that each pound spent, the following returns were accrued [154]:

- early parenting interventions for parents of children with conduct disorder (£8);
- early diagnosis and treatment of depression at work (£5 after one year);
- early detection in psychosis (£10 by year 2);
- early intervention of psychosis (£18 after one year);
- screening and brief interventions in primary care for alcohol misuse (£12).

18. Older people

By 2020, one in five people in the UK will be 65 or older [53] which is likely to be similar across Europe. Concepts of mental health in older people do not differ substantially from those held by younger people [53]. Mental health is closely associated with physical health; positive mental health is associated with reduced mortality [45] while poor mental well-being is more strongly associated with increased mortality risk than mental ill health [129].

Approximately 35% of patients with mental illness in the UK are over 65 [112] while 25% of older people in the community have symptoms of depression requiring intervention (11% minor depression, 2% major depression) [53,97]. Furthermore, 20–25% of people with dementia also have major depression while 20–30% have minor or sub-threshold depression [5].

Dementia affects 5% of people aged over 65 and 20% of those aged over 80 and numbers of people living with and caring for those with dementia will continue to increase [155]. Risk factors associated with dementia overlap with those for cardiovascular disease and include hypertension, high body mass index, smoking and possibly diabetes [229]. Future costs of dementia in England are set to increase from £14.8 billion in 2007 to £34.8 billion in 2026 [176].

Effective interventions which maintain mental health in later years include psychosocial interventions [213,233], high social support during adversity [201], prevention of social isolation [40], walking and physical activity programmes [210], learning [249], adequate heating [100], psycho-educational interventions for carers [264] and poverty reduction. Particular groups are at much higher risk of mental disorder such as those with two or more long term physical conditions who have an almost seven-fold increased risk of depression [193] and so particularly benefit from a more targeted approach. Since older people contribute £234 billion to the UK economy each year [184], there is also a direct economic benefit of promoting mental health and preventing mental disorder.

There is research and intervention evidence to suggest that prevention of some dementias is possible:

- physical activity is associated with reduced risk of dementia in those without cognitive impairment [104];
- cognitive exercise interventions can maintain cognitive performance [281];
- social engagement is associated with reduced risk of dementia with evidence of higher cognitive function in those with larger networks [21] and protective effects from mentally or socially stimulating activity [91,288];
- treatment of hypertension can reduce risk of dementia [90,161].

Early diagnosis and intervention benefit those affected by mental illnesses such as depression and dementia as well as their carers. Addressing underlying physical conditions is also important. Early treatment of dementia is effective and improves quality of life [11].

19. Promoting strength and resilience

Resilience is an important aspect of mental health which can reduce impacts of adversity and also promote capacity to face other difficulties [92]. Examples of effective interventions to promote resilience include:

- schools-based promotion programmes such as social emotional learning and peer mediation (see earlier section);
- work-based mental health promotion and stress reduction interventions [287]; workplace well-being programmes are effective and can result in economic benefits for business of almost £10 for each pound invested within one year [154,218]. Stress management at work can reduce work-related stress and sickness absence [120, also see 121,242];
- unemployment; promoting well-being, motivation and resilience of those who become unemployed and facilitating return to work reduces depression and distress [9,298];
- debt and financial capability interventions; debt advice can improve mental health [235]. Improved financial capability reduces the risk of getting into debt and results in 15% reduction of depression and anxiety while also improving well-being and satisfaction [274];
- housing improvement [277] and housing support for those with mental illness can result in reduced readmission rates and reduced homelessness [39];
- heating and insulation interventions can reduce risk of depression and anxiety by 50% [100];
- suicide prevention; factors associated with reduced suicide include coping skills, good relationships, social support and physical activity [181] and interventions which promote such resilience are more important in those at higher risk of suicide. Other interventions include restricting access to suicide hotspots [22], restricting sale of amount of certain drugs such as paracetamol [111], collapsible fittings in psychiatric inpatient units, and education programmes for general public and health professionals [95].

20. Promoting more connected communities

Communities with higher levels of social capital have lower rates of crime, better health, higher educational attainment and better economic growth [294]. Social networks and social support promote a sense of belonging and well-being and may prevent mental health problems [31,56,68,188]. Social health is also associated with reduced mental health problems in children [228], reduced mortality [125,232], and reduced cognitive decline [21,77]. Reduced stigma and discrimination can occur as a result of more connected and tolerant communities by using interventions which increase social capital and include:

- individual and community empowerment increases social cohesion and support [286];
- group programmes [40] and peer support [252] to reduce social isolation;
- social prescribing of arts [34] and time banks [52,159,199] can improve both individual and community mental health as well as reducing social exclusion [93];
- community participation in local governance [259] and community engagement in health promotion [208] although dependent on community and organisational capacity [236];
- adult learning results in improved well-being partly through associated social engagement [249];
- community arts activities [62,175];
- neighbourhood improvement is associated with improved mental health [49,277];
- enhanced access to safe green community space facilitates social contact [238,271];
- targeted interventions for those with mental illness and other high risk groups can reduce stigma and discrimination [277]. Such programmes can also be cost effective [177].

21. Mental illness associated with physical illness

Physical health is closely associated with mental health. Improved mental health [29,49,277] and well-being are associated with reduced mortality rates both in those with and without mental illness [45]. Furthermore, the absence of well-being is more predictive of 7 year mortality than the presence of symptoms of mental illness [129].

Physical illness increases risk of mental illness [217]. Rates for depression are double in those with diabetes, hypertension, coronary artery disease and heart failure, and triple in end-stage renal failure, chronic obstructive pulmonary disease and cerebrovascular disease [71]. Prevalence of depression among those with two or more chronic physical conditions is almost seven times higher compared with healthy controls [193].

Mental illness increases the risk of physical illness with the effect of depression on mortality only slightly less than the effect of smoking [196]. Depression is associated with a two-fold increased risk of coronary heart disease [114,223]. In the UK, men with schizophrenia die 20.5 years earlier, while women with

schizophrenia die 16.4 years earlier largely due to physical health problems [30]. Those with schizophrenia have overall 2.6-fold increased mortality rate which has widened since the 1970s with 3.2-fold increased risk from respiratory disease and 4.3 increased risk from infectious disease [246]. They also experience 1.5–2-fold increased risk of obesity, 2-fold increased risk of diabetes and 2-3-fold increased risk of hypertension [58]. Early targeted intervention to promote healthy lifestyle can reduce health risk behaviours and resulting physical illness.

Smoking is the largest preventable cause of death in the UK [80] and is responsible for an average 10-year lower life expectancy in the general population [66]. However, smoking is much more common in those with mental disorder who are responsible for 42% of adult tobacco consumption in England [182] with 70% smoking rates in psychiatric inpatients [133]. Furthermore, 43% of smokers under 17 have either emotional or conduct disorder [101]. In the USA, those with mental disorder are responsible for similar levels of total national tobacco consumption to England [160] with almost half of annual deaths from tobacco in those with mental illness or addictions [301]. Therefore, those with mental disorder experience much greater levels of smoking-related harm with smoking responsible for a large proportion of the excess mortality and health inequality they experience.

As well as impacting on physical health and life expectancy, smoking also impacts on mental health and is associated with increased risk of depression and anxiety disorder in young people [98,134,304], higher suicide rates [170] as well as 56% increased risk of developing mental disorder [55]. Smoking during pregnancy is associated with two-fold increased risk of conduct disorder in boys [131], is predictive of conduct problems and criminal conviction [195], and associated with antisocial behaviour and ADHD symptoms in children [35].

Although smokers with mental disorder are as motivated to stop as the general population [258], they are less likely to be offered cessation support. However, cessation results in improved mental health, reduced depressive symptoms, reduced doses of some psychiatric medications by up to 50% [275] and reduced financial stress [254]. Therefore cessation not only reduces likelihood of developing physical illness but may also play a role in prevention of mental illness.

As increased health risk behaviour is associated with increased levels of mental ill-health and lower levels of well-being, wider mental health promotion and mental illness prevention can reduce such risk behaviour:

- smoking; uptake of smoking in children and young people can be prevented [209] although it requires targeting at higher risk groups such as those with conduct disorder (6-fold higher smoking rates) and emotional disorder (4-fold higher smoking rates) [101]. Smoking cessation in adults, including in those with mental disorder, is associated with improved mental health, reduced depression and anxiety, as well as doses of medication [37,38];
- alcohol; control of availability, advertising, and pricing is effective in reducing alcohol related harm [220] while guidelines exist for prevention and reduction of alcohol use in children and young people [207]. A range of interventions to address those with alcohol problems include brief interventions [138] and motivational interventions [165,220,284]. Substance misuse; several reviews highlight evidence for prevention and reduction of substance misuse among young people [137,180] including programmes promoting social skills [79]. School-based violence prevention programmes can also result in reduced drug as well as alcohol misuse and dependence [142]. Since drug misuse is highest in those between 16 and 24 years [183], programmes are most effective before this age [180]. Regarding tertiary prevention, good evidence exists for contingency management [166], psychosocial interventions [205] and medication [206];
- sexual health; higher sexual health risk behaviour is associated with mental ill-health and lower levels of well-being [118]. As for the general population, sexual health education programmes for those with mental illness reduce high-risk sexual behaviour [118].
- obesity is also associated with higher risk of mental illness, while mental illness is associated with higher risk of obesity [198]. Higher body weight is also associated with reduced psychological well-being [115,117]. Obesity disproportionately affects people with mental illness, learning disability and physical disability [63,291] with those taking antipsychotic medication at particular risk [88]. Interventions to prevent obesity include changes to the physical environment, increased physical activity and balanced diet. Specific programmes for those recovering from mental illness can also reduce weight [4,78,81,283];
- nutrition: breastfeeding is associated with reduced behavioural problems in children [113], higher intelligence as well as reduced hypertension, obesity and diabetes [127]. Lack of sufficient, safe and nutritious food is associated with maternal depression and higher rates of behaviour problems in children [185]. Strong evidence exists for improved health outcomes from diet low in fat, salt and sugar but high in fruits, vegetables and complex carbohydrates for all schoolchildren [74];
- physical activity improves not only sub-threshold, mild and moderate depression and well-being [216] but also results in improved cognitive performance in school-aged children [255], improved mental health and well-being in deprived communities [17], improved mental well-being of those with schizophrenia [124] and improved mental health outcomes in older people [210] as well as reduced risk of depression [110];
- early intervention and treatment of mental health problems, including referral for psychological therapies, can improve health outcomes for people with physical illnesses [217,203];
- early physical health promotion to address a range of health risk behaviour in those with mental illness increases well-being, promotes recovery and can prevent development of physical health problems [4,38,222,283].

Simple changes such as by smoke-free legislation, reduced fast food outlets and facilitating people walking or cycling by changing street design can also make a considerable difference to population's physical health [18,209,211].

22. Psychological health

Psychological therapies can enhance well-being and resilience in different groups as well as reduce depression, anxiety and stress [94,216]. Positive psychology interventions also actively promote positive emotions, behaviours and thoughts, thereby improving well-being [251]. Meta-analysis highlighted effectiveness in enhancing well-being as well as reducing depressive symptoms [256].

23. Mindfulness

Mindfulness interventions increase awareness, positive mood, quality of life, self-esteem, empathy and optimism and reduce psychological distress and depressive symptoms [46,102,122] and are recommended for prevention of relapse in recurrent depression [216].

24. Spirituality

Spiritual practises and beliefs are associated with improved well-being, satisfaction [51] and quality of life [262,299] as well as

self-esteem, personal growth, mastery and control [157]. Spirituality is also associated with recovery and reduced risk of depression [262] as well as reduced symptoms of illness [156,157,263].

25. Meaning and purpose

Well-being is also associated with a sense of meaning or purpose [76,167,230]. Furthermore, recovery from mental illness involves building a meaningful and satisfying life [253]. Mental health services can support recovery by promoting well-being, fostering relationships, offering treatments and improving social inclusion [260]. The recovery approach in the context of mental illness emphasises the importance of the promotion of well-being and relationships and highlights the importance of understanding people in their context [253].

26. Learning

Education is associated with reduced risk of depression and improved mental health [44]. Learning is important for social and cognitive development during childhood, while learning during adulthood is associated with improved social skills and wider social networks [249], improved well-being and life satisfaction [115] and improved health behaviours [245]. Learning also increases earning potential and employability which reduces risk of poor mental health [250].

27. Leisure

Leisure enhances well-being by increasing feelings of competency and relaxation, social inclusion and support as well as distracting from difficulties [36]. While active leisure is associated with well-being, passive leisure activities such as watching television and video games have been associated with reduced well-being [123,280]. Other large prospective studies highlight association of television watching and subsequent poor health [106], increased risk of attention problems [47] and learning difficulties [135].

28. Creativity and community participation

Engagement in arts is associated with improved well-being and quality of life as well as promotion of mental health and prevention of mental illness [62]. It can also facilitate social participation and community cohesion. Evidence highlights the impact of art [265] and music [162] in assisting recovery from mental illness.

Relationships with friends and community, as well as participation in activities can promote well-being, positive social involvement and ecologically sustainable behaviour [140] (see section on promoting more connected communities).

Volunteering can increase well-being [64]. For children and young people, is associated with improved self-esteem, making friends, increased awareness of community and increasing future employment opportunities [119]. For adults and older people, volunteering improves quality of life, particularly when involving face-to-face contact with others [239,290]. Volunteering also provides social capital which is an important protective factor of mental health.

Work has an important role in promoting mental well-being and can provide a sense of fulfilment and opportunities for social interaction [285]. Coordinated approaches can promote well-being of employees [218].

29. Sleep

Several studies highlight the importance of sleep for well-being [105,267]. Sleep loss and sleep disorder are associated with a reduction in vitality, social functioning, physical and mental health and quality of life [141,244]. Mental illnesses such as depression and anxiety are also associated with sleep problems.

30. Recommendations

- No other health condition matches mental ill health in the combined extent of prevalence, persistence and breadth of impact. Mental illness is the largest single source of burden of disease in England with wider annual costs amounting to £105 billion.
- Prevention of mental illness and promotion of mental health as well as early treatment of mental illness can sustainably reduce the burden of mental illness. Prevention of relapse and mental health promotion is also important during recovery.
- Interventions which address inequality also promote population mental health, prevent mental ill-health and promote recovery.
- Significant personal, social and economic savings result from such investment while significant costs arise from lack of such investment. Associated reduction of burden and cost of mental illness also impact in many other areas outside health.
- Since most lifetime mental illness begins before adulthood and often continues across the life course, improving mental health in early life has an even greater impact in reducing mental illness and inequalities as well as improving physical health, resilience, life expectancy, healthy lifestyles, economic productivity, social functioning and quality of life.
- Effective promotion and prevention requires both universal and targeted interventions delivered through a sustained and coordinated cross-government approach in partnership with non-government organisations and communities.
- An effective strategy requires investment in wider training including at undergraduate and postgraduate levels.

31. Conclusions

This overview highlights the significant evidence base for public mental health which can result in prevention of mental disorder as well as promotion of mental health. Associated benefits are widespread and include economic savings. The recommendations forming part of this guidance are evidence-based and although the implementation of public mental health interventions requires resources, such investment can support the sustainable reduction in burden of mental disorder.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

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