The economic case for investing in the prevention of mental health conditions in the UK

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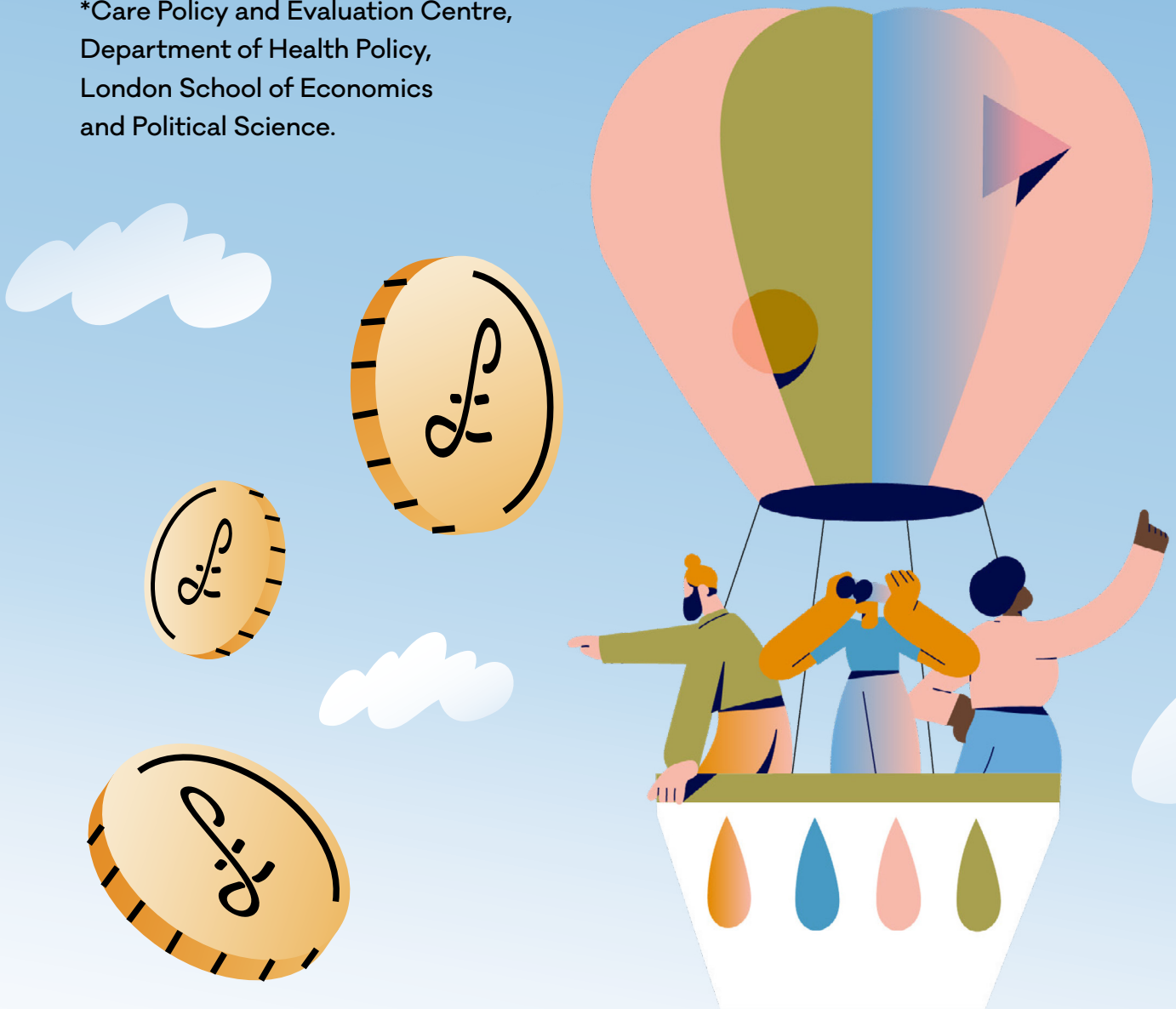

Mental Health Foundation

LSE CPEC CARE POLICY AND EVALUATION CENTRE

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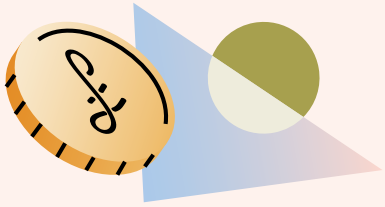


Glossary

Burden of Disease:
The quantified impact of a disease or injury on a population using the disability-adjusted life year (DALY) measure.

Cost benefit analysis:
(Sometimes called benefit-cost analysis)
A form of economic evaluation. The costs and benefits are measured using the same monetary units (for example, £s) to see whether the benefits exceed the costs.

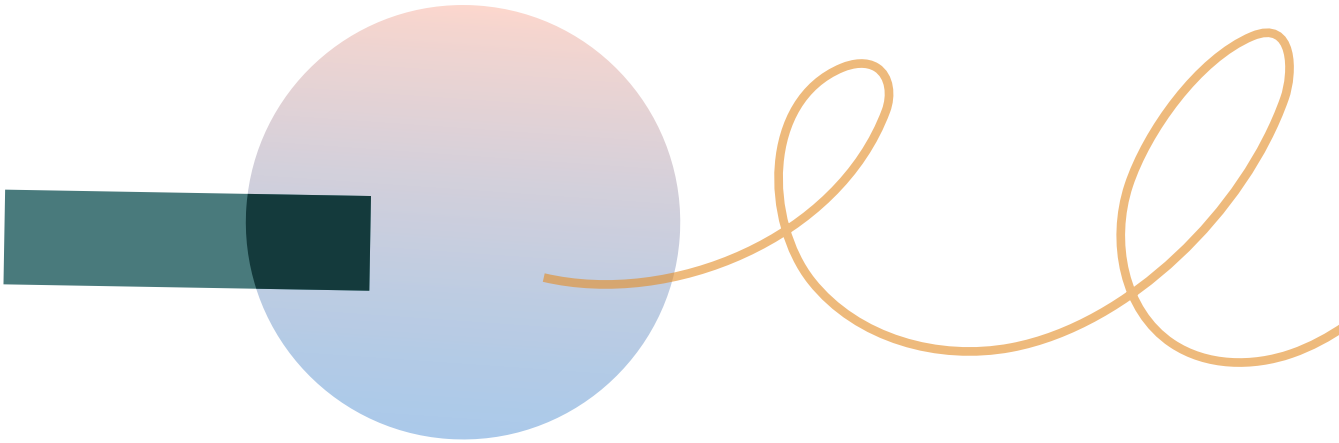
Cost-effectiveness analysis:
A form of economic evaluation that assesses the cost of achieving a benefit by different means. The benefits are expressed in non-monetary terms related to health, such as symptom-free days, deaths avoided or life years gained (that is, the number of years by which life is extended as a result of the intervention).

Cost-utility analysis:
A form of economic evaluation. The benefits are assessed in terms of both quality and duration of life and expressed as quality-adjusted life years (QALYs).

Disability:
In burden of disease analysis, any departure from an ideal health state.

Disability Adjusted Life Year (DALY):
A measure of healthy life lost, either through premature death or living with disability due to illness or injury. It is a composite measure including both years lived with disability (YLDs) and years of life lost (YLLs).

Economic evaluation:
An economic evaluation is used to assess the cost-effectiveness of two or more interventions. The aim of an economic evaluation is to help decision makers maximise the level of health (and other) benefits relative to the resources available. There are several types of economic evaluation including cost-benefit analysis, cost-effectiveness analysis and cost-utility analysis. They use similar methods to define and evaluate costs, but differ in the way they estimate the benefits of interventions.



Global Burden of Disease (GBD) study:
The GBD study led by the Institute for Health Metrics and Evaluation, University of Washington, Seattle, USA, is a comprehensive regional and global research programme of disease burden that assesses mortality and disability from major diseases, injuries, and risk factors. GBD is a collaboration of over 3,600 researchers from 145 countries.

ICD:
The International Classification of Diseases (ICD) is a globally used diagnostic tool for epidemiology, health management and clinical purposes. ICD-10 is the 10th version of the tool which has been in use since 1992.

Mental health conditions:
Refers to a wide range of health problems that affect how a person feels, thinks, behaves, and interacts with other people. Mental health conditions are of different types and degrees of severity. Some major types are depression, anxiety, schizophrenia, bipolar affective disorder, personality disorders, and eating disorders.

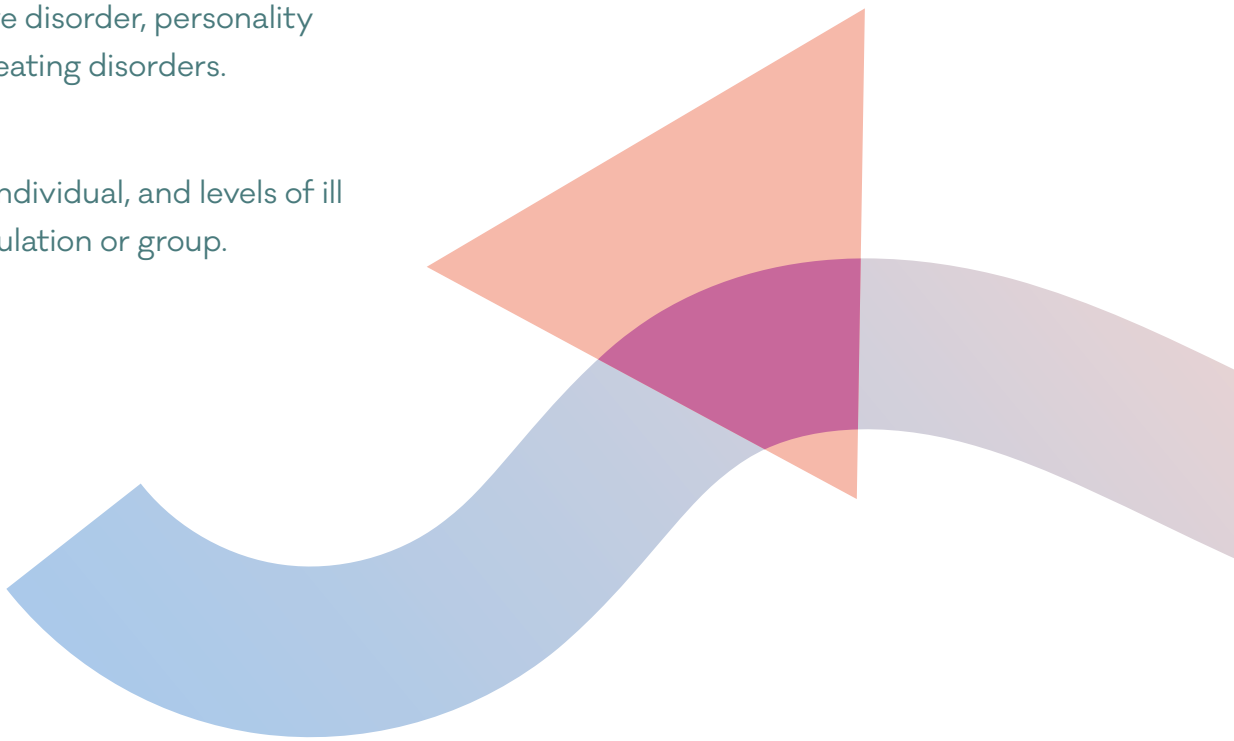
Morbidity:
Ill health in an individual, and levels of ill health in a population or group.

Quality Adjusted Life Year (QALY):
A measure of the state of health of a person or group in which the benefits, in terms of length of life, are adjusted to reflect the quality of life. One quality-adjusted life year (QALY) is equal to one year of life in perfect health.

Return on Investment (ROI) analysis:
ROI measures the amount of return on a project relative to its cost over a specific time period. It is calculated by estimating the return (net benefit such as future health care and social welfare system costs averted - minus programme and any other costs).

Years lived with disability (YLDs):
The number of years of what could have been a healthy life that were instead spent in states of less than full health.

Years of life lost (YLLs):
The number of years of life lost due to premature death, defined as dying before the ideal life span.



Executive summary

This report provides an overview of the economic case for the prevention of mental health conditions.

To do this, we first estimated the societal costs of living with mental health conditions in the UK in 2019 and then reviewed what is known about the cost-effectiveness of well-evidenced actions to prevent these mental health conditions.

To estimate costs, we used a prevalence-based costing approach. This measures the number of people living with mental health conditions over a specific short time period (usually one year) and estimates the average costs associated with these conditions over this time period. Our prevalence-based costing model makes use of data on prevalence from the 2019 Institute of Health Metrics and Evaluation Global Burden of Disease (GBD) study. The GBD study quantifies the impact of all health conditions, both infectious and non-communicable, including mental health conditions, as well as the impacts on injury, including intentional self-harm.

As part of the study, the GBD systematically searches for and assesses mental health surveys around the globe. To allow for comparability in measurement, case definitions used by GBD predominantly adhered to international diagnostic criteria guidance, either the DSM-IV-TR, mainly used in the United States or the ICD-10 criteria used mainly elsewhere, as these are used by the majority of mental health surveys included in the GBD. The GBD study estimates are periodically updated, apply a common methodology, are subject to peer review, and are routinely used by the World Health Organization (WHO) when looking at the global impact of mental health conditions. Furthermore, GBD estimates are provided separately for all four nations of the UK, as well as at English Region level. These estimates are conservative, as the GBD does not include the impact of sub-diagnostic threshold mental health conditions, as well as risk factors such as undue stress which do not fit into diagnostic criteria, all of which will also have economic costs.

We included 11 of 12 broad categories of mental disorder meeting diagnosable thresholds used in the GBD[1]. These were depressive disorders (major depressive disorder and dysthymia), anxiety disorders, bipolar affective disorder, schizophrenia, autism spectrum disorders, conduct disorder, attention-deficit hyperactivity disorder (ADHD), eating disorders (anorexia nervosa and bulimia nervosa), and a final category of other mental disorders (which mainly covers personality disorders). A detailed list of conditions is listed in Table A-2 in the appendix. We excluded the idiopathic intellectual disabilities category in the GBD. Neurological conditions such as dementia, as well as alcohol and substance use disorders, are not included. Although not all intentional self-harm is linked with a mental health condition, we also separately provide an estimate of the health and intangible costs associated with intentional self-harm, including suicide, reported in the GBD. All costs are calculated and reported in 2020 pounds sterling.

1. The 11 categories selected from the Institute of Health Metrics and Evaluation Global Burden of Disease database map onto the following ICD-10 categories: Schizophrenia: F20-F20.9, F25-F25.9; Major depressive disorder: F32-F33.9; Dysthymia F34.1; Bipolar disorder: F30-F31.9, F34.0; Anxiety disorders: F40-F44.9, F93-F93.2; Anorexia Nervosa: F50.0-F50.1, Bulimia nervosa: F50.2-F50.5; Autism spectrum disorders: F84; Attention-deficit/hyperactivity: F90-F90.9; Conduct disorder: F91-F92.9; Other mental disorders: F04-F06.1, F06.3-F07.0, F08-F09.9, F21-F24, F26-F29.9, F34, F34.8-F34.9, F38-F39, F45-F49, F51-F52.9, F55-F55.8, F56-F69.0, F80.0 – F82, F88-F89.0, F93.3-F99.0, G47-G47.29, G47.4-G47.9, R40-R40.4, R45-R46.89, R55-R55.0, Z03.2, Z04.6-Z04.72, Z13.4, Z64, Z81, Z81.8, Z86.5-Z86.59. (See appendix for more information on these categories)

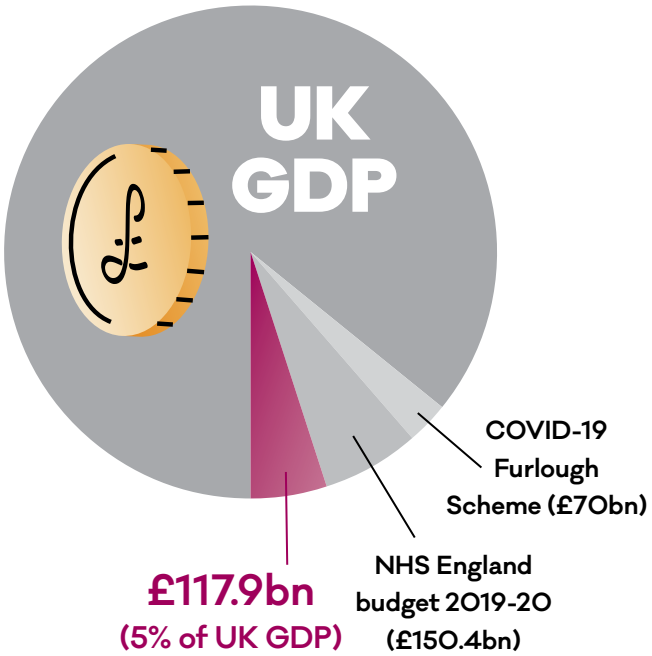
Findings

In 2019 mental health conditions examined in this report accounted for 7% of all ill health in the UK,

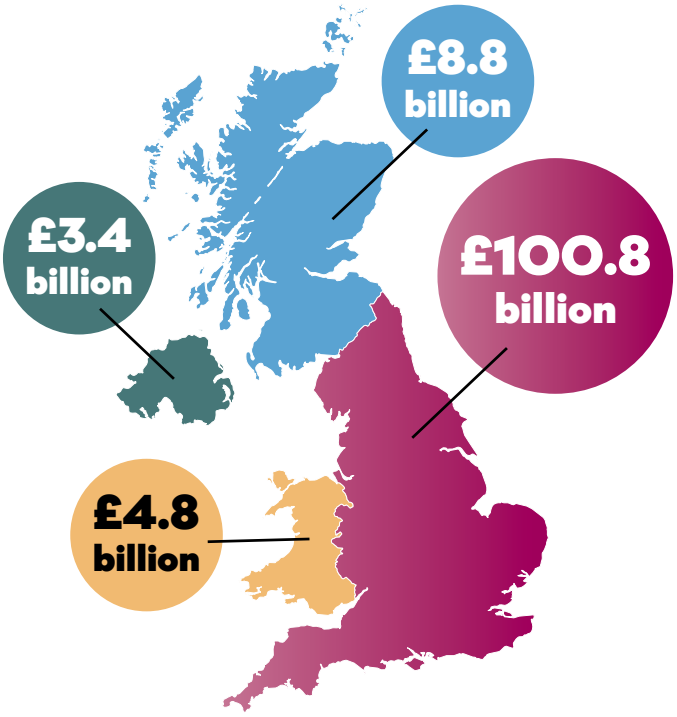
as measured by disability-adjusted life years (DALYs), the principle outcome measure, combining years of life lost due to premature mortality and years lived with a disability used in the GBD study. Mental health conditions were the fourth leading cause of DALYs in the UK and the second most leading cause of years lived with disability (YLDs).

Overall, these costs conservatively amount to £117.9 billion, approximately 5% of UK GDP in 2019, most of which (72%) is due to the lost productivity of people living with mental health conditions, as well as costs incurred by unpaid informal carers.

Cost of mental health problems

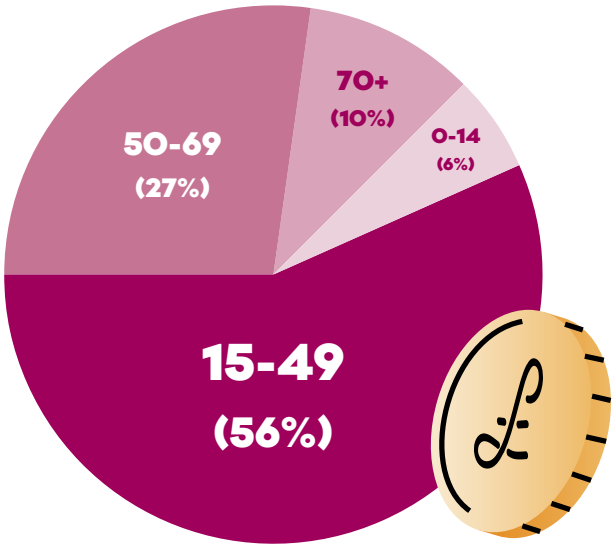


Mental health problems cost UK economy at least £117.9 billion per year



To put this figure into context the monetary costs of the NHS in England in 2019/20 were £150.4 billion, whilst the cost of the furlough scheme to protect the income of workers during the COVID pandemic was approximately £70 billion.

With approximately 85% of the population, £100.8 billion of these mental health condition costs are incurred in England, with the remaining £3.4 billion, £8.8



Percentage of cost per age group

billion and £4.8 billion of costs incurred in Northern Ireland, Scotland and Wales respectively. 6% of costs were for young people aged 0-14, compared to 56% for those aged 15-49, 27% for the 50-69 age group and 10% for the over 70s. Major depression accounts for 23% of total costs followed by 18% for anxiety disorders and 17% for bipolar disorder. The schizophrenia cluster accounts for 8% of costs.

The additional costs of economic inactivity relative to the population without any disability are estimated to be £36.2 billion. This is conservative, as we assumed that there were no productivity losses associated with conduct disorder and ADHD in adults. **Informal care costs were also £36.4 billion.** Conservatively we assumed that there were no additional informal care costs for children.

Some costs associated with any health condition are difficult to measure and are referred to by economists as 'intangible costs'; examples can include the personal impacts of lost quality of life, such as the detrimental impacts of stigmatisation discrimination and social exclusion. Intangible costs, reflecting lost quality of life due to mental health conditions, net of productivity losses, are £26.1 billion.

Specialist mental health care costs are estimated to be £13 billion, 11% of total costs. These costs reflect current service use, but there is a high level of unmet need; in England in 2019 44% of mental health service providers in a survey reported being unable to meet current demands for inpatient services, rising to 58% for community mental health services and 81% for child and adolescent mental health services.

In addition to these specialist mental health care costs and some other health care contacts, there is a big role played by primary care. Very conservatively, we estimate that there will be a further **£2.3 billion in primary care expenditure.** This figure includes £1.4 billion in general population consultations with GPs because of a mental health issue, as well as increased rates of contact with GPs by people with mental health conditions. Our estimate of **social care costs of £1.2 billion** is conservative; this covers local authority funded costs and does not include costs funded from other sources, including self-funded care. **Education costs, albeit restricted to just special educational needs provision, account for more than £2.5 billion.**

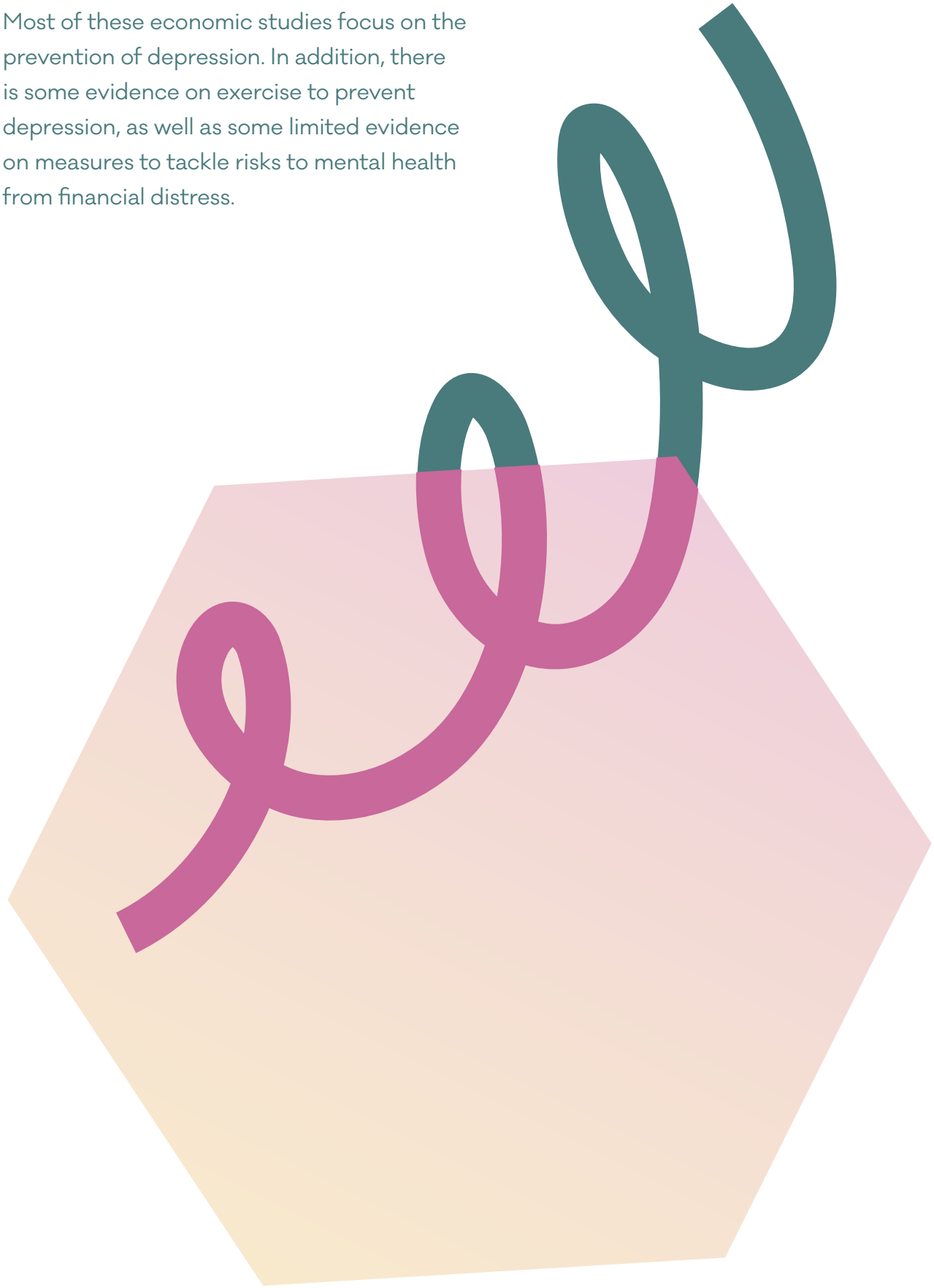
In summary, we have estimated the annual costs of mental health conditions in the UK to be almost £118 billion, with the majority of costs falling outside the health care sector, most notably through lost employment and informal care costs. While higher than some recent estimates, we believe our estimate is highly conservative as we have not included dementia, nor presenteeism and absenteeism in the workplace, and have not included sub-threshold conditions. We also do not include any additional costs of managing physical health problems in people with mental health conditions. We also found that including health and quality of life impacts associated with self-harm and suicide, much of which are linked with mental health conditions, would increase these costs to more than £125 billion per annum.

While not all of these costs of mental health conditions are avoidable, actions that can prevent even a small fraction of these costs potentially could be highly cost-effective. We undertook a rapid review, drawing mainly on evidence from existing systematic reviews, and some recent individual studies, to look at the availability of cost-effective actions to prevent the development of mental health conditions. We were interested in actions that address 'upstream' determinants of mental health, such as alleviation of poverty or protection of access to green spaces, as well as 'downstream' measures, such as those to support coping strategies of families or psychological interventions for individuals already at risk of poor mental health.

Our review indicates that there is an ever-growing evidence base of studies, many of which have been evaluated in a UK context. We can point to cost-effective actions across the life course (see Box 1).

This includes actions to support mothers and young children, including peer delivered support, a myriad of parenting programmes and measures for young people, including initiatives to address bullying, many of which are delivered in school-based settings and involve peers (other school children). For working-age adults much of the economic evidence base has focused on different types of psychological support, including brief cognitive therapies, and emerging evidence on mindfulness-based therapies.

Most of these economic studies focus on the prevention of depression. In addition, there is some evidence on exercise to prevent depression, as well as some limited evidence on measures to tackle risks to mental health from financial distress.



Selected potential good 'buys' for investing in preventing mental health problems across the life course

From a public health perspective, **the workplace is an important setting where actions can be taken to promote and protect mental health.** Many effective actions do not, however, lend themselves easily to economic evaluation; for example, promoting a more mentally healthy workplace culture, flexible working and job satisfaction. This means that most of the economic evidence in the workplace is focused on measures involving specific narrow measures such as brief individual psychological interventions, as well as individual or group exercise programmes.

Many adults have to juggle work with caring responsibilities, and we saw that informal care accounted for 36% of all the costs of mental health. Evidence of cost-effective interventions for carers is still very limited. In contrast the evidence on preventing mental conditions, especially depression and anxiety in people living with long term health conditions, particularly cancer, appears stronger. Most interventions took the form of brief psychological support such as cognitive behavioural therapy (CBT) or mindfulness-based therapy and were generally positive.

For older people there is evidence from a small number of economic studies that psychological therapies delivered to at risk populations such as the bereaved can be cost-effective and protect mental health. There is also increased interest in tackling loneliness as a risk factor for depression, with some evidence on the cost-effectiveness of group-based activities. However, there is a need to be cautious, as these studies are generally small in size.

Looking at suicide there is some evidence base on cost-effective actions for prevention, most notably focused on restricting access to means. Multi-component strategies that include measures to address depression, including in workplace settings, may be cost effective. In respect of self-harm, better psychosocial assessment and subsequent care for people who present to hospital for self-harm may also be cost effective.

Knowledge gaps

While our review has highlighted a broad range of evidenced interventions for the prevention of mental ill health where some economic evidence is available, there are many gaps in knowledge.

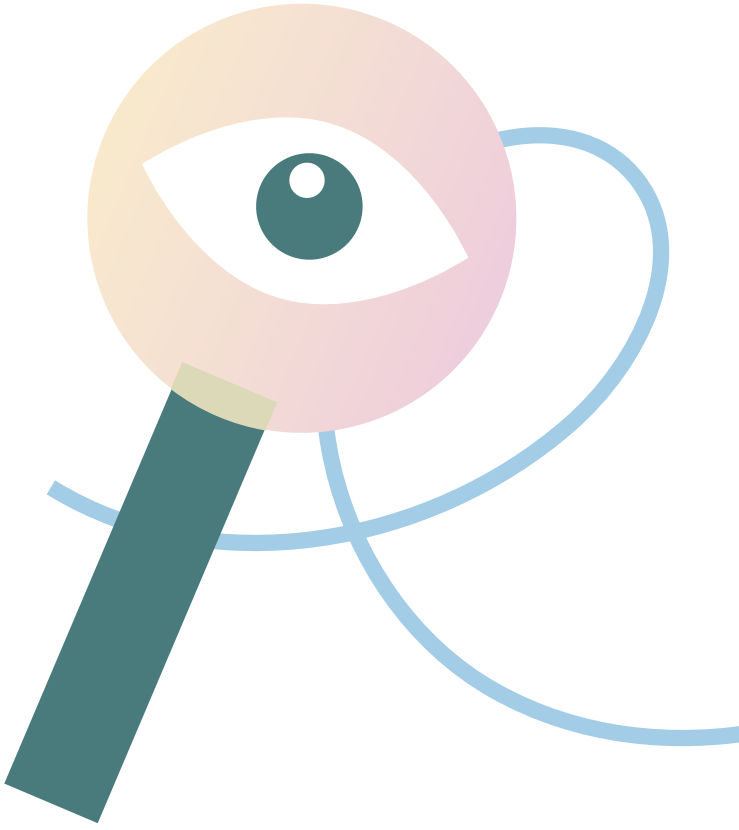
Where we have evidence of cost-effective actions it is also important to look at the economic case for combinations of interventions rather than interventions in isolation. **There also appears to be relatively little attention placed on inequalities in capacity to benefit between different population groups** – greater levels of resources may be needed to reach and support some population groups. The cost-effectiveness of measures to reach these different groups can also be assessed.

Strategically, it is also helpful for economic studies to report findings over different time periods; many preventive interventions

will take a number of years to generate all their benefits, but electoral cycles are four or five years at most. While it is essential to flag up any short-term benefits to help increase support for interventions, we also need studies that look at impacts over longer time periods. Many of the benefits of prevention may last over many years; **studies that focus solely on short term outcomes may undersell the value of prevention.** If, for example, an intervention prevents depression in the workplace, this may lead to continued participation in work over many years and where feasible, using data for longitudinal cohort studies and registries, it would be helpful to make use of this evidence.

More could be done to evaluate the impact of addressing some of the social determinants of health that impact on mental health, such as poverty, job insecurity and macro-economic shocks.

The cost-effectiveness of measures to address child poverty may be of particular concern given that poverty could have a very critical impact on child development and subsequent lifetime opportunities. Child abuse and neglect, as well as domestic violence can have very long-term impacts on mental health and the cost-effectiveness of prevention and early intervention can be strengthened. Other gaps include measures to improve access to and decent housing, as well as measures to protect the mental health of workers who experience job insecurity and/or have been recently made redundant. The impacts of active labour market programmes on mental health and more on peer-led interventions can be assessed. There have also been few economic evaluations on the value of better access to a more green and clean natural environment, as well as tackling harmful behaviours such as problematic gambling and problematic use of the internet. We have noted more information is needed on measures to tackle loneliness in older people; more is also needed on measures to tackle loneliness in other age groups such as young adults.



A different type of gap is the need to generate more evidence that will appeal to funders outside of health systems. Our review indicates that many cost-effective interventions to prevent mental health conditions are multi-sectoral and often delivered entirely outside the health sector.

Return on investment studies can help to demonstrate the potential economic impacts across sectors, but it is also essential to collect more information, not just on mental health outcomes, but on outcomes that are of relevance to those sectors. For example, when looking at the measures schools can take to prevent mental health conditions, it may be important to also look at impacts on educational performance and school attendance rates.

It is also noteworthy that much of the evidence we have identified is from economic evaluations alongside controlled trials. There are also opportunities to make more use of different forms of research design to assess the economic impact of policy interventions. While some of this is feasible using randomised controlled trials, other forms of evaluation that take account of natural variations in the measures to address social determinants of health are needed. For instance, there may be opportunities to look at how differences in mental health and welfare policies in the four nations of the UK may be associated with differences in mental health and economic outcomes. The COVID-19 pandemic also potentially provides opportunities to explore whether differences in packages of support, and the duration of this support, across the four nations may have an impact on mental health outcomes.

Conclusions

Our report indicates that there are substantial costs associated with mental health conditions, most of which do not fall on health care systems. Investment in preventing mental health conditions therefore has the potential to be highly cost-effective; the challenge is to facilitate more investment in prevention across the UK, within and beyond public health and health care systems. These arguments for investing in measures to protect and support mental health may take on even more significance at a time when there may be long term effects of the COVID pandemic, with implications for the public policy response on population mental health.

It is important not only to continue to develop national and local level mental health strategies that take a cross-departmental, integrated approach to preventing mental health problems and promoting good mental health, but also to monitor how well these strategies are being translated into actions on the ground, with measurable impact. There is therefore a need to better map out the current level of investment in mental health prevention across the UK, at both national and local levels.

Although the evidence base on cost-effectiveness of preventive actions is growing, UK and devolved administrations should support research to increase knowledge about cost-effective interventions. Specific knowledge gaps that can be explored include the impacts of structural interventions such as action on child poverty, as well as measures to reduce inequalities in access and uptake of cost-effective prevention initiatives. Where we have evidence of cost-effective actions it is also important to look at the economic case for combinations of interventions

rather than just interventions in isolation. It should also look at a graduated or 'stepped care' approach to prevention combining one or more interventions as necessary.

There is scope for further work to address some gaps in existing knowledge, for example addressing the risk of problematic gambling, protecting the mental health of carers, and gaps in knowledge of interventions at different times in the life course, such as the transition from adolescence to adulthood. UK and devolved administrations could also support more research that looks at the long-term costs and benefits of prevention and not just short-term impacts; one way of doing this would be through more use of existing longitudinal datasets as well as registry data across the four nations, including data on physical health conditions known to increase the risk of poor mental health.

Recommendations

We propose a number of specific recommendations to help facilitate an increased focus on actions to prevent the onset of mental health conditions, recognising that the organisation and funding of public health varies considerably between the four jurisdictions of the UK.

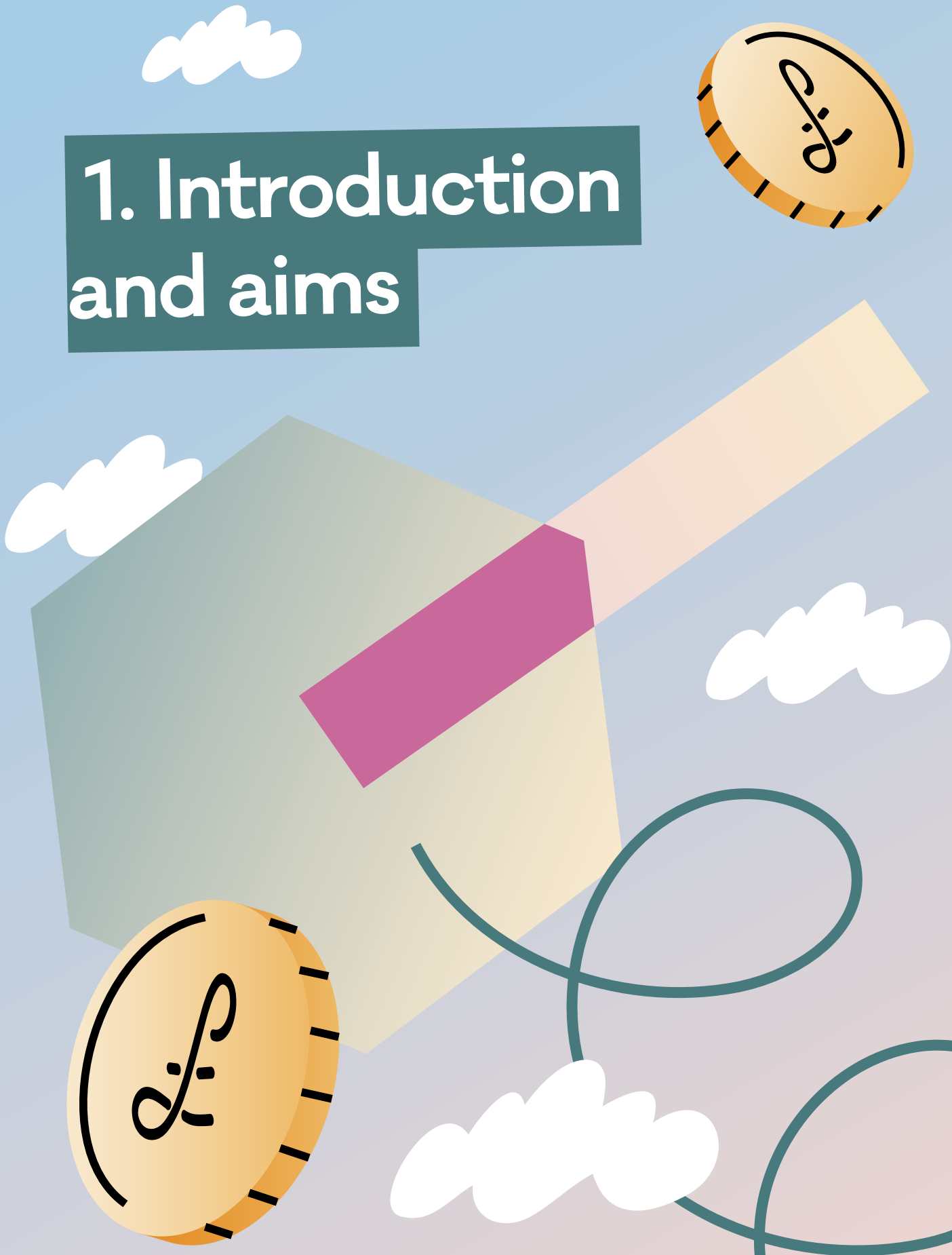
- The evidence is clear that it is the places and circumstances in which people are born, grow, study, live and work that have a powerful influence on their mental health. As part of their public health and mental health strategies UK and devolved governments should increase investment in evidenced interventions for public health and prevention of health problems, including the prevention of mental health problems.
- We recommend that governments and the health service use a public health lens to identify this increased funding for prevention, recognising that it can alleviate pressures on secondary-care services. Improved and sustained investment in public health should match the rate of budget increase of the NHS, with a proportion earmarked for public mental health.
- There should be national reporting not only on levels of funding allocated to public health and prevention within and beyond the NHS and local government, but also on how funding is spent, so that the level of funding allocated locally to public mental health is more transparent and can be better estimated.
- Funding and action in many areas of government not formally termed either 'public health' or 'mental health', such as economic and benefits policies, can have some of the greatest impacts on mental health. Development of national and local mental health strategies should take a cross-departmental approach that incorporates action beyond health and public health systems that can prevent mental health problems and promote good mental health, recognising the benefits of improved preventive work in mental health for other life outcomes.

- It is important to better understand the extent to which prevention actions are being delivered across the UK. As part of their mental health strategies, UK and devolved governments should carry out a mapping exercise to identify the extent, levels of funding and geographical availability of effective mental health prevention interventions, delivered across the UK. In England, for example, there may be ways to capture more information on resources invested in prevention in the mental health dashboard and through progress made by signatories to the Prevention Concordat for Better Mental Health (191).
- Each devolved government should build on existing prevention initiatives to plan how they can help to scale up access to cost-effective interventions to prevent mental ill-health through local government (including social care), the NHS, the Voluntary, Community and Social Enterprise Sectors and other potential funders. This could build on cross-sectoral plans that have been developed for mental health recovery during and after the pandemic, such as Scotland's Transition and Recovery Plan and the Community Mental Health and Wellbeing Fund, the new mental health strategy that succeeds Together for Mental Health in Wales, and experience from existing initiatives in England to develop prevention work at the local level, such as through the Prevention Concordat for Better Mental Health and the Better Mental Health Prevention and the Promotion Fund.
- National mental health COVID recovery plans should include sustained implementation of cost-effective interventions to prevent mental health problems, recognising that the mental health impacts of the pandemic are extensive, and will persist for many years to come.
- UK and devolved governments should support research to increase knowledge about cost-effective interventions. Specific knowledge gaps that can be explored include the impacts of structural interventions such as action on child poverty, as well as measures to reduce inequalities in access to and uptake of cost-effective prevention initiatives. This research should also look at the cost-effectiveness of multiple versus individual interventions, as well as a 'stepped care'

approach to prevention. There is scope for further work to address some gaps in existing knowledge, for example addressing the risk of problematic gambling, protecting the mental health of carers, and gaps in knowledge of interventions at different times in the life course, such as the transition from adolescence to adulthood.

- To address the challenge presented by the relatively short electoral cycle for demonstrating long-term effectiveness of preventive action, UK and devolved governments should invest in research that also considers the long-term costs and benefits of prevention and not just their short-term impacts. This could be achieved through initiatives to embed future generations considerations in public policy. An example is the Wellbeing of Future Generations Act in Wales, which requires all public bodies to think about the long-term impact of their decisions, and to work better with communities to prevent persistent problems such as poverty and health inequalities.

1. Introduction and aims



1. Introduction and aims

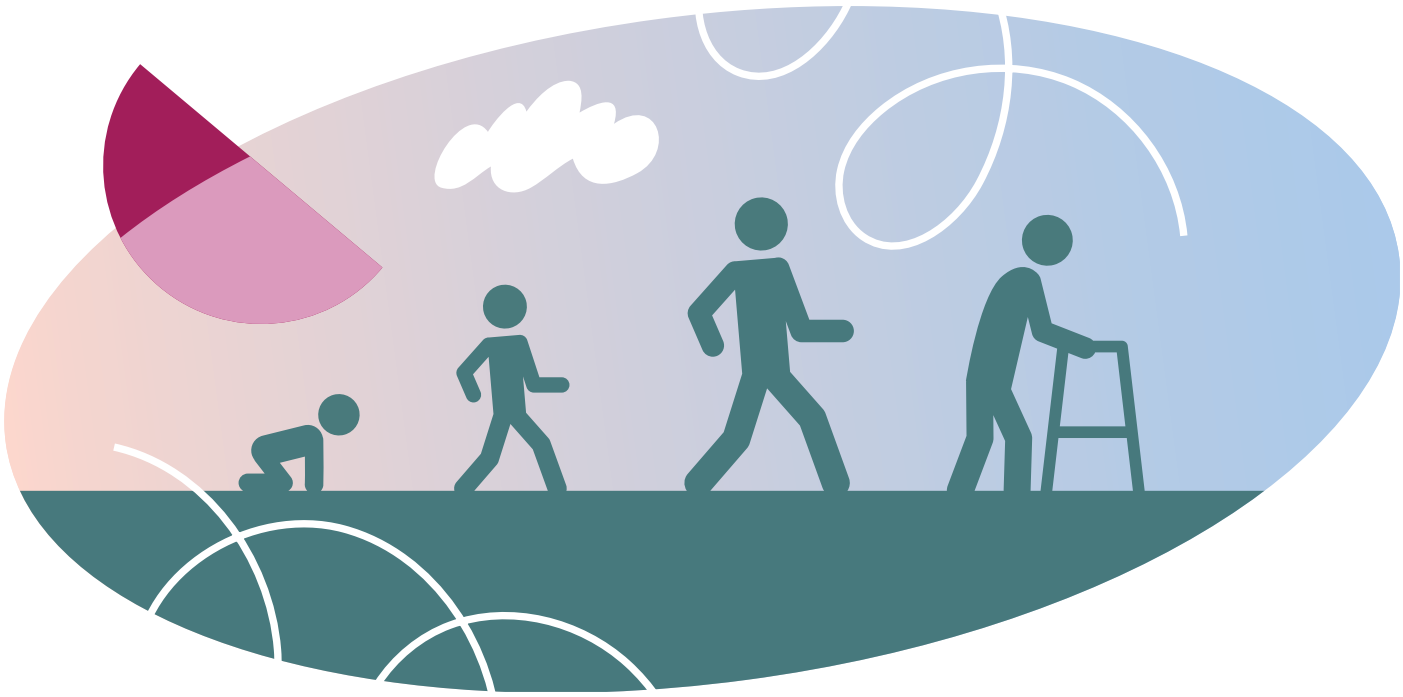
This report provides an overview of the economic case for prevention of poor mental health.

While our mental health is partly determined by our genes, it is also determined by our socio-economic circumstances and risks to mental health. This means that some incidence of mental health conditions could be avoided entirely by measures that address these adverse risk factors, thereby reducing overall levels of mental health problems (1). This could include actions that address upstream determinants of mental health such as alleviation of poverty or protection of access to green spaces, as well as downstream measures, such as measures to support coping strategies of families, as well as targeting the attitudes or behaviours of individuals already at risk of poor mental health.

Prevention can be conceptualised in different ways; here we are focused on action that 'aims to reduce the incidence, prevalence, and recurrence of mental health disorders and their associated disability... and are based on modifying risk exposure and strengthening the coping mechanisms of the individual' (2). We look at primary prevention measures for the general population who do not have a mental health condition, as well as for population sub-groups that are at higher risk of poor mental health and/or may be experiencing early signs of poor mental health, but who do not meet the criteria for diagnosable mental health conditions.

A rapid review was undertaken to identify systematic reviews of economic evidence for interventions to prevent poor mental health, in addition to searching for individual studies published between 2019 and 2021. Our review indicates that there is substantive literature on the economic case for prevention, but that this is unevenly focused across the life-course, being dominated by interventions targeted at children and young people.

The evidence here is set out from a life course perspective. There are risks to mental health right from the beginning of life, and then at different transition points, such as from school to work and from work to retirement. We provide an illustrative overview of actions that have been considered cost-effective in selected contexts rather than an exhaustive list. Our focus is mainly on primary prevention, meaning interventions before any diagnosable mental health problems have occurred. Our review covered universal actions delivered to the general population. It also covered actions delivered to everyone in a specific setting, for example in a school. We did not, however include general population mental health awareness-raising initiatives, for instance to address the stigma associated with mental health conditions. In addition to universal actions, we also included some selective actions targeted at specific population groups who have previously been identified as being at higher risk of developing mental health problems. The latter, for example, could include those in insecure employment or the long term unemployed. We do not include tertiary

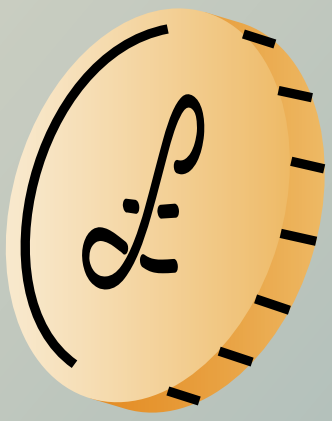


prevention, that is preventive interventions primarily targeted at people who already had a formally diagnosed disorder.

We highlight areas that we believe are promising for economic evaluation, discuss some of the challenges with this evidence base and look at how it may be strengthened. In doing this we also highlight approaches that have been used in different settings around the world to facilitate greater use of economic evidence in decision making. This includes generating economic arguments that cross sectoral boundaries and include benefits to sectors other than the health system. All values are reported in 2020 UK pounds.

Before looking in more depth at the review we first look at the reasons for looking at the case for prevention through an economic lens and provide an illustrative estimate of the annual economic costs in the UK, and each of the four devolved jurisdictions, England, Northern Ireland, Scotland and Wales, of major mental health conditions, as well as highlighting some of the longer-term costs for selected conditions that typically emerge in childhood and adolescence.

2. Looking at prevention through an economic lens



2. Looking at prevention through an economic lens

Economics ultimately is concerned with how best we can allocate societal resources between different competing priorities in order to improve societal outcomes.

There are 'opportunity costs' associated with all choices on resource allocation; if we invest resources in the prevention of poor mental health this may have implications for the level of resources that may be available to invest in other areas of health or in entirely different sectors of the economy. In the case of preventive measures, if they reduce the incidence of mental health conditions, this could reduce demand for mental health care services, which in turn may free up resources to be used in different ways.

From a public health perspective, policy makers may also want to know whether preventive measures that are targeted at the whole population and have a small individual impact across a large number of individuals, may be more cost-effective than targeted measures that have a much larger impact on a smaller number of individuals. This may especially be the case when wider impacts beyond the health sector are considered, such as impacts on participation in education or employment.

Several economic questions can therefore help inform prevention policy. The first is to establish what is known about the costs of not taking action and/or maintaining the status quo. Cost of illness studies can be conducted to estimate these costs from the perspective of health systems, multiple sectors, and society as a whole. Later in this section we present a new estimate of the costs of mental health conditions in the UK. That estimate looks not only at health system costs but also costs to the social care and education sectors, as well as lost employment opportunities, the need for informal family care, and adverse impacts on quality of life.

Cost of illness studies provide valuable information on the impact of a particular health issue. However, some costs will be avoidable, and so it is essential to determine the most effective approaches available that can help reduce these costs. Policies in all sectors across the UK have long been informed by economic evidence. One way in which this is done is through economic evaluation, which compares the costs and outcomes of two or more interventions. There are several different approaches that are commonly used; while costs are measured in a similar way in all, they differ in how they measure outcomes. Cost-effectiveness studies use topic specific outcome measures and reported cost per change in outcome, for example cost per suicide averted, cost per depression-free day gained. Interventions with lower cost per outcome gained would be considered more favourable. This approach is limited however, as the use of a topic specific

outcome does not help policy makers who wish, for example, to compare investment in prevention of depression with different health areas, such as investment in cataract surgery. While having cataract surgery may actually help prevent or alleviate depression, the primary impact will be on vision rather than mental health. To overcome this issue, a common health metric, such as the quality-adjusted life year (QALY) or disability-adjusted life year (DALY) can be used to compare different health states (3). QALYs look at the quality of life as well as time spent in different health states. In short, a year spent in perfect quality health has a value of 1 whilst death is normally considered to have a value of 0. Several different techniques can then be used to identify the values associated with different health states. For example, if living with moderate depression or a cataract were to have values of 0.8 or 0.7, over 10 years this would generate 8 QALYs and 7 QALYs respectively. DALYs, used in the GBD study, work in a similar way, estimating the number of years lived without disability associated with different health conditions. Cost per QALY gained is the primary health economic metric used by the National Institute for Health and Care Excellence (NICE) in guidance on public health, health care and social care interventions. A cost per QALY gained of below £20,000 is generally considered to be cost-effective in a UK context (4).

One limitation of the cost utility analysis is that it does not directly consider outcomes beyond the health system; a third approach, known as cost benefit analysis, which values outcomes as well as costs monetarily, can also be used. This can help policy makers who, for example, may wish to compare investments in the health sector with investment in education or road safety. Many public health interventions that are funded and delivered outside of the health care sector may use this approach. A positive net monetary benefit is considered cost-effective.

In addition to these three approaches, another approach that is now increasingly being used, is return on investment (ROI) analysis This shows total costs that can be avoided for every pound invested in an intervention compared to the status quo, for example a ROI of £5 would mean an additional £5 in costs averted could be realised for every £1 invested in an intervention compared to no additional intervention. This approach has previously been used in England to compare the costs of investing in different mental health promoting interventions with the costs that may be averted from different sectors (5). All of these approaches can be seen in the results of our review discussed in Section 6.

3. Methods for estimating the economic impact of mental health conditions in the UK

3. Methods for estimating the economic impact of mental health conditions in the UK

In order to assess the value of investing in the prevention of mental ill health, it is important to understand the negative economic impacts of poor mental health.

These impacts can be profound and long lasting. They can include direct costs that would typically be incurred by health and social care systems to support people with mental health needs. Impacts beyond the health system include lost opportunities to participate in paid work, as well as the need for informal care and other support provided by family and friends. Children may require additional support in school. Individuals who cannot work may receive disability welfare benefits, as well as support for being out of work; there are costs associated with the administration of these benefits. We have estimated annual costs for some broad groupings of mental health conditions and briefly set out the methods we have used to estimate costs.

3.1 Costing Approach

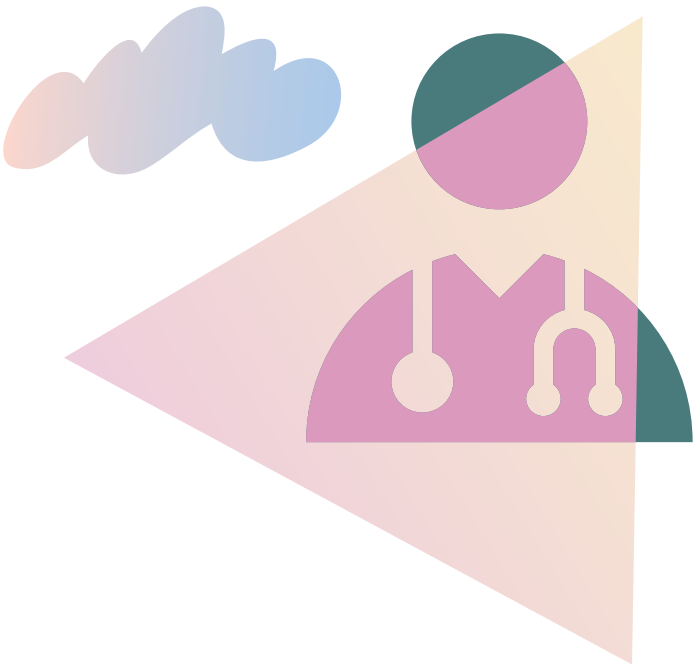
We have used a prevalence-based costing approach. **This measures the number of people living with poor mental health over a specific short time period** (usually one year) and estimates the average costs associated with these conditions over this time period. It is typically used to highlight the magnitude of total current costs to the health system and the wider economy and it is the approach we use in this report to make a new estimate of these costs in the UK.

There are many different estimates of prevalence and incidence available for some conditions; these prevalence and incidence data can vary markedly, and the methods used will be different, which makes comparisons between conditions difficult to interpret. Our prevalence-based costing model makes use of data on the prevalence of mental disorders using the 2019 Global Burden of Disease (GBD) database (29). The GBD systematically searches for and assesses the quality of mental health surveys around the globe. To allow for comparability in measurement, case definitions used by the GBD predominantly adhered to international diagnostic criteria guidance, either the DSM-IV-TR or ICD-10 criteria, as these are used by the majority of mental

health surveys included in the GBD (6). The GBD estimates are periodically updated, apply a common methodology, are subject to peer review and are routinely used by the World Health Organization (WHO) when looking at the global impact of mental health problems. Furthermore, GBD estimates are provided separately for all four nations of the UK, as well as at English Region level and for all local authorities. **We have included 11 of 12 broad categories of mental disorder meeting diagnosable thresholds used in the GBD. These were depressive disorders (major depressive disorder and dysthymia), anxiety disorders, bipolar affective disorder, schizophrenia, autism spectrum disorders, conduct disorder, attention-deficit hyperactivity disorder (ADHD), eating disorders (anorexia nervosa and bulimia nervosa), and a final category of other mental disorders (which mainly covers personality disorders).** A detailed list of conditions in each of the appendix; we have excluded idiopathic intellectual disabilities[2]. These 11 categories do not include neurological conditions such as dementia, nor alcohol and substance use disorders. We also do not cover sub-diagnostic threshold conditions as well as stress, all of which will also have economic costs. This means that the analysis does not capture the impacts of all experiences of psychological distress that do not fit into diagnostic thresholds.

Although not all intentional self-harm is linked with a mental health condition, we also separately provide an estimate of the health and intangible costs associated with intentional self-harm, including suicide, reported in the GBD. All costs are reported in 2020 pounds unless otherwise stated.

3.2 Sources of cost data



Health and social care

Mean costs to the health care system have been estimated drawing on information both from our review of literature, as well as official data in the four nations. However, given data limitations, in most cases English data have been applied across all four jurisdictions of the UK.

2. The 11 categories selected from the Institute of Health Metrics and Evaluation GBD database map onto the following ICD-20 categories: Schizophrenia: F20-F20.9, F25-F25.9; Major depressive disorder: F32-F33.9; Dysthymia F34.1; Bipolar disorder: F30-F31.9, F34.0; Anxiety disorders: F40-F44.9, F93-F93.2; Anorexia Nervosa: F50.0-F50.1, Bulimia nervosa: F50.2-F50.5; Autism spectrum disorders: F84; Attention-deficit/hyperactivity disorder: F90-F90.9; Conduct disorder: F91-F92.9; Other mental disorders: F04-F06.1, F06.3-F07.0, F08-F09.9, F21-F24, F26-F29.9, F34, F34.8-F34.9, F38-F39, F45-F49, F51-F52.9, F55-F55.8, F56-F69.0, F80.0 – F82, F88-F89.0, F93.3-F99.0, G47-G47.29, G47.4-G47.9, R40-R40.4, R45-R46.89, R55-R55.0, Z03.2, Z04.6-Z04.72, Z13.4, Z64, Z81, Z81.8, Z86.5-Z86.59

Our general approach has been to use a top-down costing approach, identifying mental health expenditure and then allocating it across the 11 mental health categories used by the GBD. One of the limitations of making use of publicly available national activity-level data on mental health service use is that it is often difficult to link expenditure to any one specific mental health condition. The best way of identifying specific mental (and other) health service utilisation for individuals with specific mental health conditions would be through detailed linkage of primary and secondary care service for individual service users. We have looked for some estimates from linked dataset analyses where feasible.

For specialist mental health service use, including use of Improving Access to Psychological Therapies (IAPT) we have made use of English NHS Reference Costs (7), while data on mental health related medication use is taken from Prescription Cost Analysis (PCA) in England. This provides details of the number of items and the net ingredient cost of all prescriptions dispensed in the community in England. It provides a breakdown of drugs by their type, including antidepressants, antipsychotics, anxiety, ADHD and related conditions (8).

For primary care we have looked at contacts with GPs by the general adult population as well as people with pre-existing mental health conditions. We have estimated mental health related contacts with GPs in the UK for the general adult population, drawing on rates of contacts with GPs for mental health reasons reported in the 2019 Health Survey for England (9). The survey also provides information on health service use by people with eating disorders.

Where we were unable to find information on rates of contacts with GPs for specific mental health conditions, we have drawn on the Adult Psychiatric Morbidity Survey 2014. This has information on rates of contact with GPs by people with common mental disorders, as well as autism (10). Rates of GP contact for schizophrenia and bipolar affective disorder are taken from linked analysis covering primary and secondary care for individuals in England (11). In this case, contacts with GP practice nurses and diagnostic tests to monitor physical health have also been included. Diagnostic tests (blood tests and bone density scans) have also been included in estimates of primary care costs for people with eating disorders (12). Rates of contact with GP services for young people with conduct disorder and ADHD are drawn from previous analysis of the British Child and Adolescent Mental Health Surveys (13). GP costs per contact are valued using estimates from the 2020 PSSRU Unit Costs of Health and Social Care (14). Social care and residential care service use data are taken from Adult Social Care and Activity Finance 2019-2020 reports (15). These provide information on net expenditure on mental health related long and short-term home and residential care, but no information is provided on specific mental health conditions of service recipients.

Although we have information on the total spend on specialist mental

health services in England from the Mental Health Dashboard, (based on expenditure information provided by Clinical Commissioning Groups and NHS England), and NHS Reference costs, as well as spending on mental health in non-mental health services, we have noted it is not possible to link all of this mental health expenditure to individuals with different mental health conditions without undertaking a detailed health record linkage study. We have apportioned specialist mental health care costs across all mental health conditions, weighted by their relative contribution to total DALYs for different age and gender categories where it is not possible to directly link to any one single group of conditions. Therefore, the breakdown of specialist mental health care costs by mental health condition should be treated with caution. Moreover, many individuals will have more than one mental health condition, but we have not been able to make allowance for that in our weightings.

Our estimates also do not include privately funded mental health services, such as some psychology services, or privately funded residential care. We are also mindful that not everyone who could benefit from treatment comes into contact with services, for instance analysis in Northern Ireland suggested that only 29% of people with depression or anxiety disorders have their needs met (16). Service expenditure is constrained by the availability of services; there will be individuals waiting for treatment due to service limitations. There will also be other individuals who do not seek support for their mental health. **The immediate costs of providing mental health treatments would be greater if all those that could benefit from treatment made use of it.** Some of the additional costs of treatment would be at least partially offset through a reduction in some of the adverse consequences of mental health conditions on health outcomes, including management of physical health conditions, as well as impacts beyond the health sector, such as time out of education or employment.

Additional educational support

Limited information is available on the aggregate costs of additional educational support in the UK for young people with mental health problems. However, we know there are substantial additional special educational needs costs (17). In this analysis we were restricted to special educational needs support provided to children identified as having an autistic spectrum disorder or social, emotional and mental health needs. We included all children receiving special educational needs support and/or having an education, health and care plan in place. Very conservatively we only included the 'notional' budget of £6,000 per child that in England is allocated in local authority schools for additional educational needs. This is a very conservative estimate of costs; costs are likely to be much higher for individual children if they also receive 'higher needs support.' For instance, a child with severe autism, attending a special school might have annual costs of £21,000, as reported in a National Audit Office (NAO) report on special educational needs (18).

Some children will also require less than £6,000 in support annually. The situation is also complicated by the variation across England in access to financial support for special educational needs reported in the NAO report. This means that the level of support received by children with similar levels of need can vary considerably across local authorities.

There are other educational supports that we have not included, as schools may decide to spend some of their own general budgets on mental health services, including counselling and prevention. There may also be national initiatives, but we do not have full information on their costs and availability. For example, Scotland, Wales and Northern Ireland all have government funded school counselling services, but England does not. Some programmes are being expanded. In respect of Scotland an additional £60 million over four years is now being allocated to create an additional 350 counsellors to cover all secondary schools in Scotland through the health budget, with a further £20 million over four years being allocated from higher education funding for more than 80 additional counsellors in further and higher education institutions (19).

In England the Department of Health and Social Care in partnership with the Department for Education has allocated an additional £79 million for an expansion of mental health support teams (MHSTs) that can support children (20). Each team should contain four Educational Mental Health Practitioners who will support schools with prevention initiatives and provide low intensity interventions such as guided self-help based on cognitive behavioural therapy (CBT) and group-based CBT for those with persistent mild to moderate depression. By 2023, 399 MHSTs are intended to be in place in England, reaching about 3 million out of the 8.9 million pupils in English state-funded nursery, primary, secondary and special schools, non-maintained special schools, pupil referral units, general hospital schools and independent schools.

Productivity losses

Poor mental health can negatively impact on [or hinder] participation in employment. For those in employment, career opportunities and levels of income may be restricted. Impacts on participation in employment are also likely to be greater if participation in education is curtailed. In our analysis, we have only included costs for individuals who are classified as not economically active. We chose this definition as individuals of working age may be productive but not in paid employment, such as being in education. Gender specific rates of economic inactivity for 'mental illness or other nervous disorders', depression, bad nerves or anxiety' and autism are taken from the 2020 UK Labour Force Survey (21). Productivity loss here is assumed to be equivalent to the difference in the rate of economic inactivity by people with mental health conditions compared to the rate of inactivity by the general working age population.

In the survey the economic inactivity rate for all working age people who are not classified disabled and/or work-limiting disabled ranged between 15.3% in England

to 16.6% in Northern Ireland. This compared with a rate of 39.1% for working age disabled people who report their main health problem as 'depression, bad nerves or anxiety'. The rate is much higher at 60.8% for individuals classified with 'mental illness or other nervous disorders'. In our base case scenario, the costs of exclusion from the labour force are here assumed to be equivalent to UK region specific median gross annual earnings in 2020 (taking into account the balance between full-time and part-time work in the general employed population in the UK in 2020) and it is assumed that individuals will be excluded from work for a full year. The analysis is conservative as we have not included increased risk of absenteeism.

Our analysis only includes losses due to unemployment; it does not take account of any impacts on productivity while employed. This is very conservative, as sickness absenteeism, poor performance at work (presenteeism) and staff turnover due to poor mental health studies in the UK have been estimated to be between £42 billion and £45 billion per annum, of which up to £29.3 billion is for presenteeism, but much of this is related to stress and sub-threshold mental health conditions (22). Our analysis also assumes that there are no productivity losses due to premature mortality, other than for self-harm and suicide. This is certainly an underestimate as life expectancy is considerably lower than that of the general population for many people with poor mental health, particularly those with severe mental illness (a term often restricted to major depression, schizophrenia and bipolar affective disorder) where, for example in London the average differential in life expectancy from birth compared to the general population was recently observed to be 14.5 years and 13.2 years for men and women respectively (23).

Informal care

Families can provide a lot of additional care and support for people with poor mental health. We have drawn on literature, plus a recent survey we conducted for the European Federation of Associations of Families of People with Mental Illness on informal care, to make some estimates of the cost of informal care. In this study values were elicited from carers on their willingness to accept payment to provide one extra hour of care (24). We have used these values to value each hour of informal care. However, as this survey only looked at carers of adults; we have only included informal care costs for adults, and not for children.

One significant challenge is that there is also limited information available on the proportion of people with mental health conditions who actually receive informal care. In line with assumptions used by the Schizophrenia Commission we have assumed that 31% of individuals with severe mental illness receive informal care (25).

Intangible (quality of life related) costs

There are also costs associated with poor mental health that are difficult to measure in monetary terms that reflect adverse impacts not only on quality of life, but also on issues such as social exclusion and discrimination in society. Different approaches can be

used in economics to identify the full value of these intangible costs; one approach, for example, is to ask individuals how much they are willing to pay to avoid the adverse impacts of poor mental health (7). This would be an ideal approach as a survey could be designed that would look at social exclusion and discrimination as well as impacts on health-related quality of life. However, no large-scale survey looking at these issues has been conducted. Instead, we had to use another approach, which places a monetary value on the adverse impacts on quality of life associated with poor mental health. We used disability adjusted life year (DALY) data for different age groups, genders and mental disorders that are available from the GBD 2019 study (2) and value one DALY to be equivalent to GDP per capita in the UK. To avoid the risk of double counting, we did include intangible costs net of the productivity losses in the working age population. These estimates of impacts of intangible costs are likely to be conservative as DALYs do not explicitly account for perceived levels of discrimination and social exclusion.

Estimation of mental health impacts in the GBD study

The GBD study uses very complex methods to estimate the epidemiological impact of mental health conditions; detailed information is available on methods for the interested reader (6, 26). In short it involves rolling two-year updated systematic reviews on the epidemiology of each of the 11 different mental health condition groupings we have included. Relevant data are extracted and split by age and sex and adjustments are made for any biases. Other condition specific data will be taken into account, for instance assumptions on duration of illness will vary, while schizophrenia is assumed to last all year, the duration of depression on average is assumed to be 0.65 years. The GBD also accounts for different levels of severity of mental health condition, making use of national survey data in Australia and the US. It assumes that these different levels of severity will apply across all countries. Expert assumption is also used in the GBD to estimate lower and upper age limits for different mental health conditions.

Disability weights are then applied to prevalence data to estimate the total DALYs for each condition and the data are fed into an epidemiological software tool (Dismod II) that is used to generate country/region specific estimates. The DALY weights associated with each condition in the GBD study are reported in Table 1, with more severe conditions, having higher disability weights. This is why we will see in the next sections in this report that a condition with very high disability weights, such as schizophrenia, which accounts for less than 2% of all mental health conditions in the UK, contributes almost 9% of all DALYs for mental health.

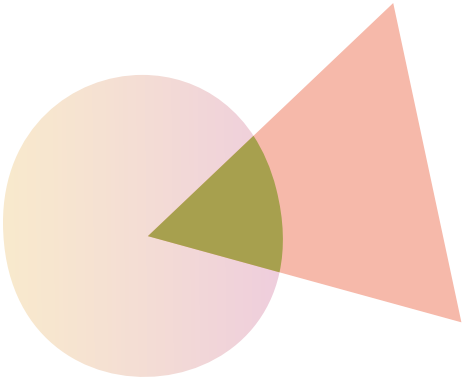


Table 1:

Severity distributions for mental health conditions in GBD 2019 and associated disability weights

Condition	Level of Severity	Disability Weight (95% UI*)
Schizophrenia		
Schizophrenia – acute state	63% (29% - 91%)	0.778 (0.606 – 0.9)
Schizophrenia – residual state	37% (9% - 71%)	0.588 (0.411 – 0.754)
Depression		
Mild	59% (49% – 69%)	0.145 (0.099 – 0.209)
Moderate	17% (13% – 22%)	0.396 (0.267 – 0.531)
Severe	10% (3% – 20%)	0.658 (0.477 – 0.807)
Dysthymia		
Symptomatic dysthymia	71% (64% – 77%)	0.145 (0.099 – 0.209)
Bipolar Affective Disorder		
Manic	18.7% (9.1% – 30.7%)	0.492 (0.341 – 0.646)
Depressive	31.7% (15.6% – 48.1%)	0.396 (0.267 – 0.531)
Residual	49.5% (24.9% – 74.1%)	0.032 (0.018 – 0.051)
Eating Disorders		
Anorexia Nervosa		0.224 (0.150 – 0.312)
Bulimia Nervosa		0.223 (0.149 – 0.311)
Anxiety Disorders		
Mild	39.3% (34.2% – 44.2%)	0.03 (0.018 – 0.046)
Moderate	19.1% (15.8% – 22.7%)	0.133 (0.091 – 0.186)
Severe	12.7% (9.2% – 16.7%)	0.523 (0.362 – 0.677)
Autism spectrum disorders		
Autism		0.262 (0.176 – 0.365)
Asperger's syndrome & other ASDs		0.104 (0.071 – 0.147)
Externalising Disorders		
ADHD		0.045 (0.028 – 0.066)
Conduct Disorder		0.241 (0.159 – 0.341)
Other mental disorders (including personality disorders)		
Mild	(41%, 33% – 47%)	0.03 (0.018 – 0.046)
Moderate	(15%, 11% – 20%)	0.133 (0.091 – 0.186)
Severe	(14%, 10% – 18%)	0.523 (0.362 – 0.677)

*UI uncertainty interval

4. An overview of the impacts of mental ill health

4. An overview of the impacts of mental ill health

The GBD indicates that there were 19.7 million DALYs lost due to all health conditions in the UK in 2019.

This includes 10.3 million cases of mental health conditions, associated with 1.4 million DALYs, 7% of all DALYs lost in the UK in 2019. Major depression alone is the 8th highest ranking contributor to overall DALY burden, followed by anxiety disorders (18th). When looking just at years lived with disability (YLD) alone and not mortality, major depression ranks third (after low back pain and type 2 diabetes), with anxiety disorders the ninth highest contributor to overall YLDs. Bipolar affective disorder (15th) and schizophrenia (19th) are the next highest contributors to YLDs.

It should be noted that the absolute number of individuals living with mental health conditions at any one point of time will be lower, as some individuals will have multiple conditions. The majority of mental health conditions included in our analysis (52.5%) are in individuals aged 15-49 (See Figure 1). 8.9% were in people aged 14 and younger. It includes 3.15 million individuals with anxiety disorders, 2.3 million with depression, 0.9 million with dysthymia (persistent depressive disorder), 0.8 million with bipolar affective disorder and 0.2 million with schizophrenia (See Table 3). 54.5% of these mental health related DALYs were lost in women. Overall, 33% of mental health-related DALYs were due to depression with a further 21.0% for anxiety disorders and 12.3% for bipolar affective disorder (Table 2). Although schizophrenia accounted for just 1.9% of total mental health cases, it accounted for 8.8% of all mental health related DALYs. In addition, the GBD estimates that there were 0.18 million cases of intentional self-harm associated with 0.24 million DALYs.

Figure 1:

Share of mental-health related DALYs by age group

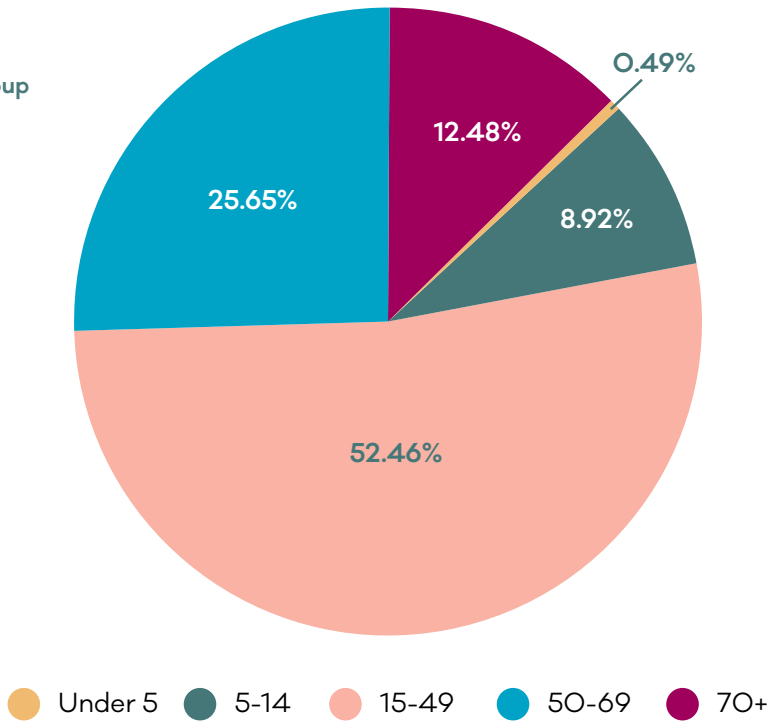


Table 2:

DALY loss due to mental ill health in the UK in 2019

All ages				
GBD Condition Grouping	Male	Female	Total	% of total mental health DALYs
Depression	192,050	272,368	464,418	33.07%
Anxiety	112,882	182,487	295,369	21.03%
Bipolar	74,367	97,697	172,064	12.25%
Schizophrenia	64,968	58,193	123,161	8.77%
Dysthymia*	38,867	52,579	91,446	6.51%
Other	53,697	37,305	91,001	6.48%
Autism	60,162	10,333	70,496	5.02%
Bulimia	10,864	26,167	37,031	2.64%
Conduct Disorder	22,918	13,041	35,960	2.56%
Anorexia	3,310	12,619	15,929	1.13%
ADHD	5,310	2,267	7,578	0.54%
Total	639,395	765,056	1,404,451	100%

*Defined in the ICD-10 as being a chronic depression of mood, lasting at least several years, which is not sufficiently severe, or in which individual episodes are not sufficiently prolonged, to justify a diagnosis of severe, moderate, or mild recurrent depressive disorder. ¥ Includes personality disorders

5. The economic costs of poor mental health

5. The economic costs of poor mental health

5.1 Overview of UK mental health condition costs

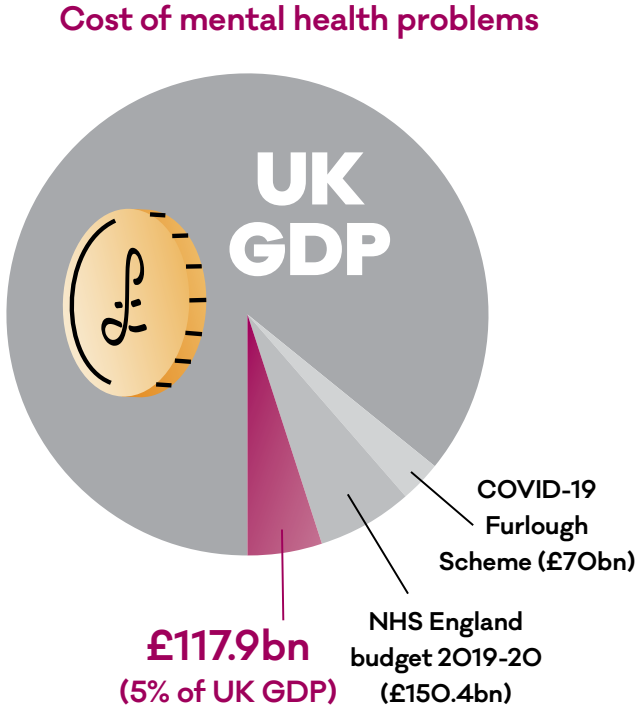


Table 4 provides an overview of the annual costs of poor mental health in the UK in 2019. Overall, **these costs conservatively amount to £117.9 billion, approximately 5% of UK GDP in 2019.** Most of these costs are due to the lost productivity of people living with mental health conditions, as well as costs incurred by unpaid informal carers. £100.8 billion of these costs are incurred in England, with £3.4 billion, £8.8 billion and £4.8 billion in Northern Ireland, Scotland and Wales respectively. Table 5 indicates that 6% of costs were for young people aged 0-14, compared to 56% for those aged 15-49, 27% for the 50-69 age group and 10% for the over 70s. Looking at costs per condition in Table 6, depression accounts for 23% of total costs followed by 18% for anxiety and 17% for bipolar affective disorder. The schizophrenia cluster accounts for 8% of costs.

Our analysis suggests that most of the economic costs of mental health conditions are due to productivity losses and the need for informal care. The additional costs of economic inactivity relative to the population without any disability are estimated to be £36.2 billion. This may be conservative, as we only assumed that one third of major depression and anxiety was severe enough to

N. Ireland (£3.4bn) **Wales (£4.8bn)** **Scotland (£8.8bn)**

With approximately 85% of the population, £100.8bn of mental health condition costs are incurred in England

lead to economic inactivity; we also assumed that there were no productivity losses associated with conduct disorder and ADHD in adults.

Informal care costs were also £36.4 billion. We noted earlier that we need to be cautious with informal care, given the lack of information on the proportion of people living with mental health conditions who receive informal care support. We have therefore been cautious on assumptions on informal care receipt. Where we do not have data, including for depression and anxiety, we have assumed that only 5% of people with mental health conditions receive informal care. We have also assumed that there are no additional informal care costs for children; this is certainly conservative as some parents will have to take time off work to help support their children. Despite the conservative assumptions, informal care still remains a substantial and perhaps overlooked cost of mental health conditions.

We noted that some costs associated with any health condition are difficult to measure and are referred to by economists as 'intangible costs'; examples can include the personal impacts of lost quality of life, such as the detrimental impacts of stigmatisation discrimination and social exclusion. **Our estimate of intangible costs, reflecting lost quality of life due to mental health conditions alone, and net of time out of work to avoid double-counting costs, is £26.1 billion.** Again, this is probably a conservative estimate as the impacts such as discrimination, social exclusion, fewer friends and family relationships may not be captured within quality of life measures.

Most people with mental health conditions do not come into contact with services in any one-year period. One factor is that individuals may have more than one mental health condition, and therefore could be double-counted in the overall case number, to some extent. However, the greater factor is likely to be under-utilisation of health services. For example, although the number of cases in England is estimated at 8.3 million, only 2.8 million people in England (5.1% of the total English population) were in contact with mental health or learning disability services during the year (27). **In England in 2019, 44% of mental health service providers in a survey reported being unable to meet current demands for inpatient services, rising to 58% for community mental health services and 81% for child and adolescent mental health services (28).**

Specialist mental health care costs were estimated to be £13 billion, 11% of total costs. In 2019/2020 in England specialised mental health spending alone was £10.965 billion (29). This includes more than £486 million spent on IAPT. Table 7 provides a breakdown of this expenditure and how we have allocated this to our specific age groups, genders and the 11 mental health condition groups where feasible. This excludes learning disabilities and dementia spending of £2.36 billion; it also does not include spending in primary care on mental health.

Figures in the model for the other three nations based on prevalence of mental health conditions in the three countries leads to slightly different estimated specialist mental

health spends than have been reported in the three nations; however, we do not have a detailed breakdown of these costs by condition. Moreover, these budgets may include spending on conditions we have not included, such as dementia. Pro-rata, specialist mental health spending in Scotland of £1.08 billion in 2019/2020 (30) is similar to expenditure levels in England, but it includes spending of £185 million on geriatric psychiatry which will include some spending on dementia (31). Spending in Wales is £810 million in 2019/2020 and was £300 million in 2018/2019 in Northern Ireland, the lowest per capita spend of the four nations.

In addition to these specialist mental health care costs and some other health care contacts, there is a big role played by primary care. Very conservatively, we estimate that there will be **a further £2.3 billion in primary care expenditure. This figure included £1.4 billion in general population consultations with GPs** because of a mental health issue, as well as increased rates of contact with GPs by people with mental health conditions. While we have included some primary care commissioned diagnostic tests, including blood tests, diagnostic imaging and bone density tests, and primary care nursing staff contacts for some mental health conditions, such as schizophrenia, bipolar affective disorder and eating disorders, we have not included any of these additional costs for general population primary care contacts. **Our estimate of social care costs of £1.2 billion is also conservative;** this covers local authority funded costs and does not include costs funded from other sources, including self-funded care.

Education costs, albeit restricted to just special educational needs provision, accounts for more than £2.5 billion. This is likely to be a very conservative estimate of costs. Education sector costs, both special educational needs (attendance at special schools and contact with educational social workers and educational psychologists) as well as additional frontline educational resources (parental meetings with teachers, extra help provided in the school by teaching staff and learning support assistants, contact with special educational needs officers and involvement with special educational needs tribunals) were previously shown in UK data, albeit in 1999, to account for 88% of service costs for young people aged 12-15 with mental health conditions (32).

Thus, actual costs are likely to be higher as local authorities, or schools directly where they manage their own budgets, will have additional spending for some of the young people they support, but no single source of these costs is available. There will also be other education costs we have not included such as classroom disruption, while there are also likely to be longer term impacts due to lower levels of educational attainment in school that will be apparent over a longer time frame. Schools will also have some additional, albeit very limited, spending on mental health literacy and mental health promotion.

Cost will be higher if we include some of the impacts of self-harm and suicide, much of which is linked to poor mental health. We know in England that the health care costs alone of hospital-presenting self-harm

are likely to be more than £140 million per annum (33); and there are long term economic consequences including lower productivity related to youth self-harm (34). If we included the impacts on quality of life alone from the UK GBD data for self-harm, these would increase costs by a further £7.7 billion (Table 8). This would take total costs to more than £125 billion per annum.

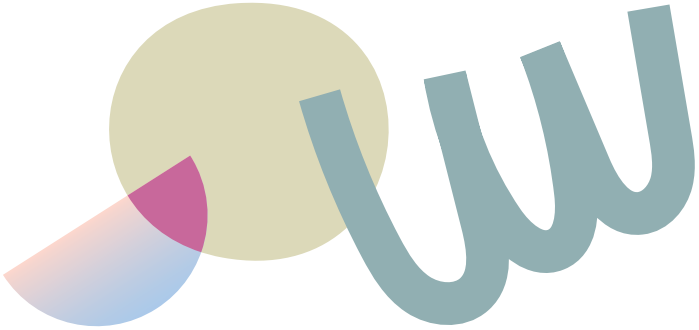
So in summary we have estimated the annual costs of mental health conditions in the UK to be almost £118 billion or more than £125 billion if including suicide and self-harm, with the majority of costs falling outside the health care sector, most notably through lost employment and informal care costs.

While higher than some recent estimates, we believe our estimate is highly conservative as we have not included dementia and have not included sub-threshold conditions.

In addition to limitations on costs that we did collect, there are many costs that we have not included, perhaps most notably costs of presenteeism, that is poor performance at work due to mental health conditions as well as the likely additional costs of managing physical health. **Previous studies have estimated that £1 in every £8 of physical health service costs may be related to poor mental health (35).** There will be additional costs of managing physical health problems, for example Type 2 diabetes, in people who also have mental health conditions (36). There are also costs to the criminal justice and housing sectors linked to poor mental health, as well as to the administration of welfare benefits that we have not included.

5.2 Long term economic impacts of poor mental health

Finally, because our analysis uses a prevalence-based costing approach, we do not here look at longer term costs. An incidence-based costing approach would look at the long-term costs for new incident cases of any mental health condition. This approach can be very valuable as it can help identify potential preventable lifetime costs associated with poor mental health. However, there is insufficient data available to make a comprehensive estimate of these costs. That said, we can point to studies that highlight the long-term impacts of mental health conditions, particularly those that occur in childhood.



5.2.1 Example: Long term impacts of poor mental health in childhood

The economic case for prevention of mental health conditions early in the life course seems very powerful given the substantial body of evidence on the adverse consequences of poor mental health. Much of the evidence has been concentrated in studies of children and young people (37-42).

Poor mental health is associated with disrupted schooling and lower levels of educational attainment compared with young people in good mental health. It is also associated with higher economic costs. One study in the UK using a nationally (GB) representative sample of 5-15 year olds, found that the supports provided for children with hyperactivity and conduct disorders generated high costs across a range of public sector budgets, including particularly high costs to the educational sector (13). The costs of care delivered by frontline education services were more than twelve times greater than that delivered by specialist mental health services; the costs of special education services were also high.

Another nationally representative UK study found that individuals aged 16-25 at baseline who had mental health problems were significantly more likely to experience a range of adverse outcomes 18 months later, compared to young people without mental health problems. At baseline they had a higher rate of not being in employment, education or training (NEET) (27% vs 16%; Odds Ratio 2.4), significantly greater likelihood of social care use (social services assessments, contact with a social worker and use of respite care) (9.0% vs 2.4%), inpatient stays

(6.4% vs 1.2%), outpatient and higher likelihood of criminal justice contact (OR 8.2). Overall annual mean costs to the public purse were 16 times greater for those with mental health problems (£965 versus £60) (32).

One London-based study found that boys with behavioural difficulties were associated with a two- to three-fold increase in costs at a twenty-year follow up, mostly due to criminal justice system contacts (43). In New Zealand, an 18 year follow up study of 7 year old children found that the 5% with the most severe level of conduct disorder experienced many significantly worse outcomes compared to the 50% of children with the lowest level of behavioural difficulties (44). This included an 11-fold increased risk of being arrested/convicted (33% versus 3% $p<0.0001$), being a teenage parent (37% versus 12% $p<0.0001$), being welfare-dependent (33% versus 9% $p<0.0001$), unemployed for more than 12 months (17% versus 7% $p<0.001$) and having a suicide attempt (18% versus 4% $p<0.0001$). Behavioural difficulties in childhood and early adolescence have also been associated with increased risk of substance abuse, as well as alcohol and gambling addictions in adulthood (45, 46).

Some of the costs of childhood psychological problems until age 50 have been estimated using the longitudinal British National Child Development Study that has periodically followed more than 17,000 children born in 1958 (47). This study found that adult family incomes were reduced 28% by age 50 for those with childhood psychological problems, with the income gap widening at older ages. The study estimated the discounted value of the working lifetime loss in net family income to age 60 to be more than £400,000 though they did not examine this by

type of mental health problem or gender. Adults with childhood psychological problems were also 11% less likely to be employed at age 50 and 6% less likely to be married or cohabiting, which in turn also has an adverse impact on household income.

Children and young people who are bullied have a higher risk of developing mental health problems, both as young people and continuing well into adulthood (48). UK evidence also suggests that young people who are frequently bullied are more than 2.5 times more likely to use mental health services, both in childhood and adolescence than other young people. Even in midlife up to age 50 they still have a 30% higher likelihood of using services compared to their non-bullied peers (49).

These studies are just some examples where longitudinal data have been used to estimate the long term costs of mental health conditions. Some further examples, for instance on perinatal depression, are also included later in this report. All generally suggest substantial and potentially avoidable costs. The next section of this report now looks at evidence on cost-effective interventions to prevent some of these costs across the life course.

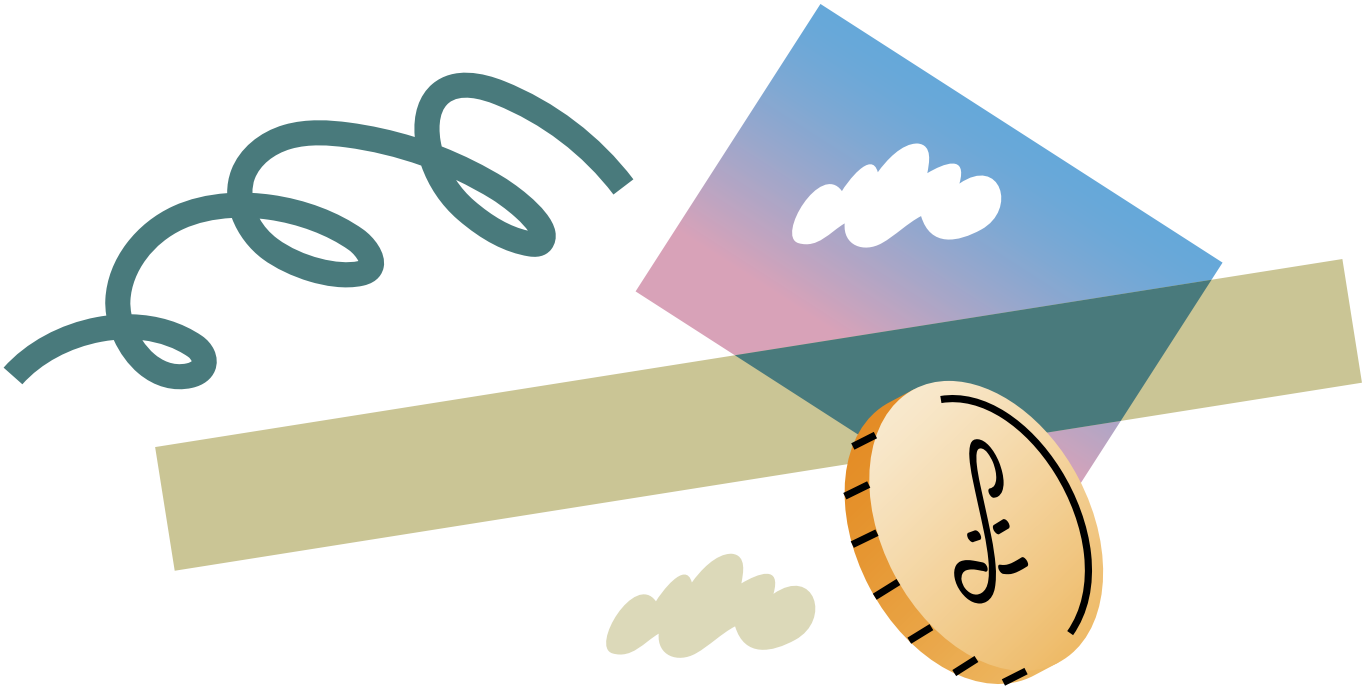


Table 3

Prevalence of mental disorders in the UK in 2019 (number of cases 1000s)

	Under 5		5-14		15-49		50-69		70+		All ages			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	All	%
Schizophrenia	0.00	0.00	0.12	0.10	61.29	48.90	33.62	34.89	7.38	10.65	102.42	94.53	196.95	1.91%
Depression	0.02	0.02	22.18	32.09	516.91	737.02	282.89	395.47	134.57	216.97	956.57	1,381.56	2,338.13	22.68%
Dysthymia*	0.01	0.01	5.07	7.80	208.63	267.76	133.89	153.41	59.23	74.00	406.83	502.98	909.81	8.83%
Bipolar	0.00	0.00	6.82	7.81	197.93	269.94	104.56	136.18	39.47	52.68	348.77	466.61	815.39	7.91%
Anxiety	2.15	3.40	111.13	175.63	629.00	1,007.06	312.70	502.75	136.23	271.87	1,191.20	1,960.71	3,151.92	30.58%
Anorexia	0.00	0.00	1.21	3.07	14.29	54.32	0.00	0.00	0.00	0.00	15.49	57.38	72.88	0.71%
Bulimia	0.00	0.00	1.79	4.73	49.69	120.98	0.00	0.00	0.00	0.00	51.48	125.71	177.19	1.72%
Autism	28.72	4.83	56.66	9.52	191.35	32.79	85.88	14.76	38.51	7.56	401.13	69.46	470.59	4.57%
ADHD	8.04	2.94	193.74	73.33	216.56	101.61	17.73	9.51	0.56	0.34	436.64	187.74	624.38	6.06%
Conduct Disorder	0.00	0.00	128.20	75.85	60.02	31.99	0.00	0.00	0.00	0.00	188.22	107.84	296.06	2.87%
Other	0.00	0.00	1.70	0.95	359.89	229.32	248.30	177.67	123.31	112.69	733.19	520.64	1,253.83	12.16%
Total	38.94	11.20	528.63	390.89	2,505.54	2,901.69	1,219.58	1,424.63	539.26	746.76	4,831.95	5,475.18	10,307.12	100.00%
%	0.38%	0.11%	5.13%	3.79%	24.31%	28.15%	11..83%	1382%	5.23%	7.25%	46.88%	53.12%	100.00%	

**Defined in the ICD-10 as being a chronic depression of mood, lasting at least several years, which is not sufficiently severe, or in which individual episodes are not sufficiently prolonged, to justify a diagnosis of severe, moderate, or mild recurrent depressive disorder. Includes personality disorders

Table 4

Annual cost of mental health conditions by expenditure category, UK, 2019. (£ millions)

	Mental Health Care	Primary Care	Social Care	Education	Informal Care	Productivity Loss	Intangible Costs	Total	%
East Midlands	937	164	87	190	2,628	2,309	1,468	7,783	6.60%
East of England	1,215	211	113	250	3,402	3,161	2,285	10,635	9.02%
Greater London	1,787	303	163	367	5,101	7,048	6,507	21,276	18.05%
North East England	516	91	48	120	1,453	1,375	650	4,255	3.61%
North West England	1,423	248	132	317	3,988	3,666	2,459	12,233	10.38%
South East England	1,783	310	165	370	5,002	5,060	4,039	16,731	14.19%
South West England	1,081	193	102	226	3,058	2,635	1,986	9,280	7.87%
West Midlands	1,141	199	106	241	3,193	2,916	1,813	9,610	8.15%
Yorkshire and the Humber	1,082	187	101	222	3,028	2,721	1,656	8,998	7.63%
England	10,965	1,907	1,017	2,304	30,854	30,890	22,863	100,801	85.50%
Northern Ireland	420	65	39	83	1,152	1,073	576	3,409	2.89%
Scotland	1,006	183	93	199	2,795	2,785	1,826	8,888	7.54%
Wales	601	106	55	121	1,629	1,441	840	4,794	4.07%
Total UK	12,992	2,261	1,205	2,708	36,431	36,189	26,105	117,891	100.00%
	11.02%	1.92%	1.02%	2.30%	30.90%	30.70%	22.14%	100.00%	

Table 5

Annual cost of mental health conditions by age and gender, UK, 2019. (£ millions).

	Under 5		5-14		15-49		50-69		70+		All ages			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	All	%
East Midlands	23	6	266	171	2,017	2,134	1,133	1,200	353	479	3,792	3,990	7,783	6.60%
East of England	32	8	370	239	2,751	2,956	1,494	1,616	491	678	5,138	5,497	10,635	9.02%
Greater London	78	19	704	497	6,629	7,201	2,316	2,515	539	778	10,266	11,010	21,276	18.05%
North East England	13	3	149	91	1,109	1,158	622	671	182	256	2,076	2,179	4,255	3.61%
North West England	38	10	435	276	3,230	3,435	1,731	1,837	520	722	5,954	6,279	12,233	10.38%
South East England	48	12	578	383	4,323	4,679	2,367	2,545	747	1,049	8,063	8,668	16,731	14.19%
South West England	25	6	311	199	2,303	2,473	1,351	1,474	476	663	4,466	4,814	9280	7.87%
West Midlands	27	7	342	222	2,562	2,728	1,320	1,404	418	580	4,669	4,941	9610	8.15%
Yorkshire and the Humber	26	7	313	202	2,418	2,538	1,257	1,326	376	535	4,391	4,607	8,998	7.63%
England	310	79	3,470	2,278	2,7341	29,301	13,592	14,588	4,102	5,740	48,815	51,986	100,801	85.50%
Northern Ireland	8	3	122	90	889	1,057	428	521	110	180	1,558	1,851	3,409	2.89%
Scotland	19	6	285	196	2295	2,536	1,279	1,440	336	497	4,214	4,674	8,888	7.54%
Wales	11	3	160	106	1220	1,317	677	773	215	311	2,283	2,510	4,794	4.07%
Total UK	348	91	4,037	2,671	31,746	34,212	15,976	17,321	4,763	6,727	56,870	61,021	117,891	100.00%
%	0.29%	0.08%	3.42%	2.27%	26.93%	29.02%	13.55%	14.69%	4.04%	5.71%	48.24%	51.76%	100.00%	

Table 6

Annual cost by mental health condition, UK, 2019 (£ millions)

	Schizophrenia	Depression	Dysthymia	Bipolar	Anxiety	Anorexia	Autism	ADHD	Conduct Disorder	Other	Total	%
East Midlands	610	1,690	559	1,378	1,335	110	506	45	208	981	7,680	6.59%
East of England	837	2,358	739	1,825	1,832	214	680	63	290	1,301	10,505	9.02%
Greater London	1,722	5,035	1,379	3,315	3,693	521	1,388	125	535	2,447	21,091	18.11%
North East England	331	880	316	754	707	87	287	25	119	559	4,198	3.60%
North West England	951	2,694	861	2,126	2,063	249	787	75	348	1,513	12,079	10.37%
South East England	1,317	3,797	1,149	2,806	2,907	346	1,064	97	446	2,033	16,538	14.20%
South West England	733	2,068	644	1,620	1,612	183	553	55	257	1,130	9,160	7.86%
West Midlands	745	2,081	687	1,681	1,649	203	580	59	269	1,203	9,486	8.14%
Yorkshire and the Humber	699	1,932	639	1,579	1,540	186	576	54	250	1,120	8,882	7.63%
England	7,944	22,534	6,974	17,083	17,337	2,098	6,420	596	2,722	12,287	99,620	85.52%
Northern Ireland	271	686	228	541	758	72	166	20	87	431	3,370	2.89%
Scotland	752	1,982	660	1,361	1,514	180	447	41	222	1,297	8,770	7.53%
Wales	433	1,084	349	728	797	104	234	24	124	684	4,726	4.06%
Total UK	9,401	26,286	8,210	19,713	20,406	2,454	7,267	681	3,155	14,700	116,487	100.00%
	8.07%	22.57%	7.05%	16.92%	17.52%	2.11%	6.24%	0.58%	2.71%	12.62%	100.00%	

*Note does not include mental health contacts with GPs for general population without diagnosed mental health conditions. ¥ *Defined in the ICD-10 as being a chronic depression of mood, lasting at least several years, which is not sufficiently severe, or in which individual episodes are not sufficiently prolonged, to justify a diagnosis of severe, moderate, or mild recurrent depressive disorder. β Includes personality disorders

Table 7

Estimate of specialist mental health expenditure in England 2019/2020

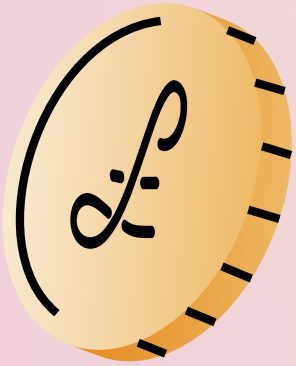
Indication	Condition	Age	Total Cost
Common mental health problems (low severity with/without greater need)	Depression, Dysthymia, Bipolar, Anxiety	All	£107,250,055.39
IAPT, children and adolescents	Depression	0-14	£7,047,312.89
Specialist perinatal mental health services	Depression	15-49	£88,287,540.79
Mood affective disorders, treated by a non-specialist mental health service provider	Depression	All	£10,462,737.98
Mental health services for veterans	Anxiety	15+	£8,619,840.52
Non-psychotic disorders severe to very severe and enduring non-psychotic disorders	All except schizophrenia	All	£1,070,057,099.32
Psychotic disorders	Schizophrenia	All	£801,774,572.34
Services for personality disorders, gender identity, also services in non-specialist mental health services	Other conditions	All	£157,472,871.79
Psycho-sexual services for children and adolescents; mental health services for deaf children	Other conditions	0-14	£7,790,791.54
Psycho-sexual services for adults; mental health services for deaf adults	Other conditions	15+	£11,278,892.22
Adult specialist eating disorder services	Anorexia, Bulimia	15+	£65,317,732.92
Eating disorder services age group unspecified	Anorexia, Bulimia	All	£402,499.54
Child and adolescent eating disorder services	Anorexia, Bulimia	0-14	£42,427,617.39
Mainly unspecified patient level and information cost service, unspecified mental health provider spells, other non-allocated dashboard expenditure plus assessed but cluster unassigned as well as some dual diagnosis mental health services	All conditions	All	£5,747,130,794.93
Unspecific child and adolescent mental health services	All conditions	0-14	£891,699,255.70
Mainly adult psychiatric liaison services including A&E and residential care homes plus prison mental health services	All conditions	15+	£1,471,590,160.67
Old age psychiatry	All conditions	70+	£1,081,617.09
Drugs used in psychoses and related disorders	Schizophrenia	All	£128,197,045.05
Hypnotics and anxiolytics	Anxiety	All	£72,669,402.18
Antidepressant drugs	Depression, Dysthymia, Bipolar	All	£201,729,576.00
CNS stimulants and drugs used for ADHD	ADHD	All	£72,669,402.18
Total expenditure			**£10,964,956,818.42**

Table 8

Annual quality of life costs for intentional self-harm, including suicide, UK, 2019 (£ millions)

	Under 5		5-14		15-49		50-69		70+		All ages		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	All
East Midlands	0	0	1	0	236	63	78	29	15	7	330	100	430
East of England	0	0	1	1	330	91	113	42	23	11	468	145	613
Greater London	0	0	3	2	800	252	214	94	31	18	1,049	367	1,415
North East England	0	0	1	0	160	34	45	17	9	4	214	55	269
North West England	0	0	2	1	458	124	149	56	26	13	636	194	830
South East England	0	0	2	1	553	165	193	77	38	20	787	263	1,050
South West England	0	0	1	1	303	91	104	42	23	12	431	146	576
West Midlands	0	0	2	1	309	82	98	35	19	9	428	127	554
Yorkshire and the Humber	0	0	1	1	319	81	94	35	18	9	432	126	558
England	0	0	15	7	3,470	984	1,088	427	202	103	4,774	1,522	6,296
Northern Ireland	0	0	0	0	158	31	31	12	5	2	195	45	240
Scotland	0	0	1	1	501	152	144	59	23	11	669	223	892
Wales	0	0	0	0	192	43	54	20	11	5	257	67	325
United Kingdom	0	0	17	8	4,321	1,210	1,318	518	240	121	5,895	1,857	7,753

6. An overview of evidence on the economic case for prevention across the life course

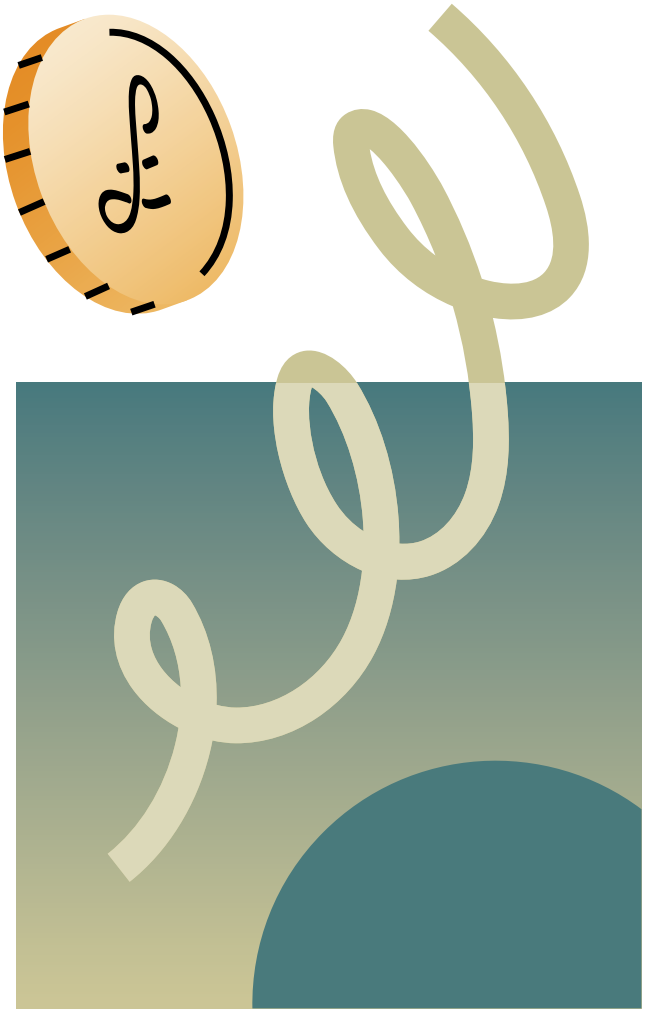


6. An overview of evidence on the economic case for prevention across the life course

There are now many reviews of evidence on the cost-effectiveness of different measures to prevent mental ill health (50-58).

We draw on reviews, identified through a rapid search of the MEDLINE and PsycINFO databases to identify systematic reviews focused on economic evaluations of interventions to prevent mental health conditions in high income countries, as well as additional work we have undertaken to identify additional studies to map the extent of the current evidence base. The evidence base is growing, although it is still dominated by studies from a small number of countries, with a focus on interventions that are delivered within health and social care systems rather than in other sectors of society. Moreover, most of this evidence base is focused on individual interventions that are more amenable to evaluation in randomised controlled trials; there are few studies that look at the economic case for investing in complex structural interventions such as measures to reform the welfare system to reduce poverty or improve the quality and access to housing.

Table A1 in the appendix provides summary information on all of the studies we have mapped in this report. In section 2 we noted that there are different methodologies that can be used to assess the economic case for investment. For example, the time periods that studies cover, primary outcomes used, and element of cost included can all vary, and this will have an impact on reported cost-effectiveness. Studies may be linked directly to a single study or synthesise and model evidence from multiple studies, sometimes extrapolating findings over many years or even decades. This means that studies, even those that at first glance use similar methodologies are not necessarily directly comparable (59). This important caveat notwithstanding, the table indicates that there are cost-effective actions that can be taken right across the life course.



Illustrative examples

Perinatal and maternal mental health

Opportunities for protecting mental health begin during pregnancy. Between 10% and 20% of women experience perinatal depressive symptoms (60, 61). Better management of mental health during pregnancy can also help mitigate problems such as anxiety, psychosis and post-traumatic stress disorders. There are also impacts on men, although these are less well understood; recent studies in the United Kingdom and Italy report that 4% to 6% of new fathers experience depressive symptoms (62, 63) and as many as 18% experience anxiety disorders (64). As well as impacts on the mental health of parents, poor perinatal mental health can affect the quality of infant – parental attachment and level of supportive behaviour from mothers. This can have long lasting adverse impacts for a child's emotional health, and their physical and cognitive development (65).

The lifetime costs from a societal perspective of perinatal depression and perinatal anxiety alone, to both mother and child, have been estimated to be £75,728 and £34,811 respectively; costs to the education and criminal justice sectors outweigh costs to the health care system (66). For depression 70% of costs are accounted for by the child; for anxiety the opposite applies, with mothers accounting for 60% of the cost.

Given these costs, **a number of economic evaluations now indicate the cost-effectiveness of some measures to prevent and/or intervene early in perinatal depression, including health visitor provided counselling and/or psychological therapies, primary care screening and treatment for depression and telephone peer support (52, 53).** This includes analysis from the UK, where health visitor screening for risk of perinatal depression and subsequent provision of psychological therapy was found to be cost-effective and potentially even cost saving, not only for high risk but also for low-risk women (67). The review also identified an evaluation of a telephone peer support intervention compared with usual care in Canada; it was associated with a small increase in avoidance of perinatal depression at a cost of £6,768, a value the authors considered might be cost-effective (68). Another review also pointed to evidence of the cost-effectiveness of peer led interventions (local village women)

in low-income settings in India and Pakistan, but more evidence is needed on their effectiveness in other settings (69).

More work is also needed to look at interventions for fathers, as well as interventions addressing anxiety in new parents. One Swedish modelling study tentatively suggests that there could be an additional economic case for screening and then treating fathers early for depression, but more studies need to look at this issue (70).

Children and young people

Many of the studies in our review are on the economic benefits of actions early in life. We already noted in section 5.2 that there is a large body of evidence pointing to very long term adverse consequences in adulthood of poor mental health in childhood. The economic benefits in the very long term of better mental health can be substantial as this is the time in life when education, skills, resilience and emotional capital are being accumulated (71). Therefore, where effective interventions have a sustained positive impact on mental health, the economic payoffs can be substantial. We highlight several further examples in this section.

a) Parenting programmes

There is good evidence for parenting programmes. Parenting programmes can help promote positive mental health and reduce the risk of poor emotional development. Universal programmes for all the relevant population, as well as targeted programmes for parents and their children at risk of mental health problems, or for those already experiencing behavioural difficulties, have been shown to be effective (72-74). These programmes are often delivered within or around school settings, with teachers and teaching assistants trained to deliver the programmes.

There are also a growing number of studies that report the return on investment (ROI) from parenting programmes. While methods and costs included vary, all adopt very long timeframes and report positive returns on investment of up to £15.80 per £1 spent. One economic modelling study evaluation synthesised effectiveness data from five trials of the Incredible Years parenting programme for parents of children aged 5, alongside cost data for delivery in a UK context (75). A limitation of this analysis was that while effectiveness studies included some universal interventions targeted at at-risk groups, others were for children who had been referred from mental health services. Nonetheless, modelling costs and benefits over a longer time-period to age 30, and taking account of impacts on health, welfare, education and criminal justice services, there was a return of £4.57 for every £1 spent.

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in the US has also modelled the long-term economic case for many mental health related interventions including parenting programmes. For example, the potential long-term payoffs from the Incredible Years parenting programme were £5.65 per £1 spent over 50 years, whilst for the Oregon model parent management training programme these long term benefits were £9.30 for every £1 spent over 50 years (76). These savings take account of reduced repetition of school years, need for special educational support, as well as less use of health care and reduced criminal justice system for children. They also account for reduced impacts of major depression on earnings, mortality and health of parents.

A modelling study in Sweden looked at the long-term economic case (until age 65 for the children) from investing in one of four parenting programmes or a parent self-help book (42). The study built on an existing trial for parents who had sought help for their children's behavioural problems; 48% of children in this study had been previously diagnosed with ADHD. Different scenarios, for children aged 5-12, in different sized local communities were considered. In all cases there was a long term positive benefit to cost ratio, with the self-help programme being by far the most attractive with a benefit cost ratio of more than 340:1, compared with 5.96 to 15.80: 1 for the parenting programmes, but all were considered to be good value for money.

Most economic evaluations of parenting programmes have focused on changes in the externalising behaviours of children, such as conduct disorder and hyperactivity. There is much less information on the economic case for internalising behaviours, such as depression. One exception is a recent economic evaluation alongside a trial of a parenting programme where 4 year old children with symptoms of anxiety and/or depression were identified in Australia (77). Children of parents in the intervention group had better outcomes than the usual care group at similar costs, suggesting that the intervention was likely to be cost-effective. However, this study only looked at costs and benefits over a one-year period so longer term impacts on life chances were not considered.

Some parenting programmes have been targeted at preventing poor mental health in specific higher risk groups. In the United States evaluation has been conducted of programmes specifically targeted at parents and children in divorced families (78). This entailed a randomised controlled trial with a 15 year follow up, including impacts on the mental health of the children into adulthood. The intervention was intended to improve parent-child relationship quality, teach the use of effective discipline, and reduce children's exposure to interparental conflict. The economic analysis found the intervention led to better long term mental health outcomes for children and lower costs, in terms of use of mental and general health services and contacts with the criminal justice system.

b) Anti-bullying programmes

Persistent bullying can adversely affect mental health at all ages; but most initiatives that have looked at ways to counter this issue have focused on impacts on young people. We have already noted that UK evidence suggests that young people who are frequently bullied are more than 2.5 times more likely to use mental health services, both in childhood and adolescence than other young people. Even in midlife up to age 50 they have a 30% higher likelihood of using services compared to their non-bullied peers (49).

For school-aged children bullying may mean greater use of school and specialist child mental health services. Persistent bullying can also affect school performance and can increase truancy; this may also mean that the police, social welfare services and families have to spend time either looking for or supporting young people outside of the school system. There are also impacts on educational attainment which in turn may ultimately lead to poorer employment prospects in adulthood and lower earnings when in employment (79, 80). **Being the victim of bullying in childhood is associated with significantly increased levels of psychological distress at ages of 23 and 50 compared with young people who were not bullied.** Children who had been frequently bullied were significantly associated with greater rates of depression, anxiety disorders, deliberate self-harm, suicidality and poorer cognitive health at age 45 (79).

There is strong evidence that measures targeted universally at school populations to address bullying help reduce the incidence of bullying and have positive benefits for mental health (81). These interventions can also lead to better outcomes for the perpetrators of bullying. As part of work to look at the case for investing in mental health promotion in England researchers worked with policymakers and topic experts to model the potential ROI from an evidence-based school-set programme to tackle bullying. Following a review of the literature, they decided to model the implementation of KiVa, a programme that focuses on enhancing the empathy, self-efficacy, and anti-bullying attitudes of classroom peers. The programme is already being delivered by teachers in some schools in the UK, and there is evidence from a non-randomised trial in Finland involving more than 150,000 students that participants in the control group were 22% more likely to be bullying victims (82). More recently a trial in Italy across 13 schools also reported significantly lower levels of bullying in the KiVa group (83).

The model looked at the value of KiVa implemented as part of the school curriculum for a four-year period for children aged 7 until the age of 11. This was compared against usual care, which in this case is assumed to have no impact on bullying. This modelling work assumes Finnish effect sizes are achievable, uses UK implementation costs, and estimates avoidable long-term economic costs of bullying using evidence from the 1958 British birth cohort (49).

The model suggests that an additional four in every 100 children will avoid sustained bullying over this period, while the total costs of investing in KiVa are more than offset by costs averted over four years leading to a short-term ROI of £1.58 for every £1 invested (84). When lost adult earnings and increased use of mental health-related health services to age 50 are considered the long-term ROI increases to £7.52.

This analysis is still conservative, as other impacts, such as potentially higher rates of teenage pregnancy and contacts with the criminal justice system seen in some longitudinal studies (85), are not included in this model. Nonetheless it suggests that investment in anti-bullying programmes can be highly cost-effective. Modelling analysis in Sweden for two anti-bullying programmes, KiVa (86) and another manualised programme (Olweus) (87), also suggests a high likelihood of interventions being cost-effective.

In summary, both modelling and empirical studies in the UK and other European countries point to a high likelihood of anti-bullying interventions being considered cost-effective from a public payer perspective and/or having a positive ROI because of the lifelong profound consequences for both victims and perpetrators of bullying (84, 86, 87).

This can include lifelong increased use of health and social care services (49, 79), as well as lower levels of earnings (88).

There can also be immediate benefits from better school atmosphere and less school disruption, as well as longer term benefits if educational outcomes improve. A recent trial in England of Learning Together went further, and also focused on changing the school atmosphere; this was found to have had a significant albeit small impact on levels of bullying in schools (89) as well as less classroom disruption and truancy (90).

c) Brief psychological interventions

There is also evidence on the effectiveness of some brief psychological interventions to prevent mental disorders in young people. Many of these interventions are often delivered within a school setting. However, evidence on cost-effectiveness is mixed and will differ depending on contextual settings, with some similar interventions in different settings having very different cost-effectiveness results (54). Most of these analyses are modelling studies which use data from one or more existing sources and combine this with information on impacts on resource use and economic costs.

One recent example is a Swedish modelling analysis of group-based CBT (one session per week for nine weeks) to prevent depression compared with no intervention in adolescents who have been identified as having sub-threshold levels of depression (91). Intervention effectiveness inputs were derived from a systematic review and meta-analysis (92). Costs per quality adjusted life year gained over a 10 year time period were calculated. The model suggested investment in group-based therapy from a societal perspective is likely to be cost saving, having both better outcomes and lower costs than no intervention. 7% of cases of depression could be avoided with a modest 0.15 additional QALYs gained over 10 years. Much of these cost savings (mean $2,752 over 10 years) were for the avoidance of time out of work in adulthood. In sensitivity analysis the model suggested that the intervention had a 70% chance of having a cost per QALY gained of less than $20,000 per QALY gained.

There is also potential for investing in mental health programmes focusing on resilience and protective factors, although the evidence base remains equivocal. One recent review notes that these programmes, usually delivered in schools, which can be delivered in different ways, with different lengths and curriculums, focus on the development of coping skills, mindfulness, emotion recognition and management, empathic relationships, self-awareness and efficacy, and help-seeking behaviour. Secondary outcomes often include decreased symptoms of anxiety, depression, and increased academic outcomes (93). Programmes have been shown to be effective in some settings in reducing symptoms of depression in the short term (94-96). A previous study modelled a non-specific resilience programme targeted at all 15 year-olds, drawing on data from a meta-analysis on the potential effectiveness of these programmes in reducing depressive symptoms in school children. This meta-analysis reports a 21% lower level of depressive symptoms for these programmes for school children relative to no intervention (96). We assumed that the intervention would be class-based and delivered weekly by school staff rather than mental health professionals to the entire class, that all pupils are assumed to be

depression-free at baseline, and the costs of delivering the programme are the same as those for delivering the UK version of the Penn Resilience programme, a manualised CBT-based intervention. As well as costs to health and education services the model took account of the impact on families of a reduction in days absent from school due to the resilience programme. In addition, meta-analyses have identified a significant, although small effect, of depression on the likelihood that a young person will fail at school; this includes significant effects specifically for the later adolescence age group from 15 to 18 (97). That study made use of econometric evidence from a UK context on the difference in lifetime earnings depending on qualifications to also estimate potential long term impacts on the life chances of young people (98) as depression can have an impact on school failure and risk of lower exam grades (30). Within two years, £2.11 in costs could be avoided for every £1 investment in the programme. This is due to immediate health, school and absenteeism-related costs being averted. In the very long term, costs averted rise to £14.38, due to a reduction in the number of young people failing to meet GCSE success thresholds as a result of depression. Only a very small 2% reduction in risk of depression is required for there to be a positive, ROI because of the magnitude of longer-term education-related impacts on life chances, however many of these economic benefits will not be seen for many years.

In the United States an economic evaluation linked to a randomised controlled trial looked at the case for cognitive behavioural therapy plus usual care (which could include outpatient and inpatient care, A&E and medical doctor visits, alcohol or drug treatment, antidepressants, stimulant medications, or psychotropics, as well any school services, and criminal justice service contacts) compared to usual care only in young people aged between 13 and 17 (99). These young people had been identified as being at high risk of developing depression because of prior depression, current depressive symptoms or because they had a parent who had experienced depression. Cognitive behavioural therapy was delivered by mental health professionals over eight weekly 90-minute sessions followed by a continuation session every six months. No-one in the study was using antidepressants at time of study enrolment.

Cost impacts in the analysis were restricted to impacts on mental health service costs and time of family carers. At both 9-month and 33-month follow up the intervention group had experienced less depression and had improved quality of life. The cost per QALY gained was more favourable when taking the longer-term perspective at $12,787 at 33 months compared to $24,558 at 9 months. By 33 months there was a one in three chance that the intervention would be cost saving with both better outcomes and lower costs. However, when looking solely at young people whose parents had a history of depression the intervention was not cost-effective.

A recent modelling analysis in Australia has looked at the economic case for an online e-health intervention, MoodGYM, which provides CBT through five interactive modules completed in order (100). It was delivered in one weekly module class per week for 5 weeks for students aged 11 - 17. Each session lasted up to 40 minutes. Teachers were present to answer any questions that students had as they completed each module. A previous meta-analysis of the intervention in studies on adults from the UK, Norway and Australia had indicated that it had a moderate size effect on anxiety symptoms (101), while a trial in 30 Australian schools also found significantly lower levels of anxiety in the intervention group (102). Taking a 10-year time horizon, and looking solely at health care costs, plus some time out of usual role for parents and young adults, the model reported a positive ROI of 3.06: 1. The model was also cost saving, with better outcomes (expressed in QALYs) and lower costs than no intervention. While this seems very promising, the study acknowledged that there was some uncertainty over effectiveness, given the small number of schools and the lack of long-term effectiveness data. It is also important to recognise that implementation costs may be substantially higher than those used in this model if the resilience programmes are delivered by mental health professionals rather than teaching staff, perhaps because the latter do not have the time in today's crowded school curriculum to do so. Fidelity in programme delivery will also have a bearing on both potential effectiveness and costs.

d) Mental Health First Aid (MHFA)

Evidence on the benefits of mental health first aid (MHFA) training to help individuals recognise risks for poor mental health has been reported in Australia and some other settings. Moreover, the English government has been investing in training teachers in schools in MHFA. However, it is yet to be shown to be effective and/or cost-effective in an English context. A recent trial of mental health first aid training for secondary school teachers in schools in Bristol and Cardiff was not found to be effective in improving teacher or student mental health (103). A process evaluation suggested that the intervention may not have been delivered as intended, and peer support elements were also not always in place, which may have impacted on the effectiveness of the intervention.

e) Exercise

Exercise can also be protective of mental health, although economic evidence on these benefits is limited. In a Swedish trial, teenage-girls with high levels of stress were randomised to receive twice-weekly dance classes for 8 months or standard school nurse services (104). Looking just at impacts on school health services the trial reported an incremental cost per QALY gained after 20 months of $3,830 (2011 prices) a value that would be considered cost-effective in Sweden. As no specific measure of changes in stress or depression was taken, it is however difficult to know whether changes in quality of life were related to mental and/or physical health improvements linked to dance.

Transition to adult life

The transition from adolescence into adulthood is a period of mental health challenges. Young adults who are not in employment, education, or training (NEET) are at risk of long-term economic disadvantage and social exclusion. The risk of being NEET is linked to mental health problems (105). In Finland, the Time Out! case management model for young men at high risk of social exclusion (106), has been found to be potentially cost effective in a randomised controlled trial, mainly due to positive effects on employability. The break-even point for cost effectiveness was a 3%-4 % increase in employment rate (107).

For young people who may self-identify as having potential mental health problems community centre-based programmes to provide support for their emotional, social and mental wellbeing have been developed in

some countries. One example is Headspace in Australia. The cost of these comprehensive Headspace services appear comparable to community mental health care (108), but limited information is available on their cost effectiveness as preventive measures.

While mental health problems can increase the risk of being NEET, NEET itself also carries significant risks for mental health, but evidence on the cost-effectiveness of interventions to address NEET status is limited. This is really about the effectiveness and cost-effectiveness of broad social welfare measures to support young people. These welfare measures are not often viewed solely through a mental health lens, and examples could include financial support to remain in education, better training and apprenticeship opportunities, or better support for 'looked after' children when they leave care.

The potential benefits of these welfare measures on the mental health of the general population need examination. Much of the current focus within the mental health system has been on assessing the case for individuals at high risk of mental health problems through early detection programmes, as well as early intervention measures for young people who have been diagnosed with conditions such as psychosis. These programmes can include welfare-related measures such as work activation schemes, including various supported employment programmes.

Working age adults

Most of the economic literature on prevention in working age adults we have identified through the review has **focused on different types of psychological support,** including brief cognitive therapies, and emerging evidence on mindfulness-based therapies. Most of these economic studies focus on prevention of depression. In addition, there is some evidence on exercise to prevent depression, as well as on measures to tackle risks to mental health from financial distress. Specific measures to protect mental health in the workplace are discussed separately in a subsequent section in this report.

Psychosocial support

GPs have a vital role to play in promoting better mental health. Early preventive intervention when potential future risks to mental health may be identified could help avoid the onset of serious mental disorders.

In Spain a randomised trial was conducted to look at the use of an algorithm by GPs where they would look at an individual's risk factors and estimate their likelihood of developing depression in the following year (109, 110). GPs would then talk to their patients, providing psychosocial advice about these risks, and they would co-develop a plan to address risks. A key element was for GPs to speak with more empathy with their patients and help address some of the risks for depression. Advice on issues such as exercise, sleep, diet and maintaining relationships was also given. The trial reported a 20% reduction in the development of depression in the intervention group at 18-month follow up, although this difference was not statistically significant but was increasing over time. Rates of depression in the control group were lower than anticipated, making it more difficult to identify a significant effect, however there was a significant reduction in the incidence of anxiety at 18-month follow up. An economic evaluation was also conducted (111). From a societal perspective, taking into account absenteeism from and presenteeism in work as well as all health care costs (mental and physical), the intervention was found to be cost saving compared to usual care, being more effective and less costly. From a health system only perspective the intervention would be considered cost-effective with a cost per QALY gained of €1,085.

Brief psychological interventions

Brief psychological interventions can be cost-effective in preventing depression (50). This includes interventions that include bibliotherapy in the form of self-help materials. An early study alongside a RCT in the Netherlands found that a self-help manual with instructions on mood management provided to adults in primary care practices, supplemented by six telephone interviews with a 'prevention worker' was associated with reduced risk of depression and lower costs from a societal perspective (112). Further modelling analysis in the Netherlands, again assuming bibliotherapy using a self-help manual supplemented with brief telephone calls, was cost-effective in preventing depression with a cost per DALY averted of just €1,400 (113).

In contrast there is little attention given to the cost effectiveness of these interventions for other disorders, although isolated studies also point to good returns on investment. For example, a modelling study in the US looking at the general provision of brief CBT to prevent generalised anxiety disorder in people with mild or no anxiety issues, would over a lifetime, and taking account of lost time from work as well as contact with health systems, be associated with fewer cases of severe anxiety and lower costs compared with no intervention (114).

Mindfulness is increasingly advocated as an alternative approach that can be used for the prevention and treatment of mental health conditions. Mindfulness-based interventions, which can take many different forms, including meditation and mindfulness-based CBT, aim to develop skills to deal with negative thoughts and emotions flexibly (115). They involve 'paying attention in a particular way: on purpose, in the present moment, and non-judgementally'. A recent trial in Hong Kong found mindfulness, (body scan, sitting meditation or walking meditation) combined with behavioural activation to recognise the association between certain activities and mood, to be highly cost-effective compared to access to usual medical services for 231 adults with sub-threshold levels of depression. At 12-month follow up cases of depression were significantly lower and the cost per QALY gained from a health care perspective was just $US 957 (116). An earlier cost-effectiveness analysis of a non-randomised trial of a mindfulness based mental health promotion programme for adults in Germany was undertaken (117). This was found to have a 95% chance of being cost-effective in avoiding depression compared to individuals who did not receive the intervention.

Exercise

A recent meta-analysis concluded that exercise-based interventions have a small effect on the reduction of depressive symptoms in people without clinical depression, and that therefore it could be an alternative to, or complement, psychological programmes (118). Many exercise programmes, particularly those that do not involve physical activity counsellors, but instead rely on individuals independently engaging with different activities of interest, have the potential therefore to

be highly cost-effective. Intuitively, more opportunities for exercise make sense, including referrals on social prescription, but as yet there is little formal evidence on cost-effectiveness, although previous analyses have shown that it can be cost-effective in reducing anxiety and depression in people already identified as having these conditions (119). We need more evidence; potentially thinking in innovative ways. For instance, there may be opportunities to look at the longer term psychological benefits of regular participation in social group exercise activities, with one example being the numerous volunteer led organised 5 kilometre park runs that are widely available across the UK (120). There is also scope to examine the potential mental health benefits of many other individual and group-based activities that appeal to different individuals, such as aerobics, pilates, tai-chi, swimming and cycling.

Financial measures

Gaps in understanding of the economic case include measures to reduce financial distress and provide a social welfare safety net for people. In the case of financial distress, there have been important changes, such as the introduction of individual voluntary agreements (IVAs) and steps to reduce interest rates charged by lenders such as pay day loan companies that will have been beneficial to mental health. Previous modelling analysis has suggested that debt advice services can help protect mental health and have a positive ROI (121). This brought together evidence on the effectiveness of debt management services from a previous English randomised controlled trial, with the benefits to the health care and legal systems, as well as to society as a result of a reduction in debt-related depression. Using very conservative assumptions on costs and benefits a ROI of £2.60 for every £1 would be achieved over five years.

Additionally, a quasi-experimental study looked at the co-location of Citizens Advice welfare benefits and debt advice services in GP surgeries in London (122). It also included an economic analysis comparing the costs of the service with financial gains to clients who made use of the service. Use of the service was associated with reduced finance related stress, as well as reduced use of credit cards if clients were unable to make payments. From the perspective of the client there were average financial gains of nearly £2,700 over the eight-month study period, with financial benefits to clients

overall outweighing the costs of running the programme by 15:1. There was also some association between receipt of advice and better mental health, where advice was perceived to have positive outcomes. The authors concluded that such welfare advice services potentially can help reduce the workload on GP primary care practices. However, in general the evidence base is limited, especially on the impacts of the recent reforms. There is also an opportunity to evaluate the major additional social protection support, as well as protection from evictions, that were introduced across the UK in response to the COVID-19 pandemic.

Workplace interventions

There remains a strong case for investing in actions in the workplace. Poor mental health contributes to reduced productivity at work, greater likelihood of sickness absence, and a higher probability of being unemployed (123, 124). In all OECD countries, people diagnosed with a mental disorder account for 30% - 40% of disability benefit caseloads, and total disability benefit expenditure related to mental illness accounts for around 0.7% of GDP on average (124). If improving mental wellbeing, or preventing mental health problems, can help employees stay in work, and work to their full productive potential, then the economic and societal benefits are potentially very significant. There are already strong incentives for employers to invest in the health of their workforces, not only to maximise performance, but also to reduce unnecessary costs associated with staff turnover, and maintain workplace morale.

There is a broad economic evidence base supporting the many different types of actions that can be taken in workplaces. Many of these studies originate in the United States where employers typically provide health care insurance to their staff, and the incentives to promote better mental health to keep insurance premiums under check is substantial (125). The economic case here will be different; the government also will benefit from the need to administer fewer sickness and disability benefits if employment can be maintained.

In the UK a set of 'mental health core standards' to protect mental health at work puts an emphasis on better mental health awareness at work and good working conditions, including autonomy, fair pay, work life balance and opportunities for progression, and the absence of bullying and harassment (126). It also includes other organisational measures including changing workplace culture, appropriate risk assessment and management of stress and poor mental health. Employers can also help protect mental health through flexible working arrangements, including

home working, where feasible. This can help workers who have to juggle caring responsibilities with employment. There are also actions targeted at individual workers, such as provision of access to exercise facilities and psychological support for those experiencing distress. Most, but not all, of the existing economic literature focus on individual level rather than organisational level actions (34, 97), perhaps because these are easier to evaluate.

When looking specifically at prevention, it can be difficult in the literature to easily identify whether interventions are targeted only at people who have been diagnosed with mental health problems, or also at those experiencing poor mental health. Furthermore, many prevention interventions have only been published in grey literature, by companies, rather than in academic journals (127). **Nonetheless recent reviews have highlighted the potential benefits to both employers and society of interventions targeted at stress and the symptoms of conditions such as depression and anxiety. There are also a number of different workplace organisational and individual level mental health promotion measures that have been estimated to generate returns on investment over a one-year period of between £0.81 to £13.62 for every £1 of expenditure in the programme (128). The greatest returns on investment came in programmes that improved the knowledge of line managers and workers of risks for mental health, as well as the provision of personalised exercise programmes.** These returns on investment accrued partly to employers but also to publicly funded health care systems.

A recent updated review found that on average there is a positive ROI of around £5 for every £1 invested in mental health interventions in the workplace (129). (See Figure below from this report which shows returns on investment from a number of different interventions).

From a public policy perspective, large scale companies can and increasingly do invest through their occupational health services in actions that promote and protect mental health. They bear the costs and accrue many of the benefits, although there are also benefits to the public purse. This means that there should be an incentive for government to support small- and medium-size enterprises (that are less likely to have their own in-house services) to increase access to mental health support.

A recent updated review found that on average there is a positive ROI of around £5 for every £1 invested in mental health interventions in the workplace (129)

Source 22:

A selection of high confidence sources

Carers

In section 4 of this report we saw that informal care accounted for 36% of all the costs of caring. While there are benefits from caring for a loved one, carers can themselves be at increased risk of poor mental and physical health. Caring can be an intense commitment; in the case of supporting people with severe mental illness this can be more than 40 hours per week (24), while for carers of people with dementia it can be an activity which consumes all of their time. If family carers are no longer able to provide care, then additional costs are likely to be incurred by health and social care services. Measures to support carers, such as access to respite care and professional support as well as information on ways to manage care have long been the subject of evaluation. However, evidence on their cost-effectiveness is mixed. Much of this evidence concerns carers of people living with dementia. In respect of respite care the evidence remains limited; we could not find any evidence of the cost-effectiveness of respite care that looked at their mental health as an outcome. For example, one recent non-randomised study in Belgium of 99 carers, receiving in-home respite care, found they had significantly lower levels of carer role strain, but mental health was not measured (130). An economic modelling study using this data and extrapolating to five-year outcomes suggested this would have a 54% chance of being cost-effective from a Belgian perspective (131).

Looking at other support, a trial of a befriending scheme to reduce isolation and improve psychological wellbeing in carers of people with dementia in the UK was previously shown to be neither effective nor cost ineffective (132). Individual counselling sessions for carers combined with family sessions were not found to be cost-effective in reducing depression or anxiety in carers of people with dementia in the Netherlands (133).

More recently, in Australia, telephone support for carers of people living with cancer (three information and support phone calls from trained nurses) was found to be less effective and more costly than simple reminders about the availability of services (134). Person-centred assessment and support for carers of people who experienced strokes in England was associated with a significant but very small reduction in anxiety levels, and no impact on depression or quality of life. The authors indicated the intervention would not be cost-effective (135).

A trial of a manual-based eight-session coping intervention programme (START -STrAtegies for RelaTives) delivered by psychologists in England to carers of people was found to be effective, improving carer mood and reducing anxiety, with a 67% chance of being considered cost-effective from a health system perspective at two-year follow up. A recent six-year follow up of START suggests that there is a long-term economic case, as benefits to carer psychological wellbeing were maintained with no difference seen in long term use of health and social care services compared to usual care (136). There is a need for more studies looking at the economic benefits of improved carer wellbeing.

People living with long term health conditions

Protecting the mental health of people living with long term health conditions is another area where some evidence on the economic case has been collected. A systematic review looked at cost-effectiveness evidence for psychosocial interventions for people living with cancer (137). The review included studies looking at both primary prevention of depression and/or anxiety as well as treatment for people with diagnosed mental health conditions. Most interventions took the form of brief psychological support such as CBT or mindfulness-based therapy and were generally positive. For example, an economic analysis in Germany of brief CBT compared with non-directive group therapy for people fearful of cancer progression was found to be cost saving from a health system perspective, with lower costs and marginally improved mental health outcomes (138). In Sweden, individual psychological support delivered by trained nurses to breast cancer patients was associated with improved quality of life and lower costs after two years compared to usual care, which includes referral to a social worker or psychiatrist (139). More recently, in the Netherlands, both internet and face-to-face mindfulness-based CBT were found in a trial to be cost-saving compared to usual care for reducing psychological distress in cancer patients (140). There were significant improvements in quality, and productivity losses from paid employment were also reduced. However, not all studies find such positive results. For example, the use of stepped care, including a guided self-help course and problem solving therapy, was not found to be cost-effective in preventing depression in adults with diabetes and/or coronary heart disease (141, 142).

Older adults

At least 12% of older people in high-income countries are affected by clinically significant levels of depression at any one time (143-146). Much of the focus on mental ill health prevention for older people focuses on depression.

Psychological therapies

There is evidence from a small number of economic studies that psychological therapies delivered to at risk populations such as the bereaved can be cost-effective and protect mental health. For example, **a controlled trial of a stepped care approach for the prevention of depression in older people in the Netherlands more than halved**

the incidence of depression and would also be cost effective if budget holders were willing to pay €4,367 per depression/ anxiety-free year gained (2007 prices) (147). There is also modest evidence supporting a stepped care programme to prevent anxiety and depression targeted at older people experiencing visual impairment (148).

Tackling loneliness

Beyond psychological interventions, increasing attention is being given to loneliness and isolation as risk factors for depression and other poor mental health, both for populations in general and for older people in particular, although loneliness in young people also is an issue. **There is a growing evidence base suggesting that interventions that can tackle loneliness and isolation in older people can also be protective of both their physical and mental health.** For example, group-based social participation interventions were recommended by NICE in their guidance on promoting the mental wellbeing and independence of older people (149); this guidance was supported by an evidence review which included a number of interventions that had been delivered in a UK context (150). However, there is a need to be cautious, as these studies were generally small in scope and size and there are inconsistencies in approaches used to measure economic outcomes.

One of these studies was an economic evaluation as part of a pilot randomised controlled trial in England (N=258) of active engagement by women over 60 in a 14-week professionally led community choir group on mental wellbeing (151). Intervention was associated with a significant improvement in quality of life after six months. Depression and anxiety were significantly lower after three months, remaining lower at six months, although this difference was no longer significant. At a willingness to pay threshold of £20,000 per QALY gained, the intervention had a 60% probability of being more cost effective than the control (no intervention) option.

In the UK, a recent modelling analysis, drawing on data from a study in England that found reduced levels of loneliness when older people were provided with appealing opportunities for social engagement, suggests such interventions have the potential to be cost-effective, due to potential benefits of reducing the need for social care services as well as support for both mental and physical health needs (152). **Over five years the incremental cost per loneliness-free year gained is £768; this is potentially considered cost-effective.**

While costs of interventions of this type can vary considerably, there is some scope for a positive ROI, even when just considering impacts on mental health, when implementation costs are low (153). However, more empirical studies are needed to determine the cost effectiveness of these interventions in different settings.

Suicide and self-harm prevention

Surprisingly perhaps, given that suicide is often one of the most topical potential consequences of poor mental health, and that some effective suicide prevention measures have been identified (154, 155), there is still only a limited evidence base on cost-effective actions for preventing it (156). Yet suicide and non-fatal self-harm events have been estimated to cost more than £45.9 billion in the US, of which only £1.3 billion were costs to the health care system (89). Most of these costs were for non-fatal self-harm; in the US it is estimated that there are around 25 suicide attempts for every suicide (19). On average the lifetime cost of each suicide in this study was £1.04 million. **An earlier estimate for Scotland estimated that average cost per suicide was higher at £1.8 million, with less than 1% of these costs falling on the health care system (157).**

The most effective suicide prevention measure remains restricting access to means, however at a primary prevention level there are few specific economic evaluations of restriction of access to means or 'frequently used places' for suicidal behaviour, although studies that have looked more widely at the impacts of means restriction, for example of firearms restrictions and introduction of enhanced injury prevention measures in vehicles, can consider self-harm (158). The impacts of introducing safety doors at railway stations in Hong Kong has been evaluated (159); while these doors have eliminated accidental and intentional injury, they are only cost-effective if the wider costs to the transportation system and society are taken into account. This is appropriate, given that transport rather than healthcare systems are more likely to fund such systems. Measures to restrict access to means, such as safety measures on bridges (such as the Golden Gate Bridge in San Francisco) can be highly cost-effective in the long term (160).

A recent European multi-site, multi-country, multi-intervention trial of school-based suicide prevention in Europe included a prospective economic evaluation. Cost per QALY gained due to suicide prevention was the primary outcome (161). One of the interventions, the Youth Aware of Mental Health programme, generated a cost per QALY of less than €50,000, a value that

would be considered cost-effective in many European countries. However, there was only a 43% probability in sensitivity analysis that these results would be replicated, though this would have increased had some of the long-term benefits associated with reducing suicidal behaviour been considered. Canadian analysis modelling a multi-component suicide prevention strategy that would involve population mental health campaigns, training for primary care and other service gatekeepers, and appropriate support to deal with depression, was reported to have a highly favourable cost per life year saved of $3,549 (162).

In Australia, a ROI analysis looked at the economic impacts of the introduction of Mates in Construction (MIC) – a multi-component workplace suicide prevention strategy used in the building industry (163). The study indicated that suicides in this industry had fallen following the introduction of MIC. The economic value of suicides averted of $A 1.79 million was then compared with the $A 0.39 million costs of implementing the programme, with a positive ROI of $A 4.6 for every $A 1 invested. The economic analysis suggested that most of the economic benefits of the programme were gained by the government; analyses of this type can be used to help persuade government bodies to invest in or provide incentives for business to invest more in suicide prevention.

Recent analysis in England has suggested that better use of psychosocial assessment (something already recommended by NICE) when people present to hospital following self-harm is likely to be cost-effective in the prevention of subsequent self-harm and suicide, with a cost per QALY gained of £9,980 from a societal perspective (164). This analysis is conservative as it does not include the long term consequences of self-harm to individuals and their families; these costs are substantial and would further strengthen the economic argument for such assessment (34).

The ROI from appropriate psychosocial assessment and aftercare following hospital-presenting self-harm in England has also been modelled (5). This study was able to draw on recent detailed analysis of the costs of hospital-presenting self-harm (165) and also considered the economic benefits of a likely reduction in the future risk of suicidal behaviour as the time to any subsequent self-harm event increased (166). It reported a ROI of around £3:1 when looking at impacts on the use of health, police and local government services, increasing to £15:1 when impacts on time out of the labour force due to injury and premature mortality were factored in.

Knowledge gaps

This brief review has highlighted a broad range of interventions for the prevention of mental ill health where some economic evidence is available. Most of these interventions are focused on downstream risk factors for individuals already at high risk of poor mental health. Many, but not all, are health system interventions, although there is growing evidence on interventions delivered by other sectors, such as education and workplaces.

This still leaves some substantial gaps. In a previous review of this literature, we highlighted several areas where there may be a case for action, but there is little or no evidence on cost-effectiveness (51). Many of these actions are focused on addressing some of the social determinants of health, such as poverty, lack of decent housing, job insecurity and macro-economic shocks. Interventions to address these determinants of health, for instance various cash transfer programmes and welfare benefit schemes are unlikely to focus solely on mental health. It is appropriate for future evaluations of the costs and benefits of these interventions to look at multiple potential impacts including changes in mental health.

Psychological therapies

Poverty can be both a contributor to and a consequence of poor mental health. Social welfare safety nets have been associated with lower future risk of suicide in individuals adversely affected by substantial economic crises. In respect of social welfare safety nets, recent reviews reported some positive associations between various forms of regular monetary support (especially unconditional programmes) and mental health (167, 168). However, the formal costs and benefits of the direct impact of these programmes on mental health has not been established. The cost-effectiveness of measures to address child poverty may be of particular concern given that poverty could have a very critical impact on child development and subsequent lifetime opportunities.

Housing

Poor quality housing is associated with poorer mental wellbeing, increased risk of mental disorder or exacerbation of mental disorder symptoms, while good quality housing is associated with better mental wellbeing, reduced risk of mental disorder and faster recovery (169). While there has been some work demonstrating the value of helping homeless and other vulnerable groups to obtain housing (170) there is a gap in our knowledge of the mental health related economic benefits of improving the quality of housing.

Job insecurity and economic restructuring

In the case of job insecurity, there is evidence that risks to mental health may be as great as for those who are unemployed (171, 172). Employees who 'survive' a workplace downsizing may also be at risk (173). Occupational health services could have an important role to play in providing support to protect psychological wellbeing of all employees, including those that lose

their jobs during and following any business restructuring (174, 175), but there remain few efforts to evaluate the cost-effectiveness of such schemes to promote mental health. Equally, while there is some evidence, including analysis of nearly 30 years of longitudinal data from the UK, that active labour market participation can promote better mental health (176), evidence on the relative cost-effectiveness of programmes is limited. One helpful development has been the creation of a ROI tool, which estimates the economic benefits to be gained, including through better mental health, from a return to employment. This tool does not however look at any specific intervention, it allows the user the option to enter in the cost and effectiveness of any intervention in order to generate a return on investment (177).

Natural environment

Mental health-friendly urban planning creates possibilities for social interaction and provides access to green (vegetation) and blue (water) spaces. There is a growing body of evidence, albeit mainly from cross-sectional studies, indicating that green space in particular is protective for the mental health of children and adults (178, 179). For example, data from more than 95,000 adults in the UK Biobank found significantly lower rates of major depression in individuals living in areas with higher levels of vegetation (180). This all suggests that there is a case for looking at mental health related economic benefits of more investment in better designed and accessible green (and blue) spaces, particularly in cities (180).

Problematic gambling

There is increasing evidence of the broad costs of problematic gambling (181), with estimated costs conservatively in the UK of £1.27 billion per annum (182), but as yet there are very few studies that have looked at the cost-effectiveness of measures to prevent this behaviour (181). A similar issue is gaming addiction, which also can involve in-game purchasing.

7. Discussion

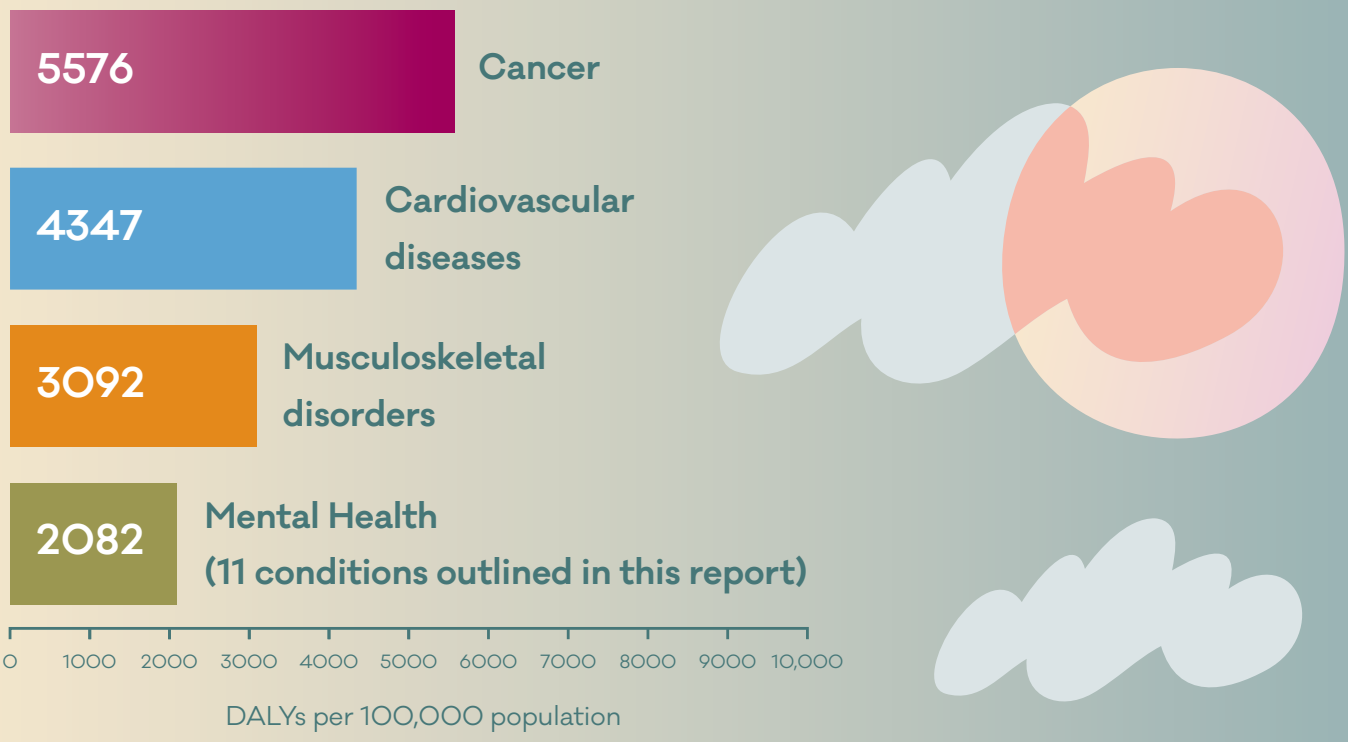
7. Discussion

Substantial economic impact

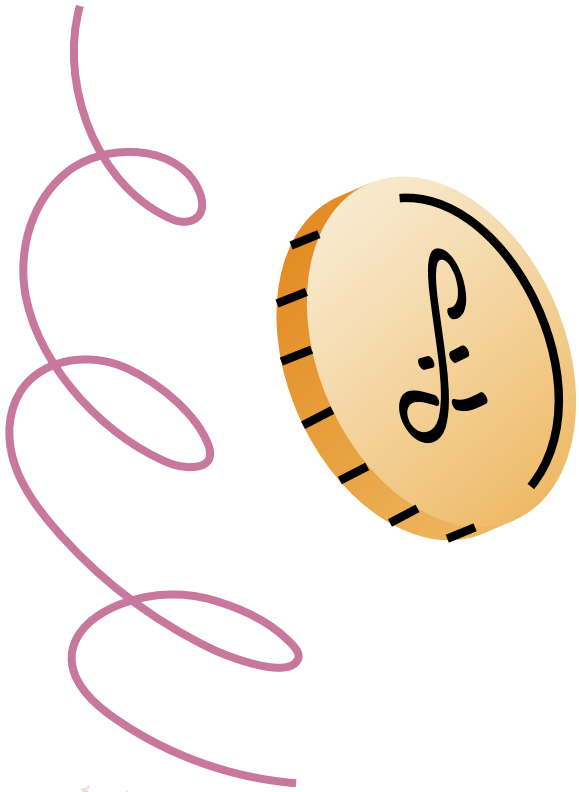
Mental health conditions examined in this report account for 7% of all disability adjusted life years (DALYs) in the UK. **In terms of the GBD's DALY metric, indicating the total burden of disease, our cluster of 11 mental health conditions is the fourth leading cause of DALYs in the UK.** The leading cause is cancer, with 5,576 DALYS per 100,000 population, followed by cardiovascular diseases, with 4,347 DALYs per 100,000 population, then musculoskeletal disorders 3,092 DALYs and then our 11 mental health conditions with 2,082 DALYs. DALYs for the mental health conditions are greater than neurological conditions including dementia, diabetes and chronic kidney disease.

The GBD also estimates the total number of years lived with disability (YLDs); this number looks just at the morbidity (illness) associated with health conditions but does not include mortality impacts. When using this measure, **because many mental health conditions can be chronic and enduring, they are the second leading cause of YLDs,** only musculoskeletal disorders contribute more YLDs in the UK in 2019. Cancer and cardiovascular disease are only 13th and 11th respectively in contributing to total YLDs in the UK in 2019.

Our analysis suggests that the annual costs to UK society for these mental health conditions are almost £118 billion per annum. Including health and quality of life impacts associated with self-harm and suicide would increase these costs to more than £125 billion per annum. Even if just a small fraction of these costs can be



avoided through better preventive measures and appropriate support for people with mental health conditions, this will have a real impact. To put this figure into some context, the monetary costs of the NHS in England in 2019/20 were £150.4 billion, whilst the cost of the furlough scheme to protect the income of workers during the COVID pandemic was approximately £70 billion. While it is not easy to make direct comparisons with estimates of costs for other conditions, in part because of differences in methodologies and the scope of these studies, but also because this is not a competition between health conditions, many of which can be interlinked, such as diabetes and poor mental health, these costs are clearly substantial.



Mental health conditions are the 2nd leading cause of YLDs in UK

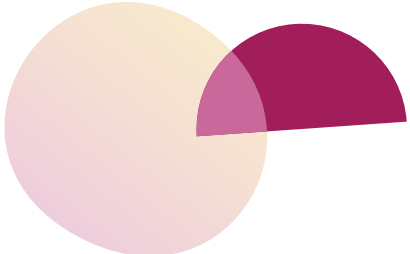
Notwithstanding these major methodological caveats, some sense of how substantial these costs are may be seen by looking at some other recent estimates of health condition costs. For instance, the annual costs of cardiovascular disease in England, albeit not including quality of life costs, have been estimated to be at least £15.8 billion per annum (183).

We would stress that our estimate of costs is conservative. Although health system costs only accounted for 11% of total costs, we have not captured all primary health care costs, nor have we included the excess physical health impacts associated with mental health impacts, and vice versa. The GBD mental health condition categories did not include alcohol or substance abuse conditions nor dementia. These conditions are not included in our estimate of costs, other than use of specialist mental health services for those with a comorbid mental health condition. In workplaces we have not included costs associated with presenteeism and absenteeism from work. We also have not included any costs associated with work-related stress and sub-threshold mental health conditions. We also noted that there are additional mental health-related expenditures in schools that we have not included in our estimate of costs. We also did not include the administrative costs associated with payment of social welfare benefits to people with mental health conditions, only the amounts of the benefits themselves.

Moreover, although we know quite a lot about the long-term economic impacts of poor mental health, particularly for conditions that emerge in childhood, there remain major gaps in what we know about long-term impacts. There may be opportunities to make more use of existing longitudinal datasets as well as using registry data across the four jurisdictions to look at use of services and their impacts on outcomes. These analyses need to look at impacts beyond health, social care and welfare systems, and for instance consider the more long-term impacts on life chances to capture more of these wider impacts. They also need to fully capture the impacts of poor mental health on poor physical health (and vice versa), as well as long-term impacts on carers, and on the children of people living with mental health conditions.

While not all the costs of mental health conditions are avoidable, actions that can prevent even a small fraction of these costs potentially could be highly cost effective, as well as reducing the levels of mental distress in our society.

We undertook a rapid review, drawing mainly on evidence from existing systematic reviews, and some recent individual studies, to look at the availability of cost-effective actions to prevent the development of mental health conditions.



Cost-effective actions can be taken

Our review indicates that there is an ever-growing evidence base of studies supporting cost-effective interventions to prevent mental health problems, many of which have been carried out in a UK context. We can point to cost-effective actions to support mothers and young children, a myriad of parenting programmes and measures for young people, many of which are delivered in school-based settings. For working-age adults much of the economic evidence base has focused on different types of psychological support, including brief cognitive therapies, and emerging evidence on mindfulness-based therapies. Most of these economic studies focus on prevention of depression. In addition, there is some evidence on exercise to prevent depression, as well as some limited evidence on measures to tackle risks to mental health from financial distress.

From a public health perspective, the workplace is an important setting where actions can be taken to promote and protect mental health. In the UK and elsewhere (for example Canada) there is a recognition of the importance of actions in the workplace (126, 184). Many of these actions don't however lend themselves easily to economic evaluation, such as promoting a more mentally healthy workplace culture, flexible working and job satisfaction. This means that most of the economic evidence is focused on measures targeted specifically at individuals rather than workplace structures, including brief individual psychological interventions as well as individual or group-based exercise programmes that have been reported cost-effective from an employer perspective.

Many adults have to juggle work with caring responsibilities, and

we saw that informal care accounted for 36% of all the costs of mental health. Evidence of cost-effective interventions for carers is still very limited. In contrast the evidence on preventing mental health conditions, especially depression and anxiety, in people living with long term health conditions, particularly cancer, appears stronger. Most interventions took the form of brief psychological support such as CBT or mindfulness-based therapy and were generally positive.

For older people there is evidence from a small number of economic studies that psychological therapies delivered to at risk populations such as the bereaved can be cost-effective and protect mental health. There is also increased interest in tackling loneliness as a risk factor for depression, with some evidence on the cost effectiveness of group-based activities. However, there is a need to be cautious, as studies thus far have been generally small in size.

Looking at suicide there is some evidence base on cost-effective actions for prevention, most notably restricting access to means. Multi-component strategies that include measures to address depression, including in workplace settings, may be cost-effective. In respect of self-harm better psychosocial assessment and subsequent care for people who present to hospital for self-harm may also be cost effective.

Knowledge gaps

While our brief review has highlighted a broad range of interventions for the prevention of mental ill health where some economic evidence is available, there are many gaps in knowledge. Where we have evidence of cost-effective actions it is also important to look at the economic case for combinations of interventions rather than interventions in isolation. There also appears to be relatively little attention placed on inequalities in capacity to benefit between different population groups (such as people experiencing various types of socio-economic or cultural inequality) – greater levels of resources and varied approaches may be needed to reach and support some population groups. The cost-effectiveness of measures to reach these different groups can also be assessed.

Strategically, it is also helpful for economic studies to report findings over different time periods; many preventive interventions will take a number of years to generate all their benefits, but electoral cycles are four or five years at most. While it is essential to flag up any short-term benefits to help increase support for interventions, we also need studies that look at impacts over longer time periods. Many of the benefits of prevention may last over many years; studies that focus solely on short-term outcomes may undersell the value of prevention. If, for example, an intervention prevents depression in the workplace, this may lead to continued participation in work over many years and where feasible, again using data for longitudinal cohort studies and registries, it would be helpful to make use of this evidence. The same would be true for example for early years' interventions, including health visitor support and parenting programmes.

More could be done to evaluate the impact of addressing some of the social determinants of health that impact on mental health, such as poverty, job insecurity and macro-economic shocks. The cost-effectiveness of measures to address child poverty may be of particular concern given that poverty could have a very critical impact on child development and subsequent lifetime opportunities. More is also needed on cost-effective measures to prevent child abuse and neglect, as well as domestic violence, as they can have profound and very long-term impacts on mental health. In the case of child abuse, the lifetime costs of non-fatal child maltreatment by a parent have recently been estimated to be £89,390; in the case of a child death these lifetime costs to society are estimated to be £940,758 (185).

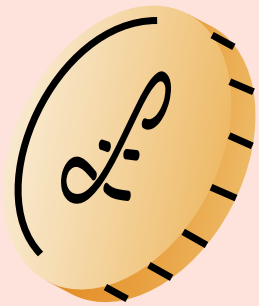
Other gaps include measures to improve access to decent housing, as well as measures to protect the mental health of workers who experience job insecurity and/or have been recently made redundant. The impacts of active labour market programmes on mental health can be assessed. There have also been few economic evaluations on the value of better access to a more green and clean natural environment, as well as tackling harmful behaviours such as problematic gambling

and problematic use of the internet. We have noted more information is needed on measures to tackle loneliness in older people; more is also needed on measures to tackle loneliness in other age groups; the BBC Loneliness Experiment revealed that the highest rates of loneliness are in young adults aged 16-24 (186).

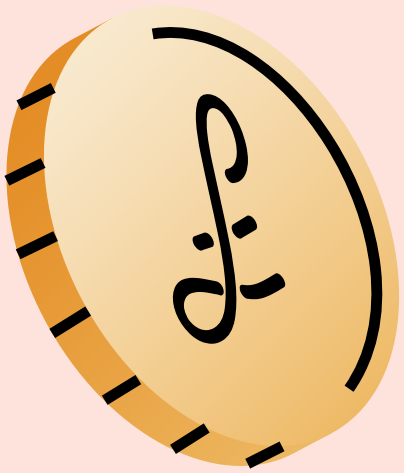
A different type of gap is the need for more evidence that will appeal to funders outside of health systems. Our review also indicates that many cost-effective interventions to prevent mental health conditions are multi-sectoral and often delivered entirely outside the health sector. Return on investment studies can help to demonstrate the potential economic impacts across sectors, but it is also essential to collect more information, not just on mental health outcomes, but on outcomes that are of relevance to those sectors. For example, when looking at the prevention of mental health conditions in schools, to also look at impacts on educational performance.

It is also noteworthy that much of the evidence we have identified is from economic evaluations alongside controlled trials. While trials are considered a very robust research design, their results are not necessarily replicated in the real world, outside of trial conditions, where for example high levels of fidelity in the delivery of interventions may be challenging. Moreover, they typically only cover short time periods and not time periods of two years or more. In areas where economic evidence continues to be limited, modelling studies can help by estimating plausible long term effects of interventions, as well as looking at the impact of differing levels of fidelity. More generally it is also important not just to look at cost-effectiveness of interventions but at the cost-effectiveness of the implementation process in using already proven cost-effective interventions.

There are also opportunities to make more use of different forms of research design to assess the economic impact of policy interventions. While some of this is feasible using randomised controlled trials, other forms of evaluation that take account of natural variations in the measures to address social determinants of health are needed. For instance, there may be opportunities to look at how differences in mental health and welfare policies in the four jurisdictions of the UK may be associated with differences in mental health and economic outcomes. Countries have invested heavily in social protection measures during the pandemic, with likely impacts on mental wellbeing (187). The COVID-19 pandemic also potentially provides opportunities to explore whether differences in packages of support, and the duration of this support, across the four jurisdictions may have an impact on mental health outcomes.



8. Conclusion and recommendations



8. Conclusion and recommendations

Our report indicates that there are substantial costs associated with mental health conditions, most of which do not fall on health care systems.

There is also an evidence base demonstrating that prevention can be cost-effective. The arguments for investing in measures to protect and support mental health may take on even more significance at a time when there may be long term effects of the pandemic, with implications for the public policy response on population mental health (188). Here, we propose a number of recommendations to help facilitate an increased focus on actions to prevent the onset of mental health conditions. In doing this we recognise that the organisation and funding of public health varies considerably between the four jurisdictions of the UK. In England, for example, local authorities are responsible for much public health activity. While we recognise that some local areas have long standing commitments to invest in public mental health strategies, that have been informed by economic evidence, for instance in Warwickshire (189) as well as recent but very long term local initiatives to promote mental health such as Thrive Bristol (190), there is much scope for more strategic planning and implementation of mental health prevention strategies.

Recommendations

- **The evidence is clear that it is the places and circumstances in which people are born, grow, study, live and work that have a powerful influence on their mental health. As part of their public health and mental health strategies UK and devolved governments should increase investment in evidenced interventions for public health and prevention of health problems, including the prevention of mental health problems.**
- **We recommend that governments and the health service use a public health lens to identify this increased funding for prevention, recognising that it can alleviate pressures on secondary-care services. Improved and sustained**

investment in public health should match the rate of budget increase of the NHS, with a proportion earmarked for public mental health.

- There should be national reporting not only on levels of funding allocated to public health and prevention within and beyond the NHS and local government, but also on how funding is spent, so that the level of funding allocated locally to public mental health is more transparent and can be better estimated.

- Funding and action in many areas of government not formally termed either 'public health' or 'mental health', such as economic and benefits policies, can have some of the greatest impacts on mental health. Development of national and local mental health strategies should take a cross-departmental approach that incorporates action beyond health and public health systems that can prevent mental health problems and promote good mental health, recognising the benefits of improved preventive work in mental health for other life outcomes.

- It is important to better understand the extent to which prevention actions are being delivered across the UK. As part of their mental health strategies, UK and devolved governments should carry out a mapping exercise to identify the extent, levels of funding and geographical availability of effective mental health prevention interventions, delivered across the UK. In England, for example, there may be ways to capture more information on resources invested in prevention in the mental health dashboard and through progress made by signatories to the Prevention Concordat for Better Mental Health (191).

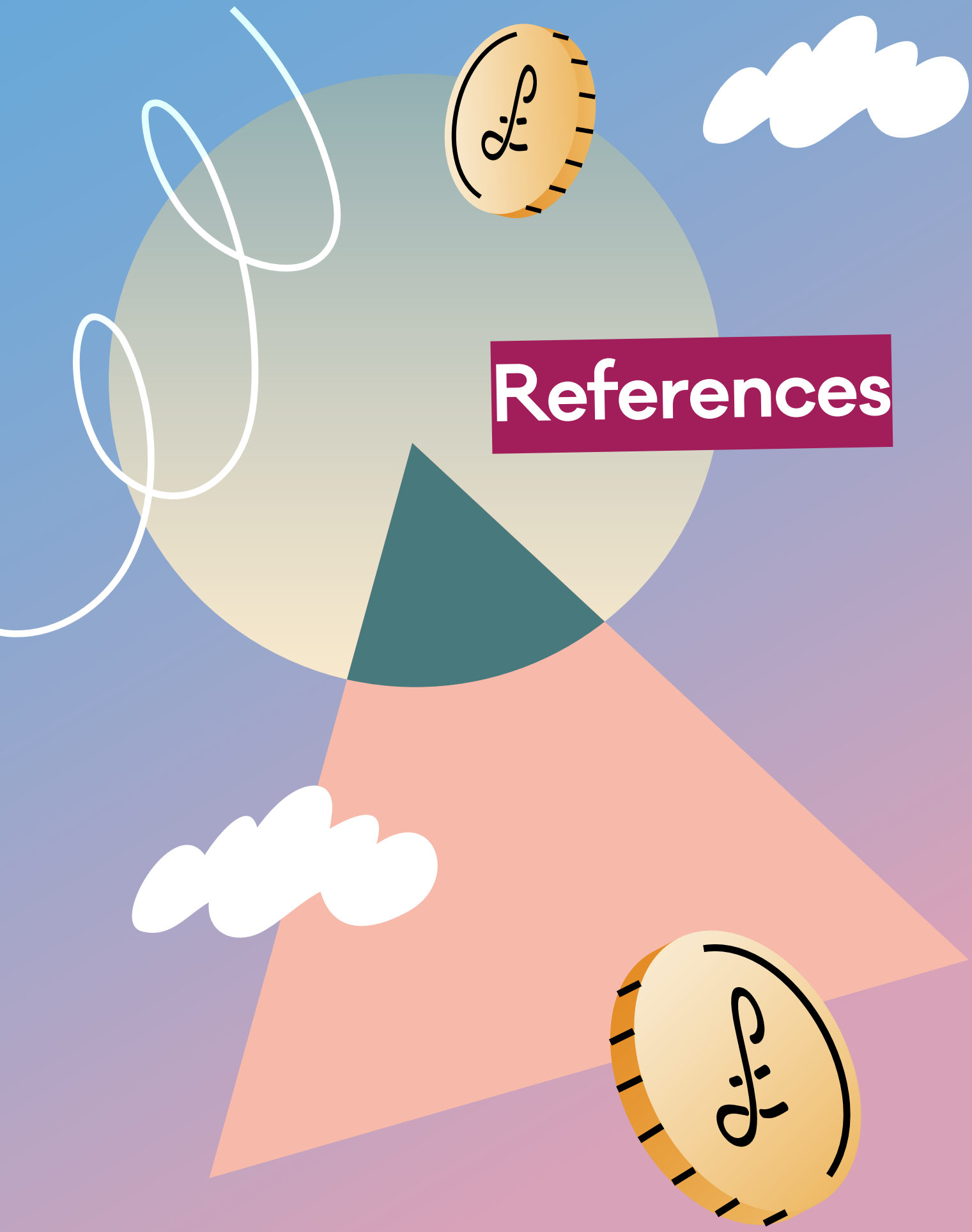
- Each devolved government should build on existing prevention initiatives to plan how they can help to scale up access to cost-effective interventions to prevent mental ill-health through local government (including social care), the NHS, the Voluntary, Community and Social Enterprise Sectors and other potential funders. This could build on cross-sectoral plans that have been developed for mental health recovery during and after the pandemic, such as Scotland's Transition and Recovery Plan and the Community Mental Health and Wellbeing Fund, the new mental health strategy that succeeds Together for Mental Health in Wales, and experience from existing initiatives in England to develop prevention work at the local level, such as through the Prevention Concordat for Better Mental Health and the Better Mental Health Prevention and the Promotion Fund.

- National mental health COVID recovery plans should include sustained implementation of cost-effective interventions to prevent mental health problems, recognising that the mental health impacts of the pandemic are extensive, and will persist for many years to come.

- UK and devolved governments should support research to increase knowledge about cost-effective interventions. Specific knowledge gaps that can be explored include the impacts of structural interventions such as action on child poverty, as well as measures to reduce inequalities in access to and uptake of cost-effective prevention initiatives. This research should also look at the cost-effectiveness of multiple versus individual interventions, as well as a 'stepped care' approach to prevention. There is scope for further work to address some gaps in existing knowledge, for example

addressing the risk of problematic gambling, protecting the mental health of carers, and gaps in knowledge of interventions at different times in the life course, such as the transition from adolescence to adulthood.

- To address the challenge presented by the relatively short electoral cycle for demonstrating long-term effectiveness of preventive action, UK and devolved governments should invest in research that also considers the long-term costs and benefits of prevention and not just their short-term impacts. This could be achieved through initiatives to embed future generations considerations in public policy. An example is the Wellbeing of Future Generations Act in Wales, which requires all public bodies to think about the long-term impact of their decisions, and to work better with communities to prevent persistent problems such as poverty and health inequalities.



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Appendices

Table A1

Information on illustrative studies on the economic case for prevention across the life course

PERINATAL PERIOD AND PRE-SCHOOL CHILDREN

Author (year), country	Target population	Intervention details (study design, description of intervention and any comparator)	Prevention focus	Focus / Setting / Timeframe	Perspective / Price Year / Currency	Type of economic analysis	Summary Findings
Asper[1] (2018), Sweden	Fathers	Modelling study comparing post-partum depression screening to no screening	Post-partum Depression	Selective / Community / 10 years	Societal / 2016 / Euros (€s)	CUA	Screening cost (€28 494) compared to the no screening cost (€29 561). The screening led to an increase in QALY 's of 0.03. the screening programme dominates the no screening programme.
Henderson[2] (2019), UK	Mothers	RCT comparing intervention health visitor trained in assessing post-natal depressive symptoms, cognitive behavioural or tailored psychological support to prevent depression with usual health visitor care	Post-natal depression	Universal / Community / 6 months	Health acre / 2003/4 / UK (£s)	CUA	Costs were £82 lower in intervention compared to control groups, with 0.002 additional QALY gained. There was 99% probability of being cost-effective at £20,000/QALY.
Dukhovny[3] (2013), Canada	Mothers	RCT comparing telephone peer-support with usual care	Post-partum depression	Selective / Community / 12 weeks	Societal / 2011 / Canada ($)	CEA	Cost per mother was $4,497 in the peer support group versus $3,380 in the usual care group (more costly by $1,117). The cost per case of postpartum depression averted was $20,196 with a 95% probability of being cost-effective.

Key: CBS – Cost Benefit Analysis, CEA –Cost Effectiveness Analysis, CUA – Cost Utility Analysis, ROI – Return on Investment Analysis, ICER – Incremental Cost Effectiveness Ratio (Additional Cost per Additional Outcome Gained)

Table A1

Information on illustrative studies on the economic case for prevention across the life course

SCHOOL AGE CHILDREN							
Author (year), country	Target population	Intervention details (study design, description of intervention and any comparator)	Prevention focus	Focus / Setting / Timeframe	Perspective / Price Year / Currency	Type of economic analysis	Summary Findings
Beckman[4] (2015), Sweden	All children aged 12-16	Modelling study comparing Olweus bullying prevention programme to no intervention	Victim of bullying	Universal / School / Under 10 years	Public payer / 2013 / Swedish Kronor (SEK)	CEA	Cost per pupil of SEK 4,079 over 3 years with a gain of 0.03 bullying victim free years. Cost per victim of bullying avoided was SEK 131,250 – a value considered cost effective in a Swedish context.
Chatterton[5] (2020), Australia	Children aged 4 with signs of anxiety and/or depression (and Parents)	RCT comparing parenting programme (Cool Little Kids) with usual care	Internalising disorders	Indicative / Pre-schools / 1 year	Societal / 2012-3 / Australian dollars ($AUD)	CEA/CUA	For children: Societal costs were non-significantly lower. The intervention showed significantly fewer internalising symptoms (Strengths and Difficulties Questionnaire (SDQ). ICER=$1,171 per SDQ-emotional symptom reduction, $51 per abnormal SDQ avoided, and $77per anxiety case avoided. For parents the intervention was associated with reduced quality of life at lower cost. Health sector cost/QALY: ICER=$130,373 (Intervention had $429 lower costs and 0.003 lower QALY). Societal cost/QALY: ICER=$475,213 ($1564 lower cost and 0.003 lower QALY)
Gardner[6] (2017), UK	All Children aged 5 (and Parents)	Parenting Programmes (Incredible Years)	Externalising Disorders	Universal / Community / Over 10 years	Societal / 2014 / Pounds (£)	ROI	Return on Investment of £4.57 for every £1 invested.
Herman[7] (2015), USA	Divorced mothers with children aged 9-12 (Mothers only)	RCT comparing two types of parenting programmes (New Beginnings)-a single-component parenting-after-divorce program (Mother Program, MP) and a two-component parenting-after-divorce and child-coping program (Mother-Plus-Child Program, MPCP), to costs of a literature control (LC).	Unspecified	Selective / Community / Over 10 years	Societal / 2007 / US dollars ($)	CBA	The monetary benefits in the 15th year after programme completed, were $1630/family (discounted benefits $1077/family) for 1 year benefit.
Lee[8] (2017), Australia	Children (students) aged 11-17	Modelling comparing psychological support with no intervention	Depression	Universal and Indicated / Primary, secondary schools / Over 10 years	Societal / 2013 / Australian dollars ($AUD)	CEA	For universal psychological intervention: $7,350 per DALY averted (dominant). For indicative psychological intervention: $19, 550 per DALY averted.
Lee[9] (2021), Australia	Students aged 11-17	Modelling comparing E-health intervention (MoodGym) with no intervention.	Anxiety	Universal / Schools / Over 10 years	Societal / 2016 / Australian dollars ($AUD)	CUA, ROI	CUA: dominant (less costly and more QALY gained), ROI: $3.06 for every $1 invested
Lynch[10] (2019), USA	Children aged 13-17	RCT comparing cognitive-behavioural prevention program (CBP) to usual care.	Depression	Selective indicative / Community / 33 months	Societal / Not reported / US dollars ($)	CUA	At 9 months, ICER= $24,558 per QALY, For children's parents not depressed at Baseline: ICER=$10,498 per QALY. At 33 months, ICER=$12,787 per QALY, children' parents not depressed at baseline: ICER=$13,620 per QALY. For children with a currently depressed parent at baseline, costs were greater and not significantly more effective.
Nystrand[11] (2020), Sweden	All children aged 5 – 12 (and their parents)	Modelling study comparing 4 parenting programmes: Incredible Years, Comet, Connect, COPE and a parenting self-help book.	Behavioural problems and ADHD	Universal / Community / Over 10 years	Societal / 2015 / Euros (€s)	CBA	All interventions had positive cost benefit ratios. Most favourable for parenting self-help book. Incredible Years: 5.96, Comet: 7, Connect:10.61, COPE: 15.8, parenting self-help book: 328.04.
McDaid[12] (2017), UK	All children aged 9 -15	Modelling study comparing KIVA bullying prevention programme to usual school support	Victims of bullying	Universal / School / Over 10 years	Societal / 2015 / UK (£s)	ROI	Return on Investment of £7.52 for every £1 invested.
Persson[13] (2018), Sweden	All Children 6-16	Modelling study comparing KIVA bullying prevention programme to usual school support	Internalising disorders	Universal / School / Under 10 years	Other sector / 2017 / Euros (€)	CUA	KiVa were €829 more costly and more effective in gaining 0.47 victim-free years per student. Cost per QALY gained: €13,823, cost-effective at the threshold value of €50,000 in Sweden.
Philipsson14 (2013), Sweden	Girls aged 13-18	RCT comparing a dance intervention plus usual school health services to usual school health services	Internalising problems	Universal / School / 20 months	Societal / 2011 / US dollars ($)	CUA	At 20 months, the incremental cost-effectiveness ratio was USD $3,830 per QALY, with a 95% chance being cost-effective.
Ssegonja15 (2020), Sweden	Adolescents (first year high school students)	Modelling comparing group based cognitive behavioural therapy (GB-CBT) with no intervention	Depression	Indicative / School / 5-10 years	Societal / 2018 / US dollars ($)	CEA,CUA	Lower costs and more QALY gained, cost-saving, dominant. ICER=$-1,884 at 5 years and $-2,752 at 10 years.
Washington Institute for Public Policy[14], (2019)	Children aged 5 and their parents	Modelling study comparing Incredible Years parenting intervention to no action	Behavioural Problems in Children and Depression / Anxiety in Parents	Indicative / Community / Over 10 years	Societal / 2018 / US dollars ($)	CBA ,	Positive benefit to cost ratio of $5.65 per $1 spent
Washington Institute for Public Policy[15] (2020)	Children aged 4	Modelling study comparing Triple P – Positive Parenting Programme to no action	Behavioural Problems in Children and Child Abuse / Neglect	Universal / Community / Over 10 years	Societal / 2018 / US dollars ($)	CBA	Positive benefit to cost ratio of $7.78 per $1 spent
Washington Institute for Public Policy[16] (2020)	Children aged 8	Modelling study comparing Oregon model parent management training to no action	Behavioural Problems in Children and Depression in Adulthood	Universal / Community / Over 10 years	Societal / 2018 / US dollars ($)	CBA	Positive benefit to cost ratio of $9.30 per $1 spent

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Table A1

Information on illustrative studies on the economic case for prevention across the life course

ADULTS							
Author (year), country	Target population	Intervention details (study design, description of intervention and any comparator)	Prevention focus	Focus / Setting / Timeframe	Perspective / Price Year / Currency	Type of economic analysis	Summary Findings
Fernandez[17] (2018), Spain	Adults aged 18 - 75	RCT comparing psychosocial personalised advice (dependent on depression risk level) to empower and activate people with usual GP care.	Anxiety and/or Depression	Universal / Primary Care / 18 months	Societal / 2012 / Euros (€)	CUA	Intervention was associated with better outcomes and lower costs than usual care. 96% chance of being cost effective at willingness to pay threshold of €30,000.
Kumar[18] (2018), USA	Adults	Mobile and traditional cognitive behavioural therapy programmes, compared traditional CBT and no CBT	Generalized anxiety disorder	Universal / Community / Lifetime	Societal, payer / 2016 / US dollars ($)	CUA	Preventive mobile CBT versus traditional CBT: cost-saving, reduced costs $ 1,926 million and 28,959 QALY gained. Mobile CBT versus no CBT: $4,152 million reductions in costs and 76,568 QALY gained.
Müller[19] (2019) Germany	Adults with statutory health insurance funds	Non-RCT using propensity score matching, comparing mindfulness-based mental health prevention programme to usual care	Depression	Universal / Community / 12 months	Societal / 2014-15 / Euros (€)	CEA	From a societal perspective, prevention was cost-effective. €-57 less costly and 1.97 units more effective on the HADS, ICER=€-29 (savings) per unit improvement.
Smit[20] (2006), Netherlands	Adults aged 18-65	RCT comparing Minimal contact psychotherapy plus usual care to usual care only	Depression	Indicative / Primary Care / 12 months	Societal / 2003 / Euros (€)	CEA	Intervention was associated with lower costs and better outcomes than usual care only. 75% chance of being cost effective if society willing to pay €30,000 per depressive episode avoided.
Sun[21] (2021), Singapore	Adults aged 18 and over	RCT comparing group-based behavioural activation with mindfulness (BAM) to usual care	Depression	Selective / Community / 12 months	Societal / 2015 / US dollars ($)	CEA, CUA	ICER=$5,979 per QALY with a 93% probability being cost-effective. ICER=$1046 per major depression case prevented (99% cost-effective).
van den Berg[22] (2011), The Netherlands	Adults aged 20-65	Modelling comparing opportunistic Screening and minimal contact psychotherapy to usual practice	Depression	Indicative / Community / 5 years	Societal / 2008 / Euros (€)	CUA	From the health care perspective the incremental cost-effectiveness ratio=€1,400 per DALY. From the societal perspective, the intervention was cost-saving at a willingness to pay of €20,000 per DALY, with 80% being cost-effective.

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Table A1

Information on illustrative studies on the economic case for prevention across the life course

WORKPLACE							
Author (year), country	Target population	Intervention details (study design, description of intervention and any comparator)	Prevention focus	Focus / Setting / Timeframe	Perspective / Price Year / Currency	Type of economic analysis	Summary Findings
Matrix[23] (2013), EU	Workers	Modelling study of workplace improvement programme. Engages employees and supervisors to assess the work environment for potential risk factors which could cause poor mental health.	Depression	Universal / Workplace / Up to 5 years	Societal / 2011 / Euros (€)	CBA	Positive return on investment of €11.79 for every €`1 invested. Programme cost per employee €16; return on investment €170. Includes savings to health care system through reduced mental health service use and reduced costs to employers.
Knapp[24] (2011) UK	White collar workers	Modelling study drawing on RCT data. Screening and brief cognitive behavioural therapy for at risk workers	Depression and /or anxiety disorders	Selective / Workplace / 1 year	Societal / 2009 / UK (£s)	ROI	Positive return on investment of £5 for every £1 spent.
McDaid[12] (2017) UK	Workers	Modelling study drawing on data from a workplace (local government) wellbeing programme	Depression and stress	Universal / Workplace / 2 year	Societal / 2015 / UK (£s)	ROI	Positive return on investment of $2 for every £1 spent.
Le[25] (2021) Australia	Workers	Modelling study of face-to-face CBT offered to all employees in large-sized Australian businesses	Depression, anxiety, stress and/or insomnia	Universal / Workplace / Over 10 years	Societal / 2016 / Australian $	CUA, ROI	Cost per QALY gained of $57,291 with return on investment of $0.28 for every $1 spent.
Le[25] (2021) Australia	Workers	Modelling study of an online, guided self-help program (eSMI) offered to employees who have an elevated risk of poor mental health	Depression, anxiety, stress and/or insomnia	Selective / Workplace / Over 10 years	Societal / 2016 / Australian $	CUA, ROI	Online self help programme had lower costs and better outcomes. Also had a positive return on investment of $1 05 for every $1 spent

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Table A1

Information on illustrative studies on the economic case for prevention across the life course

CARERS							
Author (year), country	Target population	Intervention details (study design, description of intervention and any comparator)	Prevention focus	Focus / Setting / Timeframe	Perspective / Price Year / Currency	Type of economic analysis	Summary Findings
Charlesworth[26] (2008) UK	People aged 18 and over with dementia and carers	RCT comparing a social support intervention (access to an employed befriending facilitator plus usual care) to usual care only	Dementia	Indicative / Community / 2 years	Societal / 2005 / UK (£s)	CUA	ICER= £100,000 per QALY gained with a 42.2% probability being cost-effective at £30,000 per QALY gained.
Joling[27] (2013) The Netherlands	Adult informal carers of dementia	RCT comparing a family meetings intervention for family caregivers of dementia patients to usual care	Depression, anxiety	Indicative / Community / 12 months	Societal / 2009 / Euros (€)	CUA	No significant differences in costs and effects between the two groups. At 12 months, total costs per patient and caregiver pair for the intervention were €4149 higher than the control group, ICER=€ 157,534, not cost-effective.
Livingston[28] (2020) UK	Adult carers	RCT comparing the START (STrAtegies for RelaTives) psychological intervention for family carers to usual care	Anxiety, depression	Indicative / Community / 72 months	Societal / 2009-10 / UK (£s)	CEA	The intervention group had better outcomes on HADS-T. Patient-related costs for START=£5759 versus £16,964 for usual care. Carer-related costs: £377 versus £274 with no significant difference.
Patchwood[29] (2021) UK	Adult carers for stroke survivors	RCT comparing the Carer Support Needs Assessment Tool for Stroke (facilitated by staff, led by carers) to usual care	Carer strain	Indicative / Community / 3 months	Societal / 2018 / Pounds (£)	CUA	Intervention costs were higher than the control group with no extra QALY gained. Intervention was dominated.
Vandepitte (2020) Belgium	Family carers of people with dementia	Modelling comparing an in-home respite care programme plus standard community-based dementia care to support informal caregivers for people with dementia to standard community-based dementia care	Career burden	Indicative / Community / 5 years	Societal / 2018 / Euros (€)	CUA	From a third-party payers perspective, ICER=€9,042 per QALY gained and from a societal perspective ICER=€8,690/QALY gained. The intervention is cost-effective.

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Table A1

Information on illustrative studies on the economic case for prevention across the life course

CHRONIC PHYSICAL HEALTH CONDITIONS

Author (year), country	Target population	Intervention details (study design, description of intervention and any comparator)	Prevention focus	Focus / Setting / Timeframe	Perspective / Price Year / Currency	Type of economic analysis	Summary Findings
Arving (2014) Sweden	Adults with breast cancer patients (mean age=55)	RCT comparing psychosocial support from a specially trained nurse (INS), from a psychologist (IPS) to standard care (SC).	Anxiety, depression	Indicative / Community / 2 years	Health care / 2006 / Euros (€)	CUA	Intervention groups were less costly and more effective. Costs were €18,670 (INS), €20,419 (IPS), and the control group (€25,800). Higher QALY gained in the INS (1.52 QALY) and IPS (1.59 QALY), than the SC group (1.43 QALY).
Compen (2019) The Netherlands	Adults with cancer	RCT comparing group-based face-to-face Mindfulness-Based Cognitive Therapy (MBCT) and individual internet-based MBCT (eMBCT) with usual care	Stress	Indicative / Community / 12 months	Societal / 2016 / Euros (€)	CUA	At 3 months, societal costs were lower in both groups and better quality of life. Incremental net monetary benefit= €1916 in eMBCT and €2365 (MBCT versus usual care). At 12 months, less costly and more effective.
Sabariego[30] (2011) Germany	Adult cancer patients	RCT comparing a group cognitive-behavioural therapy (CBT) to a client-centred, supportive-experiential group therapy (SET)	Fear of progression	Indicative / Community / 12 months	Societal / 2004 / Euros (€)	CUA	ICER= €78,741.66 with a 92.5 % probability of being cost-effective.
van Dijk[31] (2021) The Netherlands	Adults	RCT comparing stepped care program to prevent major depression (Step-Dep) in diabetes mellitus type 2 and/or coronary heart disease patients with subthreshold depression to usual care	Depression	Indicative / Community / 12 months	Societal / 2014 / Euros (€)	CEA, CUA	No difference in QALYs or depression between the two groups. Costs were €1000 higher in the intervention group than the control group, but no significant difference. The intervention had a 41% chance being cost-effective at €30,000 per QALY gained and a 32% €0 per major depression case prevented.

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Table A1

Information on illustrative studies on the economic case for prevention across the life course

SELF-HARM AND SUICIDE PREVENTION

Author (year), country	Target population	Intervention details (study design, description of intervention and any comparator)	Prevention focus	Focus / Setting / Timeframe	Perspective / Price Year / Currency	Type of economic analysis	Summary Findings
Ahern[32] (2018), Austria, Estonia, France, Germany, Hungary, Ireland, Italy, Romania, Slovenia, and Spain	Children (mean age=14.8 year)	The large pan-European RCT, comparing school-based suicide prevention programmes, Saving and Empowering Young Lives in Europe (SEYLE) to the control group	Suicide attempt, severe suicidal ideation with suicide plans	Universal / School / 12 months	Payer / 2010 / Euros (€)	CEA, CUA	The Youth Aware of Mental Health (YAM) programme: ICER= €34.83 per 1% point reduction in incident suicide attempt, €45.42 per incident severe suicidal ideation avoided. Cost per QALY gained= €47,017 for suicide attempt and €48,216 for severe suicidal ideation. There was a 39% probability of being cost-effective at pay of €47,000. For severe suicidal ideation, 43% at €48,000 threshold values.
Doran[33] (2015) Australia	Male construction industry workers	Modelling study linked to pre-post evaluation of a workplace suicide prevention strategy, involving awareness raising, and training 'connector workers' to keep workers safe, whilst linking them to suicide intervention skills trained workers.	Suicide	Universal / Workplace / 5 years	Society / 2010 / Australian $	ROI	In Queensland programme associated with 0.4 fewer suicides per year, as well as fewer permanent injuries and sickness absence. There was a positive return on investment of $4.6 for every $1 invested.
Law[34] (2011) Hong Kong	All	Modelling setting up physical barriers in railway stations, platform screen doors (PSDs) for preventing railway injury	Self-harm?	Universal / Community / 5 years	Societal / 2002 / US dollars ($)	CUA	The PSD installation led to a 68.7% reduction in railway injuries over 5 years. The intervention is cost-effective if fare revenue and passengers' waiting time lost plus DALY were considered. ICER=$65,400, given acceptable $77,900 threshold.
McDaid[12] (2017) UK	Adolescents and Adults presenting at hospital with suspected self- harm	Modelling study looking at use of psychosocial assessment in Accident & Emergency for self-harm risk compared with no assessment	Self-harm and suicide	Indicative / Hospital / Up to 10 years	Societal and Public Purse / 2015 / UK (£s)	ROI	Positive ROI of £39.11 for every £1 spent from societal perspective. From a narrower public purse perspective positive return of £2.93 per £1 spent.
McDaid[35] (2022) UK	Adolescents and Adults presenting at hospital with suspected self- harm	Modelling study looking at use of psychosocial assessment in Accident & Emergency for self-harm risk compared with no assessment making use of self harm data from Multi-Centre Study of Self-Harm in England.	Self-harm and suicide	Indicative / Hospital / 2 years	Health care and partial societal perspective / 2020 / UK (£s)	CUA	Cost per QALY gained was £10,962 and £9,980 from health care and societal perspectives. 78% chance of being cost effective at willingness to pay threshold per QALY gained of £20,000.
Vasiliadis[36] (2015) Canada	General population	Modelling study of an area wide suicide prevention intervention programme, including awareness raising, training gatekeepers, restricting access to means	Suicide and depression	Universal / Community / 1 year	Societal / 2010 / Canadian $	CEA	Cost per life year saved of $3,979 – potentially cost effective

Key: CBS – Cost Benefit Analysis, CEA –Cost Effectiveness Analysis, CUA – Cost Utility Analysis, ROI – Return on Investment Analysis, ICER – Incremental Cost Effectiveness Ratio (Additional Cost per Additional Outcome Gained)

Table A1

Information on illustrative studies on the economic case for prevention across the life course

OLDER PEOPLE							
Author (year), country	Target population	Intervention details (study design, description of intervention and any comparator)	Prevention focus	Focus / Setting / Timeframe	Perspective / Price Year / Currency	Type of economic analysis	Summary Findings
Coulton[37] (2015) UK	Older adults aged 60 and over	RCT comparing group-based singing to usual activities	Anxiety, depression	Universal / Community / 6 months	Heath care / 2007 / UK (£s)	CUA	At 6 months, costs for the intervention=£609.98 versus £623.73 for the control group. The group singing group had better outcomes with a significantly higher quality of life with a 63% probability of being cost-effective at £30,000 per QALY.
McDaid[38] (2021) UK	Older adults aged 65 and over	Modelling study comparing signposting intervention to activities to tackle loneliness versus no intervention linked to social connections progamme.	Depression, Self-Harm, Loneliness	Selective / Community / Up to 5 years	Health and social care / 2019 / UK (£s)	CEA	The total expected cost per participant in the intervention group is £7131 compared to £6783 in the usual care group with 0.45 loneliness free years (LFY) gained. The incremental cost per LFY gained is £768. At the willingness to pay levels of £ 1000, £ 1500, and £ 2000, respectively the probability of the intervention being considered cost effective is 59.8%, 79.7%, and 88.9% respectively.
McDaid[12] (2017) UK	Older adults aged 65 and over	Modelling study comparing signposting intervention to activities to tackle loneliness versus no intervention linked to social connections progamme.	Depression, Self-Harm, Loneliness	Selective / Community / Up to 5 years	Health and social care 2019 UK (£s)	ROI	Positive return on investment of £1.26 for every £1 spent after 5 years.
Onrust[39] (2008) Netherlands	Bereaved widows and widowers aged 55 and over	RCT of a visiting service for recently bereaved widow/ers that offered social support compared to usual care	Depression	Selective / Community / 1 year	Societal / 2003 / Euros (€)	CUA	Cost per QALY gained of €6,827. With a willingness to pay threshold of €20,000 intervention has a 70% chance of being cost effective.
van der Aa[40] (2017) The Netherlands	Older adults with vision impairment, subthreshold depression and/or anxiety.	RCT comparing a stepped-care to usual care	Anxiety, depression	Indicative / Community / 24 months	Societal / 2013 / Euros (€)	CUA	The stepped-care showed no significant difference in QALYs and depression. Societal costs were €877 lower but not significant in the stepped-care group compared to the usual care. There was a 65% probability of being cost-effective at €20,000 per QALY.
van't Veer-Tazelaar[41] (2010), The Netherlands	Older adults at high risk of anxiety, depression	RCT comparing a stepped care preventive intervention to routine primary care	Anxiety, depression	Selective / Community / 1 year	Societal / 2007 / Euros (€)	CEA	The intervention was effective in reducing anxiety, depression by 50% at €562 per participant. ICER= €4367 per disorder-free year gained, relative to routine primary care at the willingness- to- pay of €5,000 per disorder-free year gained.

Key: CBS – Cost Benefit Analysis, CEA –Cost Effectiveness Analysis, CUA – Cost Utility Analysis, ROI – Return on Investment Analysis, ICER – Incremental Cost Effectiveness Ratio (Additional Cost per Additional Outcome Gained)

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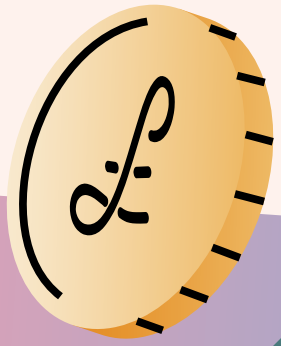
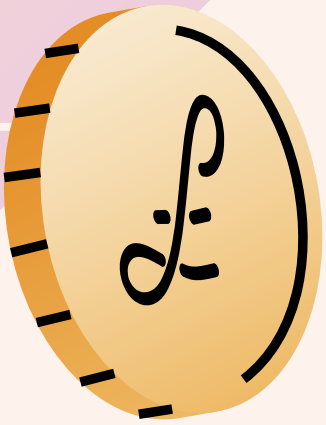
Mental health conditions included in each of the 11 GBD Categories included in costing analysis

(Note: for more descriptive information on any category browse https://icd.who.int/browse10/2019/en)

GBD Mental Health Condition Category	ICD-10 Codes	Mental Health Conditions
Schizophrenia	F20-F20.9, F25-F25.9	Schizophrenia, Schizoaffective disorders
Major Depressive Disorder	F32-F33.9	Depressive episode, Recurrent depressive disorder
Dysthymia	F34.1	Dysthymia
Bipolar Affective Disorder	F30-F31.9, F34.0	Manic episode, Bipolar affective disorder, Cyclothymia
Anxiety Disorders	F40-F44.9, F93-F93.2	Phobic anxiety disorders, Other anxiety disorders, Obsessive-compulsive disorder, Reaction to severe stress, and adjustment disorders, Dissociative [conversion] disorders, Separation anxiety disorder of childhood, Phobic anxiety disorder of childhood, Social anxiety disorder of childhood
Anorexia Nervosa	F50.0-F50.1	Anorexia nervosa, Atypical anorexia nervosa
Bulimia Nervosa	F50.2-F50.5	Bulimia nervosa, Atypical bulimia nervosa, Overeating associated with other psychological disturbances, Vomiting associated with other psychological disturbances
Autism spectrum disorders	F84;	Childhood autism, Atypical autism
ADHD	F90-F90.9	Hyperkinetic disorders
Conduct disorder	F91-F92.9	Conduct disorders, Mixed disorders of conduct and emotions
Other mental disorders	F04-F06.1, F06.3-F07.0, F08-F09.9, F21-F24, F26-F29.9, F34, F34.8-F34.9, F38-F39, F45-F49, F51-F52.9, F55-F55.8, F56-F69.0, F80.0 – F82, F88-F89.0, F93.3-F99.0, G47-G47.29, G47.4-G47.9, R40-R40.4, R45-R46.89, R55-R55.0, Z03.2, Z04.6-Z04.72, Z13.4, Z64, Z81, Z81.8, Z86.5-Z86.59	Organic amnesic syndrome, not induced by alcohol and other psychoactive substances; Delirium, not induced by alcohol and other psychoactive substances; Organic hallucinosis; Organic catatonic disorder; Organic mood [affective] disorders; Organic anxiety disorder; Organic dissociative disorder; Organic emotionally labile [asthenic] disorder; Mild cognitive disorder; Other specified mental disorders due to brain damage and dysfunction and to physical disease; Unspecified mental disorder due to brain damage and dysfunction and to physical disease; Organic personality disorder; Unspecified organic or symptomatic mental disorder;
		Schizotypal disorder; Persistent delusional disorders; Acute and transient psychotic disorders; Induced delusional disorder; Other nonorganic psychotic disorders; Unspecified nonorganic psychosis; Other persistent mood [affective] disorders; Persistent mood [affective] disorder, unspecified; Other mood [affective] disorders; Unspecified mood [affective] disorder; Somatoform disorders; Other neurotic disorders; Nonorganic sleep disorders; Sexual dysfunction, not caused by organic disorder or disease; Abuse of non-dependence-producing substances;
		Unspecified behavioural syndromes associated with physiological disturbances and physical factors; Specific personality disorders; Mixed and other personality disorders; Enduring personality changes, not attributable to brain damage and disease; Habit and impulse disorders; Gender identity disorders; Disorders of sexual preference; Psychological and behavioural disorders associated with sexual development and orientation; Other disorders of adult personality and behaviour; Unspecified disorder of adult personality and behaviour; Specific developmental disorders of speech and language; Specific developmental disorders of scholastic skills; Specific developmental disorder of motor function; Other disorders of psychological development; Unspecified disorder of psychological development; Sibling rivalry disorder; Other childhood emotional disorders; Childhood emotional disorder, unspecified; Disorders of social functioning with onset specific to childhood and adolescence; Tic disorders; Other behavioural and emotional disorders with onset usually occurring in childhood and adolescence; Mental disorder, not otherwise specified; Disorders of initiating and maintaining sleep [insomnias]; Disorders of excessive somnolence [hypersomnias]; Disorders of the sleep-wake schedule; Somnolence, stupor and coma; Symptoms and signs involving emotional state; Symptoms and signs involving appearance and behaviour; Syncope and collapse; Observation for suspected mental and behavioural disorders; General psychiatric examination, requested by authority; Special screening examination for mental and behavioural disorders; Problems related to certain psychosocial circumstances; Family history of other mental and behavioural disorders; Personal history of other mental and behavioural disorders



Mental Health Foundation



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