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Mental Health Promotion Network

Promoting mental health and preventing mental illness: the economic case for investment in Wales



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Foreword

This report 'Promoting Mental Health and Preventing Mental Illness: The Economic Case for Investment in Wales' has been commissioned by the All Wales Mental Health Promotion Network.



The All Wales Mental Health Promotion Network, funded by the Welsh Assembly Government, is committed to improving the mental health and wellbeing of the whole population of Wales. The Network aims to provide strong leadership and a focus for mental health promotion in Wales, increase public and professional understanding of public mental health, develop evidence and learning exchanges, and act as a conduit for the dissemination of good practices in public mental health promotion.

The occurrence of mental illness is widespread. Mental illnesses often occur early in the life span and persist throughout the life span. The consequences of mental illness are multi-dimensional. The treatment of some clinically diagnosed mental illness is often limited in effectiveness.

Therefore the costs of mental illness and thus the potential benefits of prevention are extremely high. Mental health promotion interventions often intend to raise self-esteem, strengthen individuals' life and coping skills and emotional resilience.

This report, produced by Dr Lynne Friedli and Michael Parsonage, uses economic analysis to develop the case for greater investment in Wales in both the prevention of mental illness and the promotion of positive mental health. The report demonstrates that the potential degree of economic benefits of preventing mental illness and promoting positive mental health is considerable. The All Wales Mental Health Promotion Network commend the analysis, conclusions and recommendations of this report to those responsible for resource allocation to consider the greatest benefit over time to the population of Wales.

**Professor Mansel Aylward CB MD FFPM
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**Chair of the All Wales Mental Health
Promotion Network Advisory Board and
Chair of Public Health Wales**

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Summary

This report for the All Wales Mental Health Promotion Network uses economic analysis to develop the case for greater investment in mental health promotion, defined as the prevention of mental illness and the promotion of positive mental health, sometimes referred to as 'wellbeing'. Improving mental health, that is promoting the circumstances, skills and attributes associated with positive mental health, is a worthwhile goal in itself: most people place a high value on a sense of emotional and social wellbeing. In addition, positive mental health also:

- contributes to preventing mental illness
- leads to better outcomes, for example in physical health, health behaviours, educational performance, employability and earnings, crime reduction.

These beneficial outcomes are not just the result of the absence of mental illness. They are due wholly, or in some degree, to aspects of positive mental health, which include subjective wellbeing, resilience, social wellbeing and sense of meaning or purpose. Although there are many gaps in the data, the economic benefits of improving positive mental health may be extensive. For example, subjective well-being increases life expectancy by 7.5 years, provides a similar degree of protection from coronary heart disease to giving up smoking, improves recovery and health outcomes from a range of chronic diseases (e.g. diabetes) and in

young people, significantly influences alcohol, tobacco and cannabis use. Positive affect¹ also predicts pro-social behaviour e.g. participation, civic engagement and volunteering. While the best outcomes are generally associated with the absence of mental illness, the presence of positive mental health brings additional benefits, including for people with mental health problems.

The scale of the economic benefits of preventing mental illness is considerable:

- Mental health problems have very high rates of prevalence; they are often of long duration, and have adverse effects on many areas of people's lives, including educational performance, employment, income, personal relationships and social participation;
- No other health condition matches mental ill-health in the combined extent of prevalence, persistence and breadth of impact;
- Mental health problems often begin early in life and cause disability when those affected would normally be at their most productive (unlike most physical illnesses).

The scope for securing benefits by means of treatment, rather than prevention, appears to be distinctly limited.

¹ A tendency to be cheerful, energetic and to experience positive moods; sometimes referred to as a positive disposition.

According to new figures prepared for this report, the overall cost of mental health problems in Wales (2007/08) is estimated at £7.2 billion a year. This includes:

- the costs of health and social care provided for people with mental health problems;
- the costs of output losses in the Welsh economy that result from the adverse effects of mental health problems on people's ability to work;
- a monetary estimate of the less tangible but crucially important human costs of mental health problems, representing their impact on the quality of life.

By way of comparison, the aggregate cost of £7.2 billion is larger than the total amount of public spending in Wales on health and social care for all health conditions combined, which amounted to £6.1 billion in 2007/08.

The cost of mental health problems is also very large relative to other health conditions, accounting for a larger share of the overall "burden of disease" (as defined and measured by the WHO) than any other problem:

Mental illness (including suicide)	20.0% of total burden
Cardiovascular diseases	16.2%
Cancer	15.6%

Relative to its importance as a health problem, spending on mental health is disproportionately low, accounting for 12.2% of public expenditure on all health and social care in Wales.

One example of a common mental health problem for which there is robust evidence of effective interventions is conduct disorder in childhood. According to estimates presented in this report:

- **Preventing conduct disorders** in those children who are the most disturbed would save around £150,000 per case in lifetime costs;
- **Promoting positive mental health** in those children with some conduct problems (but not a clinically diagnosable disorder) would yield benefits over the lifetime of around £75,000 per case.

For Wales, the total value of prevention in a one-year cohort (33,000 births) would be **£247.5 million**, with the total value of promoting positive mental health amounting to **£1,113.75 million**.

In comparison, the costs of intervention are very low, ranging from £1,350 to £6,000 per child for pre-school parenting programmes. Substantial investment in these programmes is therefore justified even if their effectiveness is limited, given the size of potential benefits relative to cost. A range of evidence suggests that success rates at the level required can be achieved in real life settings.

For this reason, the report recommends investment in pre-school interventions such as support for parents as the top priority in the provisional list of 'best buys' in promoting mental health, as follows:

- Supporting parents and early years: **parenting skills training/pre-school education/home learning environment;**
- Supporting lifelong learning: **health promoting schools and continuing education;**
- Improving working lives: **employment/workplace;**
- Positive steps for mental health: **lifestyle (diet, exercise, sensible drinking) and social support;**
- Supporting communities: **environmental improvements.**

Although the evidence is incomplete in some cases, these areas of intervention appear to offer the most favourable balance of effectiveness, scale of potential benefit and likely cost of implementation. They demonstrate that all sectors have a role to play in improving mental health and the need for interventions that involve individuals and communities, but also those that address structural barriers to mental health and wellbeing.

Although there is now a much greater policy focus on positive mental health and well-being, there is still a great deal to do in Wales. There is a need for more consistent definition and measurement of mental health, to untangle the many different influences on mental well-being and to improve data on both the effectiveness and cost-effectiveness of interventions.

New measures validated for use in the UK, for example the Warwick and Edinburgh Mental Wellbeing Scale (WEMWBS), will be of considerable value in providing a more complete picture of the mental health of the population. Nevertheless, even on the basis of existing data, the evidence summarised in this report demonstrates a very strong case for greater investment, not only in the prevention of mental illness but also in the promotion of positive mental health.

1.0 Introduction

This report analyses the case for mental health promotion from an economic perspective. It was commissioned by the All Wales Mental Health Promotion Network in order to explore the cost effectiveness of investment in the promotion of mental health and the prevention of mental illness in Wales. Promoting mental health is a worthwhile goal in itself - most people value a sense of social and emotional wellbeing. In addition, the evidence shows that improving mental health brings a wide range of other benefits for individuals, families, organisations and communities.

This report covers the prevention of clinically diagnosable mental illness and, more broadly, the promotion of positive mental health and well-being. The social and economic costs of mental illness in the UK are already well established and are set out in a number of earlier publications (SCMH 2003; NIAMH 2004; SAMH 2006). Across the spectrum of disorders, mental illness is both a direct cause of mortality and morbidity and a significant risk factor for poorer economic, health and social outcomes. However, it is now becoming clear that the presence or absence of positive mental health or 'wellbeing' also influences outcomes across a wide range of domains. These include healthier lifestyles, better physical health, improved recovery, fewer limitations in daily living, higher educational attainment, greater productivity, employment and earnings, better relationships, greater social cohesion

and engagement and improved quality of life. This report looks at the implications of these findings for Wales, based on an analysis of the cost benefits of preventing mental illness, as well as the additional benefits of promoting mental health.

Developing the economic case for mental health promotion is a challenging undertaking. It raises a number of complex methodological problems and the extent of published evidence on the cost-effectiveness of different interventions is limited, even drawing on international as well as UK studies. On the other hand, the wider (non-economic) literature on mental health promotion is now very substantial. Although some major gaps remain, there is increasing evidence of scope for effective action and its potential benefits. Using a variety of methods to add an economic component to the wider evidence base, this report explores two main issues: the general case for mental health promotion and possible priorities in the choice between interventions.

Because of limitations in the evidence base, the provisional nature of the conclusions will be emphasised throughout. It is nevertheless possible to identify some clear messages which we hope will be of value to the intended audience of policy makers and practitioners, particularly in stimulating debate and raising awareness. The report should not be seen as a contribution to academic research.

² The term mental health promotion is generally used to refer to any action to promote mental health, prevent mental illness and/or improve quality of life for people with mental health problems. In this report, we distinguish between *promoting positive mental health* and *preventing mental illness* and use the general term *mental health promotion* to cover both promotion and prevention.

2.0 Economic evaluation

Any specific intervention to improve mental health needs to be justified in the first instance on the basis of evidence of its effectiveness: does it work? In other words, how much does the intervention improve mental health and well-being, along with other relevant outcomes such as physical health?

Economic analysis adds the further test of value for money: not only 'does it work?' but 'is it worth it?' All interventions entail the use of scarce resources and choices have to be made between different ways in which these resources could be deployed. Pursuing one course of action necessarily precludes another. Deciding on priorities is unavoidable. The role of economic evaluation is to clarify the nature of these choices for decision makers and to ensure that all resources are used as productively as possible.

Economic evaluation may take various forms but can broadly be defined as a systematic attempt to identify, measure and compare all the costs and all the benefits of alternative interventions, including a baseline option of not intervening. A number of points follow from this definition:

- The economic case for mental health promotion is not just or even mainly about achieving narrowly defined economic or financial benefits such as reducing future NHS costs or increasing GDP. Such benefits should certainly be included but are usually of relatively minor importance. It is emphatically not part of the economic approach that the direct improvements in mental health and well-being which form the fundamental rationale for promotion should be ignored or excluded simply because they are not conventionally valued, marketed or counted in national income.
 - Economic evaluation requires the comprehensive coverage of costs and benefits, including not only the benefits of better mental health and well-being accruing directly to individuals, as just described, but also any wider benefits for society as a whole, financial or otherwise (e.g. reduced crime). No particular preference should be given to benefits accruing to the Exchequer in terms of lower public spending or higher taxation.
 - Economic evaluation does not require all the outcomes of an intervention to be expressed in monetary terms; indeed, it should be recognised from the outset that the benefits of mental health promotion extend beyond those that can realistically or sensibly be given a monetary value. Cost-effectiveness can readily be assessed using non-monetary outcome measures.
 - Economic evaluation does require that all outcomes can at least be quantified in some way, including the subjective elements of well-being. The need to make comparisons between alternative interventions highlights the importance of developing standardised indicators or measures of well-being which can be applied consistently across different settings and population sub-groups.³
- Economic analysis thus aims to provide a framework for the systematic assessment of costs and benefits, in quantitative but not necessarily monetary terms.

³ For a review of the strengths and weaknesses of different measures of well-being see NHS Health Scotland (2008) *Selecting scales to assess mental wellbeing in adults* <http://www.healthscotland.com/documents/2403.aspx>

2.1 Constraints and limitations

Analysing the effectiveness and cost-effectiveness of mental health promotion is inherently difficult for a number of reasons. These include the following:

- Mental health remains a contested concept which can be defined and measured in various ways. The conceptualisation in positive rather than negative terms which is now central to policy frameworks for mental health promotion puts the focus on positive indicators of well-being, but these are still in the development stage.
- Better mental health is worthwhile not only in its own right but also because it leads to improved outcomes in a range of other domains. Capturing these indirect benefits in evaluation studies raises various problems of coverage, measurement and attribution.
- The benefits of improved mental health are not only multi-dimensional but may also accrue over many years, even a lifetime in the case of childhood interventions. This can give rise to serious difficulties of length as well as breadth of analysis in research work.
- Mental health is subject to many influences and the impact of a specific intervention may be difficult to disentangle from the effects of confounding factors. Statistical associations between mental health and other variables are often open to interpretation, concerning for example the direction of causation.
- Policy interventions take a wide variety of forms; for example, some may be targeted on high-risk individuals whereas the focus of others is community-wide.

Research methods need to reflect such variety, but the use of different evaluative approaches can lead to problems of comparability and consistency. The randomised controlled trial, often seen as the gold standard for health research, is most suitable for single-component interventions in highly controlled settings, but many interventions to promote mental health do not take this form.

- The working of many interventions, particularly those targeted on individuals, will be mediated by broad structural factors such as poverty or unemployment. The role of socio-economic context needs to be taken into account in evaluation studies but this is rarely straightforward.

These and other difficulties in the analysis of mental health promotion have two main consequences. First, there remain significant gaps in the evidence base. This is particularly so in the area of cost-effectiveness. Few published studies contain primary economic data on costs and benefits and, among those that do, the coverage is usually incomplete; for example, the collection of financial information is often confined to effects on the public sector.

Second, the evidence base may be subject to various forms of bias. For example, some types of intervention are easier to evaluate than others, resulting in the likely availability of more studies - with more conclusive results - in the former area. Similarly, some components of cost and benefit are easier to identify and collect than others. In general, costs are easier to measure than benefits, particularly long-term benefits. The available evidence may therefore systematically understate the net returns on mental health promotion, particularly those interventions which have long-lasting effects.

3.0 Policy context

There is growing policy support for a greater focus on promotion and prevention and for the assessment of population health to include measures of positive physical and mental health, as well as morbidity and mortality data.

Health Challenge Wales, for example, provides a national focus for action to improve health and wellbeing. Designed for Life, the template for world class health and social care for Wales, states:

We will focus on health and wellbeing, not illness, by:

- **using every avenue to promote healthy communities;**
- **empowering individuals to take responsibility for their own health.**

(Welsh Assembly Government 2005a)

In Wales, the rest of the UK⁴ and in Europe, the past few years have seen an increasing shift in health policy from a predominant focus on mental illness, to recognition of the importance of mental health and well-being to overall health.



⁴ Scottish Government (2009) *Towards a mentally flourishing Scotland: Policy and Action Plan 2009-2011* <http://www.scotland.gov.uk/Resource/Doc/271822/0081031.pdf>

NIMHE/CSIP (2005) *Making it possible: improving mental health and well-being in England* <http://kc.nimhe.org.uk/upload/making%20it%20possible%20Final%20pdf.pdf> ;

Welsh Assembly (2006) *Mental Health Promotion action plan for Wales: consultation document* <http://new.wales.gov.uk/consultations/currentconsultation/healandsoccarecurrcons/851364/?lang=en>

This has stimulated wider debate on how a 'wellbeing focus' might influence the future direction of policy on the economy, health, education, employment, culture and sustainable development (Marks et al 2006; Layard 2005; Government Office for Science 2008).

This emphasis on the benefits of **positive** mental health is matched by research demonstrating the value of a focus on assets, as opposed to a deficit model and a call for more studies on the determinants of health, as distinct from studies on the determinants of illness.⁵ The current financial crisis has also generated concern about the psychological impact of recession and interest in promoting mental health as a source of resilience (Friedli 2009).⁶

These trends are clear in the increasing emphasis on positive mental health in Wales, for example in the aspirations for 2020 set out in Our Healthy Future:

We will promote positive mental health and well-being throughout life, and strive to reduce the risk factors that contribute to poor mental health and prevent recovery.

(Welsh Assembly Government 2009)

Promoting mental health and wellbeing is also part of the recovery approach to improving care, services and quality of life for people with mental health problems in Wales (Mind Your Heart 2009).



⁵ WHO defines a health asset as any factor (or resource) that enhances the ability of individuals, communities, populations etc to maintain health and well-being. Evidence shows that interventions to maximize and take advantage of health assets can counter negative social and economic determinants of health, especially among vulnerable groups. The result is improved health outcomes. http://www.euro.who.int/socialdeterminants/assets/20050623_1?language=French

⁶ http://ec.europa.eu/health/ph_determinants/life_style/mental/ev_20090427_en.htm

3.1 Welsh policy

Improving the mental health of the people in Wales lies at the heart of the Welsh Assembly Government's Public Health agenda and the current radical reforms of the NHS in Wales. This focus goes well beyond conventional approaches to improving the health of the population, will result in improved outcomes for all communities, across the socio-economic spectrum in Wales.

(Professor Mansel Aylward CB MD FFPM FFOM FRCP - Chair of the All Wales Mental Health Promotion Network Advisory Board and Chair of Public Health Wales)

The requirement to promote mental health is set out in standard one of Raising the Standard (2005b), which also emphasises the need to consider the mental health impact of wider social and economic policies, for example in education, employment and housing⁷.

Welsh policy for education, health, social services and youth justice services explicitly highlights the importance of:

- taking opportunities to promote the emotional health and well-being of all children;
- the link between positive emotional health and well-being, positive educational experiences and other life outcomes.

Improving emotional health and well-being is integral to the seven core aims of the Welsh Assembly Government's vision for children and young people, based on the UN Convention on the Rights of the Child (Welsh Assembly Government undated). Emotional well-being is one of 16 priorities for action outlined in the Welsh Assembly Government response.⁸

Services and action to improve the mental health of children are also a feature of the government's strategy for tackling child poverty, with a focus on supporting parents, guidance for emotional wellbeing in schools and the ten year all Wales strategy for child and adolescent mental health services, Everybody's Business.⁹ Wales' strategy for parenting support is set out in the Parenting Action Plan (Welsh Assembly Government 2005c). Progress on this was recently reviewed by the National Assembly for Wales Children and Young People Committee (2009) which made strong recommendations for greater support and a greater focus on parenting.

⁷ For a UK wide toolkit for assessing mental health impact see: <http://www.liv.ac.uk/ihia/IMPACT%20Reports/mwia-toolkit1.pdf>

⁸ http://cliconline.co.uk/wag_priorities_eng.pdf

⁹ Welsh Assembly Government (2005) *A fair future for our Children: The Strategy of the Welsh Assembly Government for Tackling Child Poverty*; for an overview of implementation of the CAMHS strategy see Children's Commissioner for Wales (2007) <http://new.wales.gov.uk/topics/childrenyoungpeople/childpoverty/strategy/fairfuture/?lang=en>

Well-being is also at the heart of the School Effectiveness Framework (SEF) and is a core element of the work of education settings, including the Health Promoting Schools network, which is expanding to all schools in Wales.

The major potential benefits for schools in actively promoting emotional health and well-being are set out in the consultation document *Thinking Positively: Emotional Health and Well-being in Schools and Early Years Settings* (Welsh Government Assembly 2009). The national strategy for school based counselling services in Wales will also contribute to the well-being of children at secondary school (Welsh Assembly Government 2008).

The skills and attributes associated with good mental health - confidence, self esteem, health and wellbeing, active citizenship - are also seen as an important element of regeneration and tackling all aspects of poverty in deprived areas, set out in the ongoing *Communities First* programme launched in 2001, as well as contributing to wider goals for Wales, for example learning for life and criminal justice.¹⁰

Overall, the strong focus on promotion and prevention in Wales, together with the wider commitment to wellbeing, provides a supportive policy environment for the prevention of mental illness and the promotion of mental health.

3.2 European policy

The WHO Declaration and Action Plan made a significant contribution to moving the promotion of mental health and the prevention of mental disorders up the agenda in Europe (see Box 1) and strongly influenced the European Commission Green Paper *Improving the Mental Health of the Population* (European Commission 2005). A number of themes emerge in this literature:

- the social and economic prosperity of Europe will depend on improving mental health and wellbeing;
- promoting mental health, i.e. building communities and environments that support mental wellbeing, will deliver improved outcomes for people with mental health problems;
- mental health and wellbeing are fundamental to quality of life.

The importance of mental health within the European Union was confirmed in the establishment of the European Pact for Mental Health and Well-Being (June 2008) and the European Parliament Resolution February 2009.¹¹ The case for promotion and prevention has also been strengthened by the publication of two major WHO reports highlighting emerging evidence of effectiveness (WHO 2004a; 2004b).

¹⁰ Welsh Assembly Government (2007) *Communities First Guidance*
<http://wales.gov.uk/topics/housingandcommunity/regeneration/publications/cfguidance2007/?lang=en>;

See also: Cross party agreement on future agenda for Wales *One Wales*
<http://new.wales.gov.uk/strategy/strategies/onewales/onewalese.pdf?lang=en>

¹¹ European Parliament Resolution of 19 February 2009 on Mental Health (2008/2209(INI))
<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-TA-2009-0063+0+DOC+XML+V0//ENN>

Box 1: Mental health promotion in Europe - moving up the agenda

WHO Mental Health Declaration for Europe

<http://www.euro.who.int/document/mnh/edoc06.pdf>

“mental health and mental wellbeing are fundamental to the quality of life and productivity of individuals, families, communities and nations, enabling people to experience life as meaningful and to be creative and active citizens”.

European Commission Social Agenda 2005-2010

http://ec.europa.eu/employment_social/social_policy_agenda/social_pol_ag_en.html

“the mental health of the European population is a resource ... to put Europe back on the path to long-term prosperity”.

The focus on “mental health activities capable of improving the wellbeing of the whole population” marks an important shift towards recognizing the benefits of promotion and prevention, in addition to improving the treatment of existing disorders.

It is also an acknowledgement that positive mental health and wellbeing can contribute to achieving a wide range of health and social goals of crucial importance to the long term prosperity of Europe (WHO 2005a;b).

Conversely, several studies have addressed the high social and economic costs to the EU of both mental disorders (notably those of high prevalence e.g. depression and anxiety) and sub-clinical malaise or dysfunction (Knapp et al 2008). These include a number of EC funded programmes to support greater investment in mental health promotion/prevention across Europe, including the Mental Health Economics European Network.¹² This is dedicated to economic analysis of mental health treatment and services and includes a review of cost effectiveness literature on mental health promotion (McDaid et al 2008).

Although there is still some way to go, the mental health of populations across the EU is beginning to be seen as a resource to be promoted and protected and relevant to achieving strategic goals in health, education, regeneration, crime reduction, community cohesion, sustainable development, employment, culture and sport. More recently, the European Commission has also called for greater efforts to minimise the mental health impact of the recession.¹³

¹² <http://www.lse.ac.uk/collections/PSSRU/researchAndProjects/mheen.htm>

¹³ European Commission (2009) *Reducing the psychosocial impact of the financial and economic crisis* http://ec.europa.eu/health/ph_determinants/life_style/mental/ev_20090427_en.htm

3.3 Happiness and wellbeing debates

More broadly, there is a growing interest in well-being generally (sometimes referred to as the 'happiness debate'),¹⁴ and in how a 'well-being focus' might influence the future direction of UK policy on the economy, health, education, employment, culture and sustainable development (Callard & Friedli, 2005; Marks and Shah 2004). The UK Government Office for Science has conducted a wide ranging review of Mental Capital and Mental Well-being as part of its Foresight programme.¹⁵ In Wales, the Wellbeing Wales Network works to support the voluntary and community sector contribution to wellbeing¹⁶, Wellbeing in Wales (2002) addresses the issues in relation to sustainable development and health and the Arts Council of Wales has launched an Arts in Health and Wellbeing Action Plan, in partnership with the Welsh Assembly Government (Welsh Assembly Government 2002; Arts Council of Wales 2009).

The factors that influence how people think and feel - in schools, in the workplace, in the delivery of services, in the built and natural environment and in local communities - are becoming mainstream concerns, even if they are not labelled mental health promotion.



Overall, the policy environment is favourable to the principle of promoting mental health and to raising questions about the potential economic and environmental costs of not paying greater attention to emotional and social well-being. The recent report by the Commission on the Measurement of Economic Performance and Social Progress (commissioned by the French President, Nicholas Sarkozy) has added new weight to this (Stiglitz et al 2009). The challenge lies in matching this 'in principle' commitment with much greater levels of investment. The economic analysis in this report aims to add weight to the arguments for doing so.

¹⁴ Cf Layard 2005

¹⁵ www.foresight.gov.uk

¹⁶ Wellbeing Wales Network
<http://www.wellbeingwales.org/>

4.0 Concepts and definitions: what is mental health?

Although there is widespread agreement that mental health is more than the absence of clinically defined mental illness, there is ongoing debate about what constitute the necessary or sufficient elements making up 'positive mental health', 'wellbeing' or 'flourishing'.

Concepts of mental health include subjective wellbeing, perceived self-efficacy, autonomy, competence, intergenerational dependence and recognition of the ability to realize one's intellectual and emotional potential. It has also been defined as a state of wellbeing whereby individuals recognize their abilities, are able to cope with the normal stresses of life, work productively and fruitfully, and make a contribution to their communities.

(WHO 2003 p.7)

Although definitions vary, mental health is generally seen as including:

- emotion (affect/feeling);
- cognition (perception, thinking, reasoning);
- social functioning (relations with others and society);
- coherence (sense of meaning and purpose in life).

(see Figure 1)

These individual attributes and skills can be measured through a range of wellbeing scales which can include indicators of resilience, self esteem, self efficacy, optimism, life satisfaction, hopefulness, perceptions and judgments about sense of coherence and meaning in life, and social integration (NHS Health Scotland 2008; Parkinson 2008).

A growing number of longitudinal studies confirm their power to predict outcomes, for example, longevity, physical health, quality of life, criminality, drug and alcohol use, employment, earnings and pro-social behaviour, for example volunteering (Pressman and Cohen 2005; Lyubomirsky et al 2005; Dolan et al 2006).

Figure 1: Dimensions of mental well-being

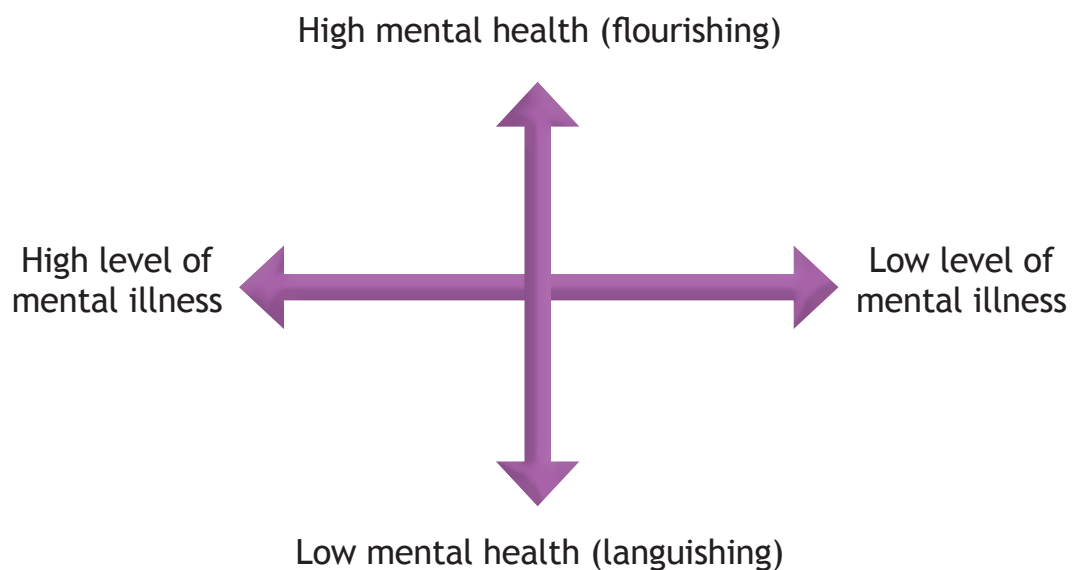


4.1 Dual continuum model of mental health

Keyes and others have argued that measures of mental illness and measures of (positive) mental health form two psychometrically distinct, but correlated, continua in populations (Keyes 2002; 2005; Huppert and Whittington 2003). Individuals who fit the criteria for a DSM/ICD mental disorder may have the presence of mental illness plus

the absence of mental health, or may have moderate mental health or be flourishing. The absence of mental illness does not necessarily imply the presence of high levels of positive mental health and vice versa: people with mental health problems may also have positive mental health (Figure 2). The potential independence of mental health and mental illness also suggests that some of the determinants of mental wellbeing are not the same as the determinants of mental illness (Huppert 2008).

Figure 2: Dual continuum model of mental health



4.2 Measuring mental health

Keyes describes the combination of positive feelings and positive functioning as 'flourishing', with individuals exhibiting at least seven of thirteen elements of subjective wellbeing described as flourishing (Keyes 2002). Others categorise the key elements slightly differently e.g. a sense of autonomy, a sense of competence and a sense of relatedness (Ryan and Deci 2001). Lyubomirsky et al focus on the experience of frequent positive emotion and less frequent (but not absent) negative emotion. While many studies are based on measures of positive feeling (affect), there is growing interest in the social dimensions of positive mental health, reflected in indicators of participation, integration, trust and acceptance of others. Wellbeing, for example, may be assessed through either subjective measures (self assessed e.g. responses to social survey questions on life satisfaction, quality of life, happiness etc) and/or objective measures of factors known to influence wellbeing e.g. crime, environment, housing, debt.

The distinction between measuring mental illness and measuring mental health is now formally recognised in Scotland, where a fourteen item measure, the Warwick and Edinburgh Mental Wellbeing Scale (WEMWBS) has been validated for use in the United Kingdom and is currently employed in addition to GHQ12 (Taulbut and Parkinson 2009; Tennant et al 2007).



Scotland has established a set of national mental health and wellbeing indicators that can be used to create a summary mental health profile for Scotland, based on indicators at an individual, community and structural level.¹⁷ The indicator for individual positive mental health includes the following key elements, most of which are covered by WEMWBS (see Appendix A):

- emotional wellbeing;
- life satisfaction;
- optimism/hope;
- self esteem;
- resilience/coping;
- social integration;
- spirituality.

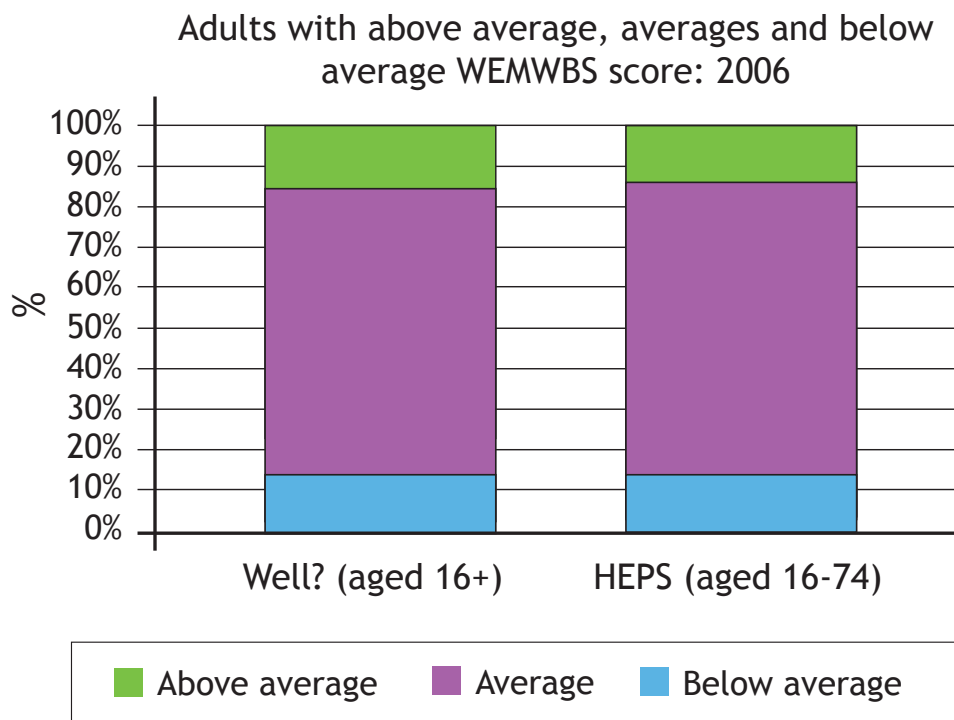
¹⁷ www.wellscotland.info; www.healthscotland.com/understanding/population/mental-health-indicators.aspx

Figure 3 shows the current distribution of mental wellbeing in a recent Scottish survey using WEMWBS (Braunholtz et al 2007; Taulbut and Parkinson 2009).

Traditionally, mental health has been measured using scales designed to identify mental illness. The availability of measures of positive mental health will contribute significantly to future research on the relationship between mental health and other outcomes. It will also strengthen opportunities to evaluate the mental health impact of interventions.

Clearly, how positive mental health is defined influences how it is measured and any cost benefit that can be attached to it. A further question is whether there are any significant differences in outcomes for people who have good mental health, compared to those with average or poor mental health (among people who do not have a diagnosable mental disorder)? This is considered in more detail in the next section.

**Figure 3: Wellbeing in Scotland:
Warwick and Edinburgh Mental Wellbeing Scale**



(Reproduced from Taulbut and Parkinson 2009)

5.0 Benefits of mental health promotion

This section develops the general economic case for mental health promotion, looking at both the benefits of preventing mental illness and those of promoting positive mental health i.e. fostering the skills and attributes associated with positive mental health and the circumstances likely to enhance or protect these.

In practice, the distinction between promotion and prevention is not always clear cut. For example, mental health promotion in the workplace may prevent stress related illness, but may also result in broader positive mental health outcomes e.g. higher job satisfaction, increased morale, greater productivity. Equally, interventions designed to prevent a specific mental health problem, e.g. post-natal depression, may not reduce prevalence, but may have socio-economic benefits associated with positive affect e.g. better mother/infant attachment, uptake of education or increased support networks.

5.1 The benefits of preventing mental illness

The essence of the case for prevention is that, on any standard of measurement, mental illness imposes an enormous burden, both on individuals and on the wider community. Mental health problems have very high rates of prevalence; they are often of long duration, even lifelong in some cases; and they have adverse effects on many aspects of people's lives, including educational performance, employment, income, personal relationships and social participation.

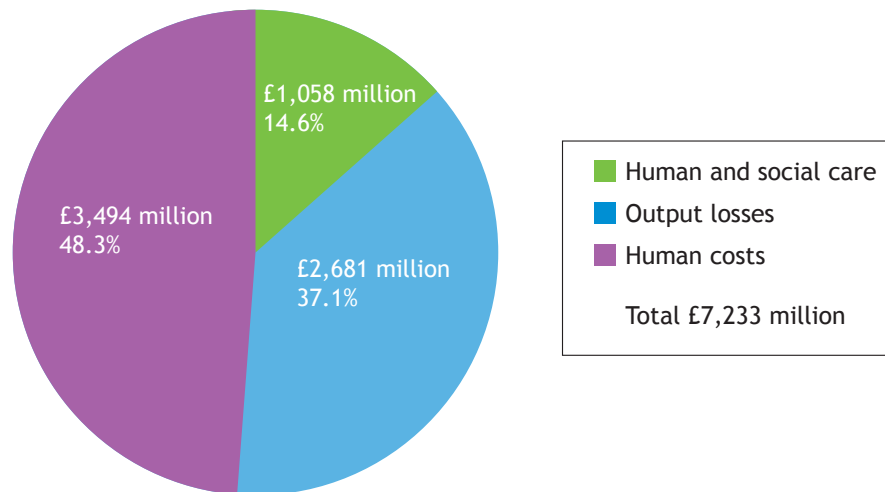
In addition, these adverse consequences are often compounded by the stigma, discrimination and exclusion which continue to be experienced by many people with mental health problems.

The burden or cost of mental illness takes various forms and can be analysed in various ways. One approach is to identify and quantify all the main costs of mental ill health and then to combine these in a single total using the common measuring rod of money. For this purpose, cost needs to be defined broadly so as to include any adverse effect of mental illness, wherever it falls and whether or not it is conventionally measured in monetary terms. As far as is known, no previous attempt has been made to undertake a comprehensive costing of mental illness in Wales along these lines and new estimates have therefore been prepared specially for this report. Details of the methods and sources of data used in the analysis are given in Appendix B.

As explained in the appendix, the various costs of mental ill health can be grouped together under three main headings:

- The costs of **health and social care** for people with mental health problems, including services paid for by the NHS and local authorities and also the informal care provided by family and friends;
- The costs of **output losses** in the Welsh economy that result from the adverse effects of mental health problems on people's ability to work; and
- A monetary estimate of the less tangible but crucially important **human costs** of mental health problems, representing their impact on the quality of life.

Figure 4: Costs of mental illness in Wales



As can be seen, human costs account for just under half the total and output losses for the bulk of the remainder. Within the sub-total for health and social care, it is estimated that the cost of services provided by the NHS and local authorities for people with mental health problems amounted to £747 million in 2007/08, or 10.3% of total costs. Put another way, of all the costs imposed on society by mental ill health, nearly 90% are costs which fall elsewhere than on the publicly funded system of health and social care.

Because human costs are not usually valued in monetary terms or included in conventional measures of national income, it is not altogether straightforward or appropriate to compare the overall cost of £7.2 billion with wider economic aggregates such as gross domestic product (GDP). The effect of mental ill health on GDP can, however, be represented by combining the other two components of cost, i.e. health and social care and output losses, and on this basis it is estimated that these costs

taken together were equivalent in monetary value to 7.1% of GDP in Wales in 2007/08.

As a further point of comparison, it is worth noting that the aggregate cost of £7.2 billion is larger in monetary value than the total amount of public spending in Wales on health and social care for all health conditions combined, which amounted to £6.1 billion in 2007/08.

The above figures demonstrate that the costs of mental health problems are extremely large when measured in absolute terms. They are also very large relative to the costs of other health conditions. Unfortunately comparative information on monetary costs, calculated on the same basis as described above for mental illness, is not currently available. Reference may be made instead to work by the World Health Organisation (WHO) on the cost or burden of disease using a composite non-monetary measure, the disability-adjusted life year or DALY, which combines morbidity and premature mortality in a single figure (WHO 2005c).

Estimates prepared by the WHO show that in the UK as a whole mental illness now accounts for more DALYs lost per year than any other health condition. Thus the figures for 2004, the latest available year, indicate that 20.0% of the total burden of disease in the UK was attributable to mental illness (including suicide), compared with 16.2% for cardiovascular diseases and 15.6% for cancer (WHO 2008). No other condition exceeded 10%.

Of the total health burden, just under half is attributable to premature mortality and just over half to non-fatal outcomes (morbidity and disability). Mental illness including suicide accounts for less than 5% of all premature mortality but for well over 30% of all morbidity and disability. No other health condition accounts for more than 10% of the total burden of disease within the living population.

Looking ahead, the share of mental illness in the overall burden is likely to rise. This is not so much because of any clear evidence that the prevalence of mental health problems is increasing but rather because the burden imposed by the two other leading health conditions (cardiovascular diseases and cancer) is declining. This reflects falling death rates from these conditions, associated with advances in medical treatment and past falls in the prevalence of smoking. The relative size of the burden associated with mental illness is therefore likely to increase even if the numbers affected remain broadly unchanged.

The above figures suggest that, on any reasonable assessment of priorities, mental health should account for a large (and rising) share of total public expenditure on health and social care. What the evidence appears to show is that spending on mental health is disproportionately low.

In particular, set against the WHO estimate that mental ill health accounts for 20.0% of the total burden of disease in the UK; it is estimated that spending on mental health as a share of public expenditure on all health and social care was only 12.2% in Wales in 2007/08. In other words, mental ill health accounts for a fifth of the overall burden of illness but attracts less than an eighth of the public resources that are made available to deal with this burden.

The substantial scale of costs associated with mental ill health means that the benefits of effective action to reduce the prevalence and severity of mental health problems are potentially very large.



A further strand in the general economic case for prevention is that the scope for cost-effective action in the form of treatment after illness has been incurred appears to be relatively limited. For example, a recent study uses mental health survey data collected in Australia to assess how much the burden of disease (measured in DALYs) that is attributable to mental disorders could be averted by current and optimal (evidence-based) treatments (Andrews et al 2004). Summing across all disorders, this study finds that the current coverage and mix of treatment interventions provided in Australia reduces the overall burden of mental illness by just 13%. This would increase to 20% if coverage were maintained at its present level but the current mix of interventions were replaced by optimal treatment according to best-practice evidence-based medicine, and to 28% if coverage as well as treatment were set at its optimal level according to cost-effectiveness criteria. Finally, it is estimated that even with 100% coverage and complete evidence-based medicine, only 40% of the overall burden appears to be avertable. In other words, three-fifths of the burden of mental disorders remains unavertable by treatment, described in the study as “a sobering fact about the limitations of current knowledge in psychiatry but one that is consistent with clinical practice”.

The limited effectiveness of treatment implies a sizeable role for prevention if significant progress is to be made in reducing the costs associated with mental illness. As already seen, the potential benefits of making such progress are extremely large and are likely to be even more significant if efforts to prevent mental illness are combined with efforts to reduce the effects of stigma and discrimination (Crisp 2004).

5.2 Benefits of promoting positive mental health

Curing illness does not necessarily result in health

Pat Barker (2000)

Improved mental health and wellbeing is:

- a worthwhile goal in itself;
- leads to better outcomes, for example in physical health, health behaviours, educational attainment, employability and earnings, relationships and crime reduction.

Making the case for promoting positive mental health involves demonstrating that these outcomes are not just the result of the absence of mental illness, but are due, wholly or in some degree, to aspects of positive mental health, for example those included in WEMWBS and other scales.

This includes identifying the benefits of promoting positive mental health for people with a diagnosis. For example confidence, self esteem, hopefulness and social integration are known to influence both clinical and quality of life outcomes for people with mental health problems (Social Exclusion Unit 2004; Pevalin and Rose 2003). As around half of people with common mental health problems are limited by their condition and around a fifth disabled by it (Melzer et al 2004), the benefits of promoting positive mental health and wellbeing with this population are also likely to be considerable.

The benefits of promoting positive mental health are less clearly established in quantitative/financial terms than the benefits of preventing mental illness. Nevertheless they are likely to be substantial, partly because of the very large numbers of potential gainers. According to Keyes, only 18% of adults in the US are in the “flourishing” category, implying that over 80% of the population could benefit. As we have seen, the recent survey in Scotland using WEMWBS described 14% of the sample as having ‘good mental wellbeing’, 73% with average and 14% with poor mental wellbeing (Braunholtz et al 2007). These figures suggest that even small improvements in overall levels of population mental wellbeing could result in significant benefits.

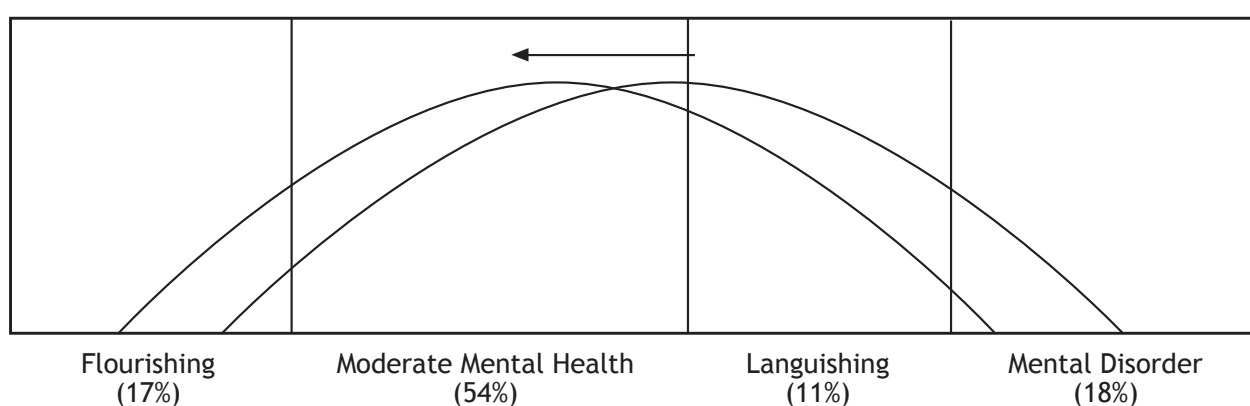
The benefits of improving the mental health of the whole population are based on a familiar public health model.

Just as we know that a small reduction in the overall consumption of alcohol among the whole population results in a reduction in alcohol related harm, so a small improvement in population wide levels of wellbeing will reduce the prevalence of mental illness, as well as bringing the benefits associated with positive mental health:

- by reducing the mean number of psychological symptoms in the population, many more individuals would cross the threshold to become flourishing;
- a small shift in the mean of symptoms or risk factors would result in a decrease in the number of people in both the languishing and mental illness tail of the distribution (figure 4).

(Huppert 2005; Rose 1992)

Figure 5: Population distribution of mental health



(adapted from Huppert 2005; prevalence figures are from Keyes 2005, based on USA data)

A United Kingdom population study found that the prevalence of mental disorders was directly related to the mean number of symptoms in the sub-population (excluding those with a disorder). In a seven year longitudinal follow up, the change in the mean number of symptoms in subpopulations was highly correlated with the prevalence of disorders (Whittington and Huppert 1996; Anderson et al 1993). This means that population-level interventions to improve overall levels of mental health could have a substantial effect on reducing the prevalence of common mental health problems, as well as the benefits associated with moving people from 'languishing' to 'flourishing' (Huppert 2005). In addition, applying the principle of 'herd immunity', the more people in a community (e.g. a school, workplace or neighbourhood) who have high levels of mental health (i.e. who have characteristics of emotional and social competence), the more likely it will be that those with both acute and long term problems can be supported (Stewart-Brown 1998; Blair et al 2003 p. 143).

A key question then, is whether there are any significant differences in outcomes for people who have good mental health, compared to those with average or poor mental health. Some evidence shows that compared with those who are flourishing, moderately mentally healthy and languishing adults have significant psycho-social impairment and poorer physical health, lower productivity and more limitations in daily living (Keyes 2005, 2007). Keyes found that cardiovascular disease was lowest in adults who were the most mentally healthy, and higher among adults with major depressive episodes, minor depression and moderate mental health.

This is consistent with review level evidence that CHD risk is directly related to the severity of depression: a 1-2-fold increase in CHD for minor depression and 3-5-fold increase for major depression (Bunker et al 2003). In other words, intermediate levels of mental health are different from mental illness, as well as from flourishing. Other research has shown that positive affect and negative affect have a degree of independence in the long term and that positive outcomes are the result of the presence of positive affect, rather than simply the absence of negative affect (Diener et al 1995).

A parallel analysis of adolescents, (using measures of emotional wellbeing, psychological wellbeing and social wellbeing as three distinct but correlated factors), found that prevalence of conduct problems decreased (arrests, truancy, alcohol, tobacco and marijuana use) and measures of psychosocial functioning increased (self determination, closeness to others and school integration) as mental health improved. Children without mental illness were not necessarily mentally healthy and flourishing youth were found to be functioning better than moderately mentally healthy or languishing youth (Keyes 2006). These findings confirm earlier studies suggesting that the key factor is positive emotion, which leads to positive cognitions, positive behaviours and increased cognitive capability, which in turn fuel positive emotions (Fredrickson and Joiner, 2002).

In summary, while the best outcomes are associated with the absence of mental illness, the presence of positive mental health brings additional benefits. The economic implications of this analysis are considered further in section 6.

5.3 Outcomes associated with positive mental health

The relationship between positive mental health and positive outcomes depends to some extent on which aspect of mental health and wellbeing is being measured and which scales are used. Broadly, however, there is reasonably robust evidence that positive mental health is a significant causal influence in the following domains: physical health and longevity, health behaviours, educational outcomes, economic productivity, risk of criminality and social engagement.

One review of experimental studies found the following associations with positive affect:

- sociability and activity;
- altruism;
- liking of self and others;
- strong bodies and immune systems;
- effective conflict resolution skills.

The evidence is weaker, but still consistent that pleasant moods also promote original thinking and may improve performance on complex mental tasks (Lyubomirsky et al 2005).

There are a number of important caveats when considering the extent of the influence of mental health on outcomes. As much of the literature is based on cross sectional studies, assessing direction of causality is problematic.

However, many of the associations between positive mental health and positive outcomes are increasingly being confirmed in longitudinal and experimental studies. There are also wider considerations of cultural specificity and potential cultural bias, as well as the fact that a high proportion of 'mental wellbeing' studies are based on relatively privileged cohorts e.g. students and white collar workers. Positive affect, for example, may have a greater influence on outcomes for people who are relatively well-resourced.¹⁸ In addition, socio-economic position influences individual emotional and cognitive resources, with marked socio-economic gradients in social and emotional adjustment in children, for example. This makes it important to consider the importance of psychological assets in the context of the impact of inequalities and the wider determinants of mental health.

5.3.1 Life expectancy

The influence of positive affect on mortality has been widely asserted, with one major study showing an increase in longevity of 7.5 years, (Danner et al 2001; Levy et al 2002), but it is most consistent for older people living in the community. This is not the case for residents of institutions: in these circumstances, low positive affect 'may reflect a fighting spirit in a situation of lost control' and so be more protective (Pressman and Cohen 2005). This is an important finding: happiness may be more adaptive in some circumstances than in others (Lyubomirsky et al 2005 p 842).

¹⁸ Diener found that among affluent students, positive affect was a significant determinant of improved educational and employment outcomes, whereas for less affluent students, parental income was a more significant determinant (Diener 1995)

5.3.2 Physical health

Prevention will benefit physical health because people with mental health problems have much higher rates of physical illness, with a range of factors contributing to greater prevalence of, and premature mortality from: coronary heart disease, stroke, diabetes, infections and respiratory disease (Harris and Barraclough 1998; Wulsin et al 1999; Phelan et al 2001; Osborn et al 2007).

Review level evidence finds almost unanimous support for an association between higher positive affect and health (Pressman and Cohen 2005). Promoting positive mental health benefits physical health by improving:

- Overall health (Benyamini et al 2000);
- Stroke incidence and survival (Ostir et al 2000; 2001);
- Protection from heart disease: absence of positive mental health is a greater risk factor for CVD than smoking (Keyes 2004). Psycho-social factors (notably mood, social support and isolation) are on a par with smoking, high blood pressure and raised cholesterol (Bunker et al 2003; Kubzansky and Kawachi 2000);
- Lowest number of chronic physical diseases by age (Keyes 2007).

Positive affect is particularly associated with improvements in health outcomes subject to motivation or self report bias e.g. pain, limitations in daily living and quality of life. Positive affect may also provide a stress buffering effect that helps people to cope and is associated with lower levels of

cortisol and lower blood pressure (biological markers of stress response) at baseline and at three year follow up (Steptoe 2005). Leading risk factors are outlined in Box 2.

Box 2: Leading risk factors

Among the 10 leading risk factors for the global burden of disease measured in DALYs, as identified in the World Health Report 2002, three were mental/ behavioural (unsafe sex, tobacco use, alcohol use) and three others were significantly affected by mental/ behavioural factors (overweight, blood pressure and cholesterol).

WHO 2003 p. 9

5.3.3 Health behaviour

Key elements of mental health influence physical health through their influence on health behaviour. These include self esteem (evaluative and affective sense of self), self efficacy, and 'future time perspective'. Improved self esteem¹⁹ in combination with 'life skills' in school children is associated with reduced risk taking behaviour (alcohol, cannabis, tobacco). The relative contribution of individual characteristics (i.e. affect, cognitive and social skills) and social context (i.e. peers, social networks, relationships) is difficult to untangle and interventions to improve health behaviour through improving mental health (in schools for example) often attempt to address both (Catalano et al 2002; Garcia et al 2006).

¹⁹ Links between self esteem and other outcomes <http://her.oxfordjournals.org/cgi/content/full/19/4/357>



Improving positive mental health reduces the following:

- Alcohol intake (Graham et al 2004);
- Smoking (Graham et al 2004);
- Drinking above recommended levels;
- Delinquent activity²⁰ (Windle 2000).

There is some dispute as to whether alcohol misuse precedes, or is a consequence of, mental health problems such as anxiety and depression (Kessler et al 1996; Merikangas et al 1998; Rehm et al, 2003) and in many cases there is likely to be a dynamic interaction.

Capacity, capability and motivation to choose health are strongly influenced by

mental health and wellbeing, as well as by socio-economic factors.

In the United Kingdom, the 20%-25% of people who are obese or continue to smoke are concentrated among the 26% of the population living in poverty, measured in terms of low income and multiple deprivation of necessities (Gordon et al 2000). This is also the population with the highest prevalence of anxiety and depression (Melzer et al 2004). Mental health may also be a factor in helping to explain the wider international data which shows that socio-economically disadvantaged conditions are not universally correlated to all forms of health-damaging behaviours (CSDH 2007).

5.3.4 Productivity

Stress, anxiety and depression combined are the single greatest cause of sickness absence in the United Kingdom. Improved mental health reduces sickness absence and increases performance/productivity:

- Job performance/productivity²¹ (Harter et al 2003; Cropanzano and Wright 1999) in this and other studies, wellbeing predicts good job performance although job satisfaction does not;
- Job performance/productivity/creativity (Wright and Staw 1999) (assessed by supervisors);
- Reduced absenteeism (Pelled and Xin 1999; Keyes and Grzywacz 2005).

(Further information on workplace and employment in section 10.0)

²⁰ It is important to note that only a small proportion of those adolescents who manifest high levels of risk taking behaviour will continue to do so into adulthood. This study attempts to identify aspects of 'temperament' associated with ongoing delinquency.

²¹ Jobs that are higher in complexity and worker autonomy are correlated more often with job satisfaction and performance

5.3.5 Crime

Mental health problems make a substantial contribution to offending behaviour and a very high proportion of people in prison (including those on remand) have one or more mental disorders (Singleton et al 1998), so prevention is likely to result in considerable savings (see section 6.1). More generally, poor mental health is an important risk factor for offending and also contributes to other risk factors, including substance misuse. Improvements in mental health should therefore help to reduce prison populations and also reduce re-offending rates which are currently around 65%.²²

(See also section 6.1 on conduct disorder)

5.3.6 Pro-social behaviour

A number of cross sectional studies show a not entirely unexpected correlation between wellbeing and pro-social behaviour e.g. participation, civic engagement, volunteering (Dolan et al 2006; Pressman and Cohen 2005, Diener and Seligman 2002, Lyubomirsky et al 2005). One longitudinal study (3 years) found wellbeing (positive affect) predicted participation in volunteering and volunteering also increased positive affect (Thoits and Hewitt 2001). In adolescents, Keyes found that positive mental health was associated with greater school integration and closeness to others, as well as reduced incidence of conduct problems (Keyes 2006).

Social connectedness or emotional attachment, which may overlap with pro-social behaviour, may also be seen as indicators of positive mental health, rather than outcomes and therefore as contributing to the benefits of positive mental health (Dolan et al 2006). For example, measures of social integration are highly correlated with risk of coronary heart disease.

5.3.7 Education

The Effective Pre-school and Primary Education Project (EPPE) is Europe's largest longitudinal pre-school effectiveness study and provides a unique insight into the factors that influence better than expected educational outcomes in disadvantaged families. This demonstrated the crucial role of cognitive and social/behavioural development on educational attainment. The strongest effect on children's performance at age 5 and 10 is their level of self-regulation (independence and concentration) at the start of school. The study found that the effects associated with a high quality home learning environment (HLE)²³ on children's development were stronger than for other traditional measures of disadvantage such as parental SES, education or income (Sylva et al 2007).

²² Percentage of prisoners who are re-convicted within two years of release (Cunliffe and Shepherd, 2007).

²³ HLE - providing structure, extensive educational stimulus and activities, a high level of parent/child interaction and the family's sense of efficacy in supporting their children's learning

6.0 Lifetime benefits of improved mental health

There is increasingly powerful evidence from birth cohort and other longitudinal data of a high degree of persistence or continuity between adverse mental states in childhood and those in adult life. To illustrate this, use may be made of a recent analysis of depression and anxiety over the life course, based on a UK birth cohort study which has been tracking a representative sample of individuals all born in the same week in 1946 (Colman et al, 2007).

Using data on symptoms of depression and anxiety at ages 13, 15, 36, 43 and 53, the study shows that the population can be divided into six groups as follows:

	Per cent
1. No symptoms in adolescence or adulthood	44.8
2. Adult onset, moderate	11.3
3. Adult onset, severe	2.9
4. Repeated moderate symptoms over the life course	33.6
5. Repeated severe symptoms over the life course	1.7
6. Adolescent onset with good adult outcome	5.8
Total	100.0

To measure the persistence or continuity of mental health problems, these figures can be analysed in two ways: looking back from adulthood to adolescence and looking forward from adolescence to adulthood.



Looking back, the figures show that 49.5% of the sample displayed symptoms of depression or anxiety at some point during adult life, i.e. all those in groups 2-5 combined. Among these people, groups 2 and 3 represent those with adult onset and groups 4 and 5 those with adolescent onset. As can be seen, the latter are much the larger number. Thus, among all adults with depression or anxiety, 71.3% first manifested symptoms in adolescence.

Looking forward, the figures show that 41.1% of the sample displayed symptoms of depression or anxiety during adolescence, i.e. all those groups in 4-6 combined. Symptoms persisted into adulthood in all but the relatively small number of people in group 6. So, among all adolescents with depression or anxiety, 85.9% continued to have these mental health problems in later life.

Continuity between childhood and adult life is particularly important in the context of mental health promotion and prevention, for two main reasons. First, it highlights the fact that many forms of emotional and behavioural response are formed in the early years and may be extremely difficult to change in later life. Fostering the development of appropriate emotional and social skills from the outset is therefore likely to be more effective than later intervention, particularly to the extent that the latter requires the establishment of significant new responses and pathways.

Second, the evidence on continuity also draws attention to the fact that the costs of mental ill health may be extremely high purely because of the length of time over which they are incurred. The majority of serious mental health problems begin early in life and, unlike cancers and most heart disease, they cause disability when those affected would normally be at their most productive. The frequent early manifestation of poor mental health and its persistence over the lifetime are untypical of poor health generally and constitute a major reason why the overall cost or burden is so large.

6.1 Conduct disorder

The importance of continuity suggests that a valuable way of developing the economic case for promotion is to look at the costs of poor mental health (and hence the potential benefits of promoting better mental health) over the lifetime, as a supplement to the annual measures of cost quoted above. To illustrate this approach, some broad estimates of the lifetime costs of childhood conduct disorder are set out below.



Conduct disorder is the most common mental health problem in childhood. According to a recent survey by the Office for National Statistics, it affects 5.8% of all children in Great Britain between the ages of 5 and 16, with the rate rising from 4.9% among those aged 5-10 to 6.6% among those aged 11-16 (Green et al 2005). Prevalence is roughly twice as high among boys as among girls. Longitudinal studies suggest that conduct disorder persists into adulthood in about 40% of cases and is strongly predictive of a range of poor outcomes, including poor educational and labour market performance, substance misuse, criminal behaviour and disrupted personal relationships (Stewart-Brown 2004).

Quantitative evidence on these associations is given in a recent report which uses evidence from three UK birth cohort studies to analyse childhood mental health problems and life chances in post-war Britain (Richards et al, 2009).

This shows, for example, that people who suffered from severe conduct problems in childhood were 4.5 times more likely than those without such problems to leave school with no educational qualifications, they were 3.5 times more likely to experience lengthy periods out of work (and in work they earned up to 30% less), they were 4.5 times more likely to become teenage parents, and over 4 times more likely to be arrested between ages 16 and 30. All of these associations remain strong even after allowing for other influences such as socio-economic background and childhood IQ.

6.2 Long-term costs

Some evidence on the long-term costs of childhood conduct disorder is given in a recent study which uses data from a small longitudinal survey carried out in inner London (Scott et al 2001a). This calculates the cumulative costs of public services used up to age 28 by a sample of 142 individuals assessed for conduct problems at age 10 and finds that costs for those with conduct disorder were nearly 10 times as large as among those with no conduct problems (£70,019 against £7,423, at 1998 prices). Of the public services covered in the study, those relating to crime incurred the largest costs, representing 64% of total costs among those with conduct disorder.

These are important findings, but - as the authors of the study fully recognise - the overall costs of conduct disorder are understated, perhaps several-fold, partly because coverage is restricted to costs incurred by the public sector and also because these effects are truncated at age 28. To illustrate the first point, a recent study of the costs of crime in England

carried out by the Home Office found that costs falling on the public services (police, prisons etc) account for only about a fifth of the total costs of crime, with the great bulk of costs being those incurred directly by the victims of crime (Brand and Price 2000).

A more comprehensive analysis of long-term costs is given in a recent report (Friedli and Parsonage, 2007) which draws on data from a 25-year longitudinal study of a birth cohort of young people in New Zealand (Fergusson et al, 2005). The New Zealand survey collected information on the prevalence of child conduct problems at age 7-9 and subsequently on a wide range of outcomes in early adulthood, and in both cases the patterns observed are very similar to those seen in UK data.

On prevalence, the sample population in the New Zealand survey can be divided into three broad groups, corresponding to those with no conduct problems at age 7-9, those with some conduct problems and those with conduct disorder. Relative numbers in each group are 50%, 45% and 5% respectively. The figure of 5% for the size of the most disturbed group corresponds closely with the estimate of 4.9% quoted above for the prevalence of childhood conduct disorder among 5-10 year olds in Great Britain. A comparison may also be made with a study of mental health among children in the USA which uses the three-way classification of mental health proposed by Keyes: flourishing, moderately mentally healthy and languishing (Keyes 2006). The relative numbers of 12-14 year olds in these three groups are 49%, 45% and 6%, a breakdown which is remarkably similar in terms of relative numbers to the three-way classification in the New Zealand study based on disturbed behaviour.



Concerning adult outcomes, the New Zealand survey confirms the evidence of other longitudinal studies that conduct problems in childhood are associated with a wide range of adverse consequences in later life and that this remains the case even after allowing for other influences such as individual intelligence and socio-economic disadvantage. It is not possible to attach a monetary value to all of these adverse consequences (e.g. high rates of divorce), but costings based on relevant UK data have been made for six outcomes, covering the costs of crime, smoking, use of illicit drugs, mental illness, suicide and reduced earnings.

Using the last of these to illustrate the approach, the New Zealand survey gives data on the numbers in the sample with and without conduct problems in childhood who entered the labour market with no educational qualifications. UK information shows that the employment rate among

people with no qualifications is only 65% of the average among all people of working age and also that, among those in the former group who are in full-time employment, earnings are only 67% of the national average (Office for National Statistics, 2006). Taken together, these two observations suggest that the lifetime pay of someone without qualifications is only about 44% of the national average.

Based on such assumptions and calculations, it is broadly estimated that the lifetime cost of adverse outcomes among the 45% of people who have some conduct problems in childhood is £75,000 and similarly that the lifetime cost among the 5% who have conduct disorder in childhood is £225,000. In each case, the point of comparison is given by the outcomes in adult life experienced by the 50% of people who have no conduct problems in childhood.

6.3 The benefits of prevention and promotion compared

These very high costs associated with conduct problems and conduct disorder demonstrate that the potential benefits of prevention and promotion are substantial. In the case of prevention, it is probably unrealistic to assume that conduct disorder can be wholly prevented, such that adult outcomes for this group would be the same as among those who had no conduct problems at all in childhood. As an alternative measure it is therefore proposed that the potential benefits of prevention are given by the saving in lifetime costs that would result if those who would otherwise be in the most disturbed 5% of the childhood population were enabled to achieve the same adult outcomes as those in the middle 45% of the population. Similarly, the potential benefits of promoting positive mental health are given by the saving in lifetime costs that would result if those in the middle 45% were enabled to achieve the same adult outcomes in the top 50%.

Prevention: estimated saving in lifetime costs = £150,000 per case

Savings in costs relating to crime are the largest component, accounting for 71% of the total, followed by savings in costs resulting from mental illness in adulthood (13%) and increases in lifetime earnings (7%). The importance of costs linked to crime is very much in line with the findings of the study by Scott et al quoted earlier.

Promotion: estimated saving in lifetime costs = £75,000 per case

Again savings in crime-related costs are the largest single element (61% of the total), followed by savings in the costs of adult mental illness (19%) and increases in lifetime earnings (9%).

Each year about 33,000 children are born in Wales. Using the 50/45/5 split found in the New Zealand study, about 1,650 children in each one-year cohort are therefore likely to be diagnosed with conduct disorder, whereas about 14,850 will be in the intermediate category, with some conduct problems.

Using the above values of £150,000 and £75,000 respectively for the benefits of helping an individual child in each of these two groups, it can be calculated that the total value of the benefits of prevention in a one-year cohort of children in Wales is £247.5 million (1,650 x £150,000), while the corresponding figure for promoting positive mental health is £1,113.75 million (14,850 x £75,000).

Potential benefits of this size provide an extremely strong prima facie case for intervention on a substantial scale.

7.0 Effectiveness, cost-effectiveness and 'best buys' for mental health promotion

While some major gaps still remain, there is now a large and growing body of evidence on the effectiveness of interventions, covering both prevention and promotion (WHO 2004a; 2004b; Hermann et al 2005; Barry and Jenkins 2007). In contrast, the published evidence on cost-effectiveness is much more limited. A further drawback of the literature is the lack of standardised outcome measures, which limits the scope for comparisons, particularly between different target groups (e.g. children v. older-aged adults) or settings (e.g. schools v. workplaces). Finally, notwithstanding the strength of the evidence on the wider social, economic and environmental determinants of mental health and mental illness (Melzer et al 2004; Rogers and Pilgrim 2004; Whitehead and Dahlgren 2006), there are few examples of the evaluation of effectiveness or cost effectiveness of interventions at these levels.

All this makes it difficult to offer strong statements on priorities. A judgemental assessment suggests the following provisional list of "best buys".

These cover selected areas of intervention which appear, on the basis of admittedly incomplete evidence, to offer the most favourable balance of effectiveness, overall scale of potential benefit and likely cost of implementation:

- Supporting parents and early years: parenting skills training/pre-school education/home learning environment;
- Supporting lifelong learning: health promoting schools and continuing education;
- Improving working lives: employment/workplace;
- Positive steps for mental health: lifestyle (diet, exercise, alcohol) and social support;
- Supporting communities: environmental improvements.

8.0 Parenting skills and pre-school education

The family environment in early life, including in particular the child-rearing style of parents, is a critical influence on the emotional and behavioural development of children. Adverse experiences at this stage, such as abuse, neglect or harsh and punitive parenting, are strongly associated with the onset of conduct problems and other mental health difficulties in childhood, often with consequences that persist throughout the life course.

Interventions aimed at reducing risk factors and enhancing protective factors in the family are therefore of great importance and there is now a strong body of evidence to suggest that well-designed pre-school programmes which seek to improve parenting skills show a high level of effectiveness and cost-effectiveness (Nelson et al., 2003; Waddell et al., 2007; US Department of Health and Human Services, 2007).

- Parenting skills training improves the mental health of parents and the mental health, behaviour and life chances of children.
- The benefits for children are experienced over a number of different domains, including social and emotional behaviour, cognitive function and well-being within the family.
- These benefits persist throughout childhood and into adult life, leading to such outcomes as improved employability and earnings and reduced criminal behaviour.

- Pre-school prevention programmes, i.e. those that include an educational component directly involving the child and family/parenting support²⁴, improve social/emotional behaviour, cognitive function and family well-being with long term (age 27) improvements in earnings and reduced criminal behaviour
- Parenting programmes can prevent the development of conduct disorder and reduce serious antisocial behaviour in real life settings (Scott et al., 2001b; Hutchings et al., 2007).
- Disadvantaged children, i.e. those living with the highest economic deprivation and related causes of stress, benefit most.
- Follow-through in primary school significantly improves long-term outcomes.

Box 3: Sure Start

A recent evaluation of Sure Start found the following beneficial effects in the Sure Start as compared with the non Sure Start areas:

- **Children:** better social development, with more positive social behaviour and greater independence.
- **Families:** less negative parenting; a better home-learning environments; used more services for supporting child and family development.

The positive effects seemed to apply to all subpopulations and to all Sure Start areas.

(Melhuish et al 2008)

²⁴ In their meta-analysis, MacLeod and Nelson (2000) found the highest effect sizes ($d=.58$) for comprehensive, multi-component programs compared with single component programs.

8.1 Early years: case studies in Wales

Early years provision in Wales includes a suite of programmes targeting the needs of young children and parents and helping to improve outcomes for the most disadvantaged. These include Cymorth, Sure Start, the Basic Skills Strategy, the Parenting Action Plan and the Childcare Strategy.²⁵



8.2 Parenting programmes: cost-effectiveness

A number of studies, mainly from the US, have demonstrated a strong economic case for parenting programmes, particularly when costs and benefits are measured over the longer term (Olds et al., 1993; Aos et al., 2004; Karoly et al., 2005).

- The HighScope Perry Pre-school programme (established in the 1960s for black American children born in poverty in Michigan) achieved a return of \$7.16 for every dollar invested by the time participants in the programme were aged 27. The benefits mainly accrued in the form of decreased welfare and criminal justice costs and higher earnings.
- A subsequent follow-up, when participants were aged 40, showed a return to society of more than \$17 for every dollar invested (Schweinhart et al., 2005).
- The Chicago Child-Parent Centers programme showed costs per participant of \$6,700 and cumulative benefits at age 25 of \$48,000, i.e. a benefit:cost ratio of over 7 to 1. Every dollar invested yielded a return to the programme participants of \$3.29 (mainly higher earnings) and \$3.85 to the wider community (mainly reduced costs of crime and higher taxation associated with higher earnings) (Reynolds et al., 2001).
- Edwards et al. 2007 is a rare example of a UK cost-effectiveness study, although its focus is short-term and based solely on child behaviour scores. However, it found that the group parenting programme under review involves modest costs and demonstrates strong clinical effect, suggesting it would represent good value for public spending.

²⁵ Children living with highest economic deprivation and related environmental stressors benefit most. http://wales.gov.uk/topics/educationandskills/policy_strategy_and_planning/104009-wag/;jsessionid=YGw1KxLH72btWFddvhRLDQDSXhp7FttxpvhXp3TYGwZcsTR847bC!58552806?lang=en

A subsequent study has found that these short-term positive effects are sustained longer term and are associated with cost savings in health and social service provision (Bywater et al, 2009).

The typical costs of parenting programmes vary. A review published in Health Technology (Dretzke et al., 2005) gives the following figures at 2003 prices:

Group programme, community based	£603-899
Group programme, clinic based	£423-629
Individual programme, home based	£3,839

For global costings, the authors suggest increasing the figures by 50%, to allow for a refresher course a year after the original intervention. If we assume:

- each one-year cohort in Wales includes around 1,650 children with conduct disorder and 14,850 with conduct problems (see section 6 above);
- parents of all the former receive an individual home-based programme, while the parents of all the latter participate in a community-based group programme;
- the unit cost of the individual programme is £6,000 (£3,839 rounded up to £4,000 and then increased by 50% to allow for the refresher element), while the unit cost of the group programme is £1,350 (£900 as the upper end of the cost range for group programmes, again increased by 50%).

The total cost of the intervention is therefore £9.9 million for the children with conduct disorder (£6,000 x 1,650) and £20.0 million for those with conduct problems (£1,350 x 14,850). In comparison, the potential lifetime benefits of effective intervention, according to the estimates given in section 6, are £247.5 million and £1,113.75 million respectively.

Box 4: Cost-benefits of parenting programme for one year birth cohort in Wales

Each year about 33,000 children are born in Wales. About 1,650 children in each one-year cohort are likely to be diagnosed with conduct disorder, with about 14,850 in the intermediate category, with some conduct problems. Based on these figures:

Prevention programme:

costs = £9.9m

potential benefits = £247.5m

Promotion programme:

costs = £20.0m

potential benefits = £1,113.75m

To be worth undertaking, the intervention thus needs a success rate of only 1 in 25 for conduct disorder and 1 in 55 for conduct problems, equivalent to effect sizes of just 2-4%. In other words, the potential benefits are so large relative to costs that the intervention is worthwhile even if its effectiveness is very limited. Set against the required effect sizes of 2-4%, the literature to date generally shows actual or achieved effect sizes of 10-40% (Waddell et al., 2007), confirming that the economic case for these programmes is very robust.

8.2.1 Incredible Years

Based on an evaluation of the cost effectiveness of the Incredible Years (IY) parenting programme in North and Mid Wales (Hutchings et al 2007), the Welsh Assembly Government is currently funding the roll out of parent leader training across Wales through its 22 Children and Young People's partnerships. They are also funding the translation of the Incredible Years book into Welsh and a study to explore the effectiveness of a new IY programme targeting parents of babies and toddlers.

The study demonstrated the effectiveness of the IY programme in a community based prevention trial using regular Sure Start service staff and targeting parents of high risk three and four year olds.

- Children whose parents received the Incredible Years programme showed significantly reduced antisocial and hyperactive behaviour, and increased self-control, compared to control children.
- Parents also reported and demonstrated a reduction in stress and depression levels and improved parenting skills.
- It would cost £1344 to bring the average child on the programme to below the clinical cut-off point and £5486 to bring the child with the highest ECBI score to below the clinical cut-off point. The programme also appeared to be more cost effective for children at highest risk of developing conduct disorder.

This parenting programme involves a modest additional cost and demonstrates strong clinical effect, suggesting that it represents good value for money for public spending and help for the most socially disadvantaged children (Hutchings et al 2007).

Box 5: Merthyr Tydfil Parenting Programme

The Merthyr Tydfil parenting programme aims to provide parenting support to all families of children aged between birth and 18 years. Programmes offered include:

- Incredible Years - Webster Stratton
- Parent line Plus - Parents Together
- Living with Teenagers - Father Skills
- Speakeasy - Family Planning Association
- Steps to Excellence - Pacific Institute

As a direct result of the expanding programme, the number of parents/ carers that have engaged in the groups has grown dramatically, with some parents also receiving training and/or support to become programme facilitators.

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8.3 Home Learning Environment

There is a strong relationship between the quality of the 'home learning environment' (HLE) and positive cognitive and social skills which influence readiness for school or learning and continue to influence outcomes throughout primary school (Sylva et al 2007). Two key aspects of the HLE are:

- Interaction with parents: being read to; conversation, learning songs/nursery rhymes, visiting the library;
- Interaction with others: both playing with other children and being looked after by other adults/relatives.

Box 6: Impact of the Home Learning Environment on educational outcomes

The EPPE study found that the strongest net effects on educational outcomes at age 10 are for early years HLE and parents' qualification levels.

The early years HLE has an additional strong positive effect on Reading outcomes and attainment in Mathematics at age 10.

http://archive.cabinetoffice.gov.uk/equalitiesreview/upload/assets/www.theequalitiesreview.org.uk/promoting_equality_in_the_early_years.pdf

There is a crucial role for pre-school and primary school in supporting parents to provide a good home learning environment. Sylva et al highlight the importance of strategies that actively support improvements in HLE, especially for parents in disadvantaged communities and point to the key role of both pre-school and primary school in achieving this, through a policy of close contact, support and encouragement for parents, including strengthening parental aspirations and confidence in their ability to influence their children's learning (Sylva et al 2007; see also Estyn 2004).²⁶



²⁶ The EPPE found that for disadvantaged children, attending a high quality school or having a good home learning environment were not enough on their own: they required both to overcome disadvantage. The EPPE findings also demonstrated the benefits of high quality pre-school education, with better educational and social behavioural outcomes still apparent at age of 10, in children who had attended mid-high quality pre-school (Sammons et al 2007).

8.3.1 Bookstart

Being read to from a very early age has important emotional, social and cognitive benefits. Bookstart is a partnership of libraries and health agencies, offering free books to all babies and toddlers in the UK, together with guidance materials for their parents. A specific

Bookstart programme is delivered across Wales, including Welsh language materials. Bookstart can contribute to supporting a positive home learning environment and to delivering messages to parents about bonding, listening skills, early language, communication skills and the pleasures and benefits of families reading together.



Box 7: Impact of Bookstart in Wales

Longitudinal studies of the impact of Bookstart have demonstrated an improvement in language and literacy performance upon school entry (age four, Foundation Stage). Bookstart children maintain this advantage throughout their first five years of primary education. Mean scores for a range of literacy and numeracy tests showed Bookstart children outperforming their non-Bookstart counterparts by between 1 and 5% (Wade and Moore, 2000). Impact evaluation of Bookstart in Wales showed some evidence of greater frequency of parents reading with their child, particularly among 'less active' reading families, and a significant increase in children's interest in books.

Bookstart (2008) Wales Bookstart Impact Evaluation 2008

http://booktrustadmin.kentlyons.com/downloads/Wales_Bookstart_Impact_Evaluation_2008.pdf

9.0 Lifelong learning: Health Promoting Schools and continuing education

Good social, emotional and psychological health helps protect young people against emotional and behavioural problems, violence and crime, teenage pregnancy and the misuse of drugs and alcohol. It can also help them to learn and achieve academically, thus affecting their long-term social and economic wellbeing.

(NICE 2009a)

There is a robust case both for strengthening investment in mental health promotion in school settings and for increasing educational opportunities for adults.

Support for emotional and social development is as important as help with school work for young people in increasing the chances of educational success, notably for children facing difficulties at home (Bartley 2006; Adi et al 2007). The National Institute for Health and Clinical Excellence (NICE)²⁷ guidelines on social and emotional wellbeing in schools state that both primary and secondary schools should provide the environment, knowledge and skills that promote social and emotional wellbeing (NICE 2009a).

- For primary schools, NICE states that all staff should be trained to identify early signs of emotional problems, schools should have a programme to help develop all children's emotional and social wellbeing and to help parents develop their parenting skills.

- NICE recommends all secondary schools to adopt a whole school approach, which should encompass organisation and management issues as well as the curriculum and extra-curriculum provision. Schools should also measure and assess children's emotional wellbeing and provide access to pastoral care and support, as well as specialist services.

A review of policy for children and young people by HM Treasury also places a strong focus on enhancing emotional and social skills (HM Treasury 2007).

Box 8: Welsh Network of Healthy School Schemes (WNHSS)

The Welsh Network of Healthy School Schemes was launched in September 1999 to encourage the development of health promoting schools. Topics include mental and emotional health and wellbeing (including anti bullying) and personal development and relationships.

<http://wales.gov.uk/dphhp/publication/improvement/children/publications/guidance/guidance.pdf;jsessionid=LDNRKLqd1bfgQQBcXqlJYG6J825kW2DJqpbJrxW1FVFCh7mLnCTI!-774995877?lang=en>

²⁷ Although NICE is an England only Special Health Authority, the Welsh Assembly Government has an agreement in place with NICE taking account of its guidelines <http://www.wales.nhs.uk/sites3/page.cfm?orgid=465&pid=5396>

Promoting mental health in schools has been effective in the following areas, although data on cost effectiveness is extremely limited, partly because so few studies include details of the cost of interventions:

- preventing mental health problems, notably depression;
- improving academic outcomes;
- improving emotional and social functioning;
- reducing health damaging behaviour e.g. smoking and substance abuse;
- reducing bullying.

(Wells et al 2001; Adi et al 2007; NICE 2008; NICE 2009a)

Looking just at depression, a meta-analysis by Durlak and Wells (1997) found a weighted mean effect size of 0.22. This finding, equivalent to an 11% improvement in the intervention groups compared with the control groups, was confirmed in another more recent meta-analysis (Jane Llopis et al 2003).

The most effective programmes:

- focus on promoting mental health rather than preventing mental health problems;
- involve social competence and cognitive approaches - broadly described as life skills training (i.e. improving emotional, social and cognitive skills/attributes, including resilience/problem solving and peer support);



- adopt a whole school approach: involving teachers, pupils, parents and the wider community is more effective than curriculum based projects;
- peer tutoring and cross age tutoring are effective for children with emotional and behavioural difficulties (Frey and George-Nichols 2003; McKinstry and Topping 2003).

9.2 School based programmes: cost-effectiveness

Relatively few studies present detailed data on the costs and benefits of school-based programmes and such information as is available on benefits tends to focus mainly on relatively short-term outcomes. While there are legitimate concerns about the extent to which the effects of some school interventions may be sustained over the long term (Barry and Jenkins, 2007), the focus on short-term outcomes means that the overall net benefits of these programmes are likely to be understated in the published literature.

A recent review of child mental health promotion and prevention published by the US Department for Health and Human Services sets out some economic information for three universal school-based programmes, all of which involve the teaching of self-management and social skills and are aimed at reducing problem behaviours such as substance use (US Department of Health and Human Services, 2007).

The results show that these are low-cost interventions which yield very high returns. Costs per pupil are in the range \$8 - 29 (measured in 2003 prices), whereas measured benefits per pupil are in the range \$204 - 746. Two of the programmes yield a return of \$25 for every dollar invested while the third has an even higher return, at \$45 per dollar invested.

Box 9: Strengthening Families Programme 10-14

SFP10-14 is a skills based alcohol and drug misuse prevention programme for families with young people aged 10-14 years old, originally developed in Iowa, USA. Young people attending the programme had significantly lower rates of alcohol, tobacco and marijuana use than the control group, with differences increasing over time.

<http://www.aerc.org.uk/insightPages/libraryIns0053.html>

SFP10-14 Programmes are now established in Caerphilly, Swansea, Flintshire, Carmarthenshire, Merthyr, Wrexham and Rhondda Cynon Taff.

These projects are participating in a randomised control trial which is being funded by the National Prevention Research initiative. This study will examine whether the results found for the programme in the USA translate to a UK context. It will identify whether the programme delays or reduces substance use, and collect information that will help in wider implementation of the programme. The trial started September 2009 with results available in March 2014.

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An economic analysis of The Place2Be (Box 11) found a potential return of £6 for every pound invested in The Place2Be's school-based individual and group counselling (Place2Be 2009). In the 2007/08 academic year, these services cost about £2 million. By contrast, the cost-savings from the prevention of mental disorders and mental health problems in the participating children could reach £15 million over their lifetimes.

In total then, the cost-savings of The Place2Be intervention exceeds the cost by £13 million, resulting in a net return on investment rate of 600%. The payback period of The Place2Be's individual and group counselling

in the 2007/08 academic year is five years. In other words, five years after the intervention finishes, the cost-savings will start to exceed the cost of the intervention, making net cost-savings in the years afterwards.

Box 10: Pyramid Cardiff: building relationships, creating confidence

Pyramid is a Cymorth project, led by Cardiff and Vale School Health Nursing Service, which aims to increase the social skills and resilience of primary school-aged children. Pyramid is part of the response to Cardiff Children and Young People's Plan 2008-11 which states that "All children and young people have access to a range of services that protect and support their emotional and mental health". Over 200 Year 3 and 4 children attended their final Pyramid club during the last week of spring term 2009. New cohorts of volunteers have recently been trained to deliver transition Pyramid clubs to Year 6 children. Pre and post intervention evaluation based on a sample of 124 children found that three quarters (76%) showed an improvement for either the peer of emotional score in Goodman's Strengths and Difficulties Questionnaire (GSDQ).

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Box 11: The Place2be

The Place2be in Wales is funded by the Welsh Assembly Government and provides emotional health & well-being support in primary schools. Development work is underway to roll-out Place2be in 6 primary schools in Cardiff.

Interventions include individual counselling, group work and Circle Time. In 2006/7, almost two thirds of children (62%) with completed teacher-rated Strengths and Difficulties Questionnaires (SDQs) showed some improvement in the extent of their social and emotional difficulties after attending individual or group interventions.

Both teacher and parent-rated SDQs show that there were considerable reductions in overall Total Difficulties scores as a result of the interventions. The average teacher-rated Total Difficulties score pre-intervention was 15.3 (the higher end of Goodman's 'borderline' clinical category) whereas, post-intervention, this had reduced to 11.9 (the lower end of Goodman's 'borderline' clinical category).

A Place for Parents provides support for parents. In 2006/07 180 parents were referred to A Place for Parents, of which 132 parents. (73%) took up an intervention. Clinical Outcomes in Routine Evaluation Outcome Measure (CORE-OM) findings indicate that the majority of parents and carers accessing A Place for Parents show an improvement in mental wellbeing following intervention.

A recent economic analysis found a potential return of £6 for every pound invested in The Place2Be individual and group counselling services (Place2be 2009).

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Box 12: Tackling inequalities

Some studies of truancy and challenging behaviour in Wales have suggested that school based interventions are unlikely to be enough in areas of multiple deprivation: whole community approaches need to be developed to strengthen the psychological resources, support and opportunities that can reduce the links between community, poverty and poor educational outcomes (Holton 2007; People and Work Unit <http://www.peopleandworkunit.org.uk/>).

This approach will form the basis of the Glyncoch School Focused Communities Project, led by the Glyncoch Community Partnership.

<http://www.glyncochcp.org.uk/index.htm>

9.3 Literacy and continuing education

The positive effect of education is present at all ages and remains even after accounting for work and family characteristics, although it is significantly stronger among women than men. In a longitudinal econometric study, Chevalier and Feinstein found that education significantly reduces the risks of adult depression, with the largest impact for gaining low level credentials (Chevalier and Feinstein 2006).

Having a secondary qualification reduces the risk of adult depression by 5 to 7 percentage points; an effect that remains after work and family characteristics are controlled for. Similarly, Bynner and Parsons (2001) reported that women with low literacy skills were five times more likely than those with average or good literacy skills to be depressed. Research drawn from an analysis of BHPS data suggests a significant relationship between literacy and social engagement, which in turn may impact on mental wellbeing. Community participation is higher among men and women with higher literacy skills, while non-readers and those with poor basic skills are:

- less likely to vote or have an interest in politics;
- less likely to participate in their local community;
- less likely to belong to a membership organisation²⁸ (Dugdale and Clark 2008).

These studies strengthen the case for addressing academic under-achievement and for targeting help at low achievers.

²⁸ http://www.literacytrust.org.uk/research/Literacy_changes_lives.pdf

The impact of educational achievement on mental health also has implications for the provision of adult education. Where we have comparisons, the effects of initial schooling on health are generally greater than the effects of subsequent adult learning (Schuller et al 2004). However, adult learning remains an important influence in positive outcomes in health and well-being amongst adults. It may also have a role in redressing some of the existing health imbalances between different sections of the population, as there is some (limited) evidence that the health benefits of adult learning may be greater for those with less education than for others (Centre for the Wider Benefits of Learning 2007). Quantitative analyses of data from the 1958 National Child Development Study (NCDS) provide evidence for an association between participation in learning and self efficacy, particularly for adults who had low levels of achievement at school (Hammond and Feinstein 2005)²⁹.

Feinstein and others also found that participation in adult learning has positive effects on a range of health and social capital outcomes with small but statistically significant effects on changes in smoking, exercise taken, life satisfaction, race tolerance, authoritarian attitudes, political cynicism, political interest, number of memberships, and voting behaviour (Feinstein et al, 2003; Hammond and Feinstein, 2005; 2006; see also Desjardins and Schuller 2006).

9.4 Education: cost effectiveness

Based on a simple calculation of the returns to education in term of improved mental health, Chevalier and Feinstein (2006) estimate as follows:

- A policy increasing the education of females from no to basic qualification will reduce the total cost of depression for the population of interest by £230 million a year or £4.9 billion over the working life of these women, assuming a discount rate of 3.5 per cent.
- Alternatively, if the probability of depression is not constant over the life time and is only about half as prevalent for the first 20 years of adulthood, the present value of such a policy would drop to £3.2 billion.
- These estimates can be considered under-estimates, as Chevalier and Feinstein assume no effect for men or other education group. This is an additional substantial return to policies increasing education for individuals with low level of achievement.

The provision of continuing education for young men aged 16-18 may have an effect on costs because of its impact on crime. Feinstein and Sabates found that burglary convictions fell by significantly more in areas that had introduced the Education Maintenance Allowance: the relative reduction in burglary rates is about 1 less conviction per 1,000 pupils in EMA areas relative to other local education authorities³⁰ (Feinstein and Sabates 2005).

²⁹ Self-efficacy is used as a measure because it is associated with a range of wider benefits and may contribute to protection from depression and social exclusion

³⁰ The EMA programme was piloted in some Local Education Authorities (LEAs) of England, creating a quasi-experimental setting.

10.0 Improving working lives: employment/workplace



Poor mental health among people in work imposes substantial costs on the Welsh economy. As described in Section 4 of this report, new estimates of the economic and social costs of mental health problems in Wales have been prepared specially for this report. Among other things, these show that the costs associated with poor mental health in the workplace amount to nearly to £1.2 billion a year, equivalent to £860 for every employee in the Welsh workforce. This total includes the costs of sickness absence, reduced productivity that occurs when people come to work but function at less than full capacity because of mental health problems ('presenteeism') and increased staff turnover.

This very substantial cost, equivalent to more than 2% of total Welsh national income, reflects the fact that mental health problems are very common among people in work. Indeed, the prevalence of these problems in the workforce is not much different from that in the population at large. On average,

employers should expect to find that at any one time nearly 1 in 6 of their workforce is affected by a mental health problem such as depression or anxiety. The proportion rises to over 1 in 5 if alcohol and drug dependence are also included.

As in the wider community, many of these problems are undiagnosed and untreated. Official surveys for Great Britain as a whole show that among all people of working age with a common mental health problem such as depression, only about a quarter are currently receiving any kind of treatment (Singleton et al., 2001; McManus et al., 2009). It is also the case that the high prevalence of mental health problems in the workforce is not well recognised by employers. In a recent survey of senior managers, nearly half thought that none of their workers would ever suffer from a mental health problem during their working life and over two-thirds put the prevalence rate at less than 1 in 20 (Shaw Trust, 2006).

It is important to note that mental health problems among people in work are not necessarily caused by work or working conditions. Indeed, the limited available evidence suggests that of the total cost of mental health problems in the workforce, only a relatively small proportion - of the order of 10-20% - is directly work-related (Sainsbury Centre for Mental Health, 2007). Given the very high overall cost of mental ill health at work, this still represents a sizeable figure in absolute terms. Evidence from such sources as the Whitehall II study (Ferrie, 2007) indicates that the key factors directly influencing mental health in the workplace are:

- high demands imposed on employees combined with low control among those facing these demands;
- lack of support and unclear or inconsistent information from supervisors;
- job insecurity;
- effort-reward imbalance.

The potential impact of such factors should not, however, be allowed to obscure the point that on the whole employment is good for mental health and, even more unequivocally, that unemployment is bad for mental health (Waddell and Burton, 2006). As the recent Foresight report notes, *“ensuring that people are able to work and have jobs, including those at risk of suffering from mental health problems, should be a key priority”* (Government Office for Science, 2008). More can and should be done to improve the working environment so as to minimise possible adverse effects on mental health, but at best this will address only a limited part of the overall problem and should therefore be accompanied by more wide-ranging measures to maintain and improve mental health in the workforce.

10.1 Work-based interventions and programmes

Box 13: Aneurin Bevan Health Board: Let's Walk

Let's Walk aims to raise awareness among staff of the exercise they do naturally during the course of the working day and to support them to increase their exercise levels. Let's walk provides maps of the larger hospital sites, maps of short lunch time walks, wheelchair accessible routes, links to local walking groups and information on the wellbeing benefits of walking.

The Health Board also offers an employee wellbeing service

<http://www.wales.nhs.uk/sitesplus/866/page/40697>

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The workplace is a good setting for action to promote better mental health. About three-quarters of all people of working age in Wales are in employment, whether full-time or part-time, so the potential coverage of work-based programmes is very high. Management structures and relationships can be used in various ways to convey messages about the importance of good mental health and well-being throughout the workforce. With appropriate training for line managers, these structures and relationships can also be used to provide opportunities for the early identification of mental health problems among individual employees, leading on to the provision of quicker and more effective treatment.

Many large organisations have in-house occupational health departments which can provide more specialist support and it is increasingly possible for smaller employers to buy in such services on a consultancy basis.

Evidence suggests that the main components of an effective work-based programme are as follows:

- **Recognition** by employers that work is on the whole very good for mental health, as it is for physical health. Employers also need to recognise much more clearly that poor mental health is now by some margin the single most important cause of sickness absence in the workforce and other health-related costs such as presenteeism and staff turnover. The scale of these costs is such that it is very much in employers' own interests to attach a higher priority to mental health issues than is generally the case.
- **Prevention** of mental health problems which are directly work-related. This may include providing mentally healthy working conditions and practices in line with the Health and Safety Executive's management standards on work-related stress (Health and Safety Executive, 2004). Other possibilities for action in this area are described and analysed in the recent Foresight report, including new approaches to flexible working and the use of annual audits to provide quantitative measures of stress and well-being in the workplace (Government Office for Science, 2008).
- **Awareness training** for line managers, to increase their knowledge and understanding of mental health issues and their ability to respond confidently and in a timely fashion to employees in distress. An increasing number of training programmes are now available to promote such awareness, including for example the Australian beyondblue National Depression in the Workplace Program, now being trialled in the UK following successful evaluation in Australia (Jorm et al, 2005). The Health and Safety Executive have also produced a toolkit to support managers in developing the competencies needed to reduce staff stress <http://www.hse.gov.uk/stress/mcit.htm>.
- **Better access to help**, particularly access to evidence-based psychological help which wherever possible enables people to carry on working at the same time as receiving support. The evidence base for such interventions is reviewed in British Occupational Health Research Foundation (2005).
- **Effective rehabilitation** for those who need to take time off work, including regular contact with the employee during periods of absence.

10.2 Effectiveness and cost-effectiveness

Some evidence on the effectiveness of work-based interventions on the above lines is available from the results of mental health programmes pursued by large organisations such as British Telecom, the Royal Mail Group and Rolls Royce. For example, BT has reported that its mental well-being strategy has led to a reduction of 30% in mental health-related sickness absence and a return to work rate of 75% for people absent for more than six months with mental health problems (Wilson, 2007).

Box 14: Workplace savings in Wales

If all employers could achieve the same reduction in sickness absence, with equivalent reductions in presenteeism and turnover, it can be calculated that the overall savings would come to over £250 a year for every employee in the workforce in Wales, or nearly £400 million a year at the aggregate level.

In relation to cost-effectiveness, published evidence provides some positive evidence on the financial returns from health management programmes. For example, the results of an Australian programme of early diagnosis and intervention for employees with depressive symptoms indicate annual financial benefits in terms of higher productivity which are nearly five times the annual costs of the programme (Hilton, 2005). A similar programme in the US shows annual financial benefits of \$1,800 per employee compared with costs of only \$100 - \$400 a year (Wang et al, 2007). Economic appraisal of the various proposals in the Foresight report for improving mental health in the workplace suggests that these measures can generate good returns.

Box 15: Healthy Working Wales

Healthy Working Wales is a Welsh Assembly Government programme which aims to improve health and well being at work and to reduce the number of people flowing out of work and into economic inactivity due to ill health. Employers can access advice and support on workplace health issues and can receive recognition for their commitment to improving the health and well being of their employees through the national award programmes. The programme also provides advice and support to health professionals on health and work issues.

www.healthyworkingwales.com

11.0 Lifestyle (diet, exercise, alcohol) and social support

Although lifestyle messages have generally been promoted in relation to physical health, lifestyle factors also influence mental health. A recent review found that although the quality and quantity of studies vary, overall there is evidence to support the effectiveness of lifestyle messages for the promotion of positive mental health, including exercise, diet, moderating alcohol intake, learning new skills, creative pursuits and social participation (Friedli et al 2007).

Box 16: Stepped Care approach to promoting mental health in Torfaen

“In Torfaen we have been talking about the “stepped care” model. As part of a range of evidence based interventions, this would need community interventions to ensure that people have the awareness and information they need to develop their own positive coping mechanisms and to alleviate stress in their lives. This is much wider than traditional mental health services and needs the whole community to take an active role in understanding positive mental health and its importance. Discussions are at a very early stage and there are many challenges. Not least of which is the need to make sure that there are services in place today to meet the needs of people who are experiencing mental distress, while at the same time developing long term approaches to ensuring positive mental health”.

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Achieving change in relation to diet, exercise and alcohol has potentially large mental health benefits with relatively low cost interventions, particularly in primary care. Behaviour change will be influenced by a very wide range of factors and capacity, motivation and opportunity to adopt a healthy lifestyle are strongly influenced by mental health, as well as by socio-economic factors. Nevertheless, evidence from smoking and alcohol show that brief advice from a health care professional can be effective.

For this reason, mental health and lifestyle advice should be routinely and opportunistically offered in primary care and other health promotion settings, with a focus on diet, exercise and alcohol and strengthening social support. Interventions that promote collective opportunities for healthy lifestyles e.g. green gyms, walking groups and self help groups may have additional benefits and are sometimes offered through primary care via social prescribing/community referrals for people at risk of mental health problems e.g. those who are isolated.

Box 17: Debt

The economic recession has led to a growing focus on strengthening support, skills and advice for people facing financial difficulties in Wales. This includes advice on debt, access to credit e.g. via credit unions and a helpline for families facing homelessness. Debt is a significant risk factor for depression and anxiety and debt advice may also be offered via primary care.

<http://wales.gov.uk/topics/housingandcommunity/regeneration/debt/?jsessionid=hcpTJspd32VPdT1mFh74ZWdQmGxmhsSGhKKHpbgr5mT2RJLbpLQf!1116311810?lang=en>

See also: Taylor et al 2009; Melhuish et al 2008b

Box 18: Social prescribing/ community referrals for mental wellbeing

Social prescribing links people with non medical sources of support within the community. Social prescribing for mental health may be used both for clinical populations, to reduce symptoms e.g. of anxiety or depression and for at risk groups, to promote well-being or prevent mental illness. Examples include exercise on prescription, books on prescription and bibliotherapy, prescription for learning, arts and creativity, 'green gyms', volunteering, mutual aid, befriending and self-help, as well as support with, for example, employment, benefits, housing, debt, legal advice, or parenting problems.

Referral may be via primary care but also self referral or through a range of voluntary agencies or healthy living initiatives (Friedli et al 2009). Bibliotherapy was pioneered in Cardiff and involves partnerships between health and libraries (Hicks 2006).

Short- and medium-term outcomes include:

- increased awareness of skills, activities and behaviours that improve and protect mental wellbeing - e.g. the adoption of positive steps for mental health;
- increased uptake of arts, leisure, education, volunteering, sporting and other activities by vulnerable and at-risk groups, including people using mental health services;
- increased levels of social contact/ support among marginalised and isolated groups.

Friedli et al (2009)

11.1 Diet

A healthy diet has a wide range of positive outcomes and some specific mental health benefits. The cost of harmful eating patterns associated with anorexia, obesity and other eating disorders is high. For example, obesity reduces a person's life expectancy by 9 years on average and increases the risk of a wide variety of health conditions, including not only physical disease but also psychosocial problems such as reduced self-esteem and increased risk of depression and social isolation. The proportion of the Welsh population that is obese (BMI $\geq 30\text{kg}/\text{m}^2$) has risen from 18% in 2003/04 to 21% in 2006/07. Around 62% of men in Wales are overweight or obese, compared to 51% of women (van Woerden 2009).

Diet:

- contributes to balanced mood which is associated with academic success in children and improvements in behaviour;
- may influence risk, symptoms and outcomes for some mental health problems, including depression, schizophrenia and attention deficit disorder; and
- may also influence anti social behaviour, including violence (based on a study of young adult prisoners).

(Gesch et al 2002; Peet 2004; Mental Health Foundation 2005; Sustain 2005).



11.2 Alcohol

Excessive alcohol consumption and certain patterns of alcohol consumption e.g. binge drinking, appear to increase risk of depression and anxiety, although direction of causation is not always clear. There is a clear relationship between alcohol abuse, social functioning and factors that influence mental health e.g. violence, intimate partner violence and sexual abuse of children, as well as risk taking behaviour, self harm and suicide (Cabinet Office 2004; Strategy Unit 2003; Mental Health Foundation 2006). According to the WHO, alcohol misuse accounts for 6.7% of the total disease burden in Western European countries, covering the effects on premature mortality and disability/morbidity.

Effective approaches to reducing alcohol consumption include:

- brief interventions in primary care, A&E and criminal justice settings;
- life skills programmes in schools;
- increasing the price/reducing availability of alcohol.

(Ashenden *et al* 1997; Health Development Agency 2005).

Some people may be using alcohol to self-medicate stress, anxiety and depression and in these cases may benefit from talking therapies, exercise, improved diet or self-help groups (Mental Health Foundation 2006).

Box 19: Costs of alcohol misuse in Wales

Heavy drinking can contribute to both anxiety and depression and can accelerate the development of other psychiatric disorders, including psychosis. About a third of those with a serious mental illness have a problem of substance misuse, commonly alcohol misuse. Alcohol dependency syndrome accounts for some 1,500 to 1,800 hospital admissions per year in Wales. Alcohol is often implicated in the 50 or so suicides in Wales each year.

Alcohol-related crime and disorder costs Wales some £750million a year. Each year in Wales, about 30,000 bed days are related to alcohol, 15% of admissions being due to alcoholic intoxication. Almost half of the victims of violence report that they believe that their assailant was under the influence of alcohol. Alcohol plays a role in around a third of cases of violence between spouses and partners and some 64,000 Welsh children are adversely affected by parental alcohol problems

Coles 2006 Alcohol and health in Wales: a major public health issue

Working together to reduce harm: the substance misuse strategy for Wales 2008-2018

<http://wales.gov.uk/topics/housingandcommunity/safety/publications/strategy0818/?lang=en>

11.3 Physical activity

Physical activity has significant health benefits, although these have mainly been calculated in relation to physical health benefits. Adults who are physically active have a 20-30% reduced mortality risk compared with those who are inactive. Physical activity can help to prevent mental illness, as well as CHD, diabetes, musculoskeletal disorders, cancer and obesity, as well as having preventative and immediate effects on children's health. The WHO rates physical inactivity as one of the ten leading causes of death in developed countries.

In addition to the effects on health and the personal costs of diseases, inactivity costs the UK economy an estimated £8.2 billion annually through lost productivity, sickness absence and costs to the NHS (Wanless 2004). The average level of inactivity in Wales is amongst the highest in the UK.

Only 36% of men and 22% of women meet the recommended levels of activity (Welsh Health Survey 2004/5) In Wales, the indirect costs of inactivity in terms of lost output and sickness absence, in addition to the

direct costs of health care for entirely avoidable illness, comes to at least £500m per annum, equating to around £200 for each person in Wales - every year (Welsh Assembly Government 2005d).

For mental health, physical activity is effective in:

- Treating and improving symptoms for a wide range of mental health problems including depression, anxiety, phobias, panic attacks, stress disorders and schizophrenia;
- Improving mental well-being including self esteem, motivation, self efficacy, mood, self perception, quality and quantity of sleep;
- Improving cognitive function in children and maintaining cognitive function in adults; and
- Preventing depression, although there is insufficient data to determine the optimal level of exercise needed to reduce risk.

(Department of Health 2004)



Box 20: Heartlinks

A 6 year project, funded by the Welsh Assembly Government Inequalities in Health Fund, that aimed to reduce coronary heart disease (CHD) and improve health through a targeted exercise referral programme. The Heartlinks exercise referral model significantly increased physical activity levels, reduced modifiable CHD risk and improved perceptions of both physical and mental health over a 12 month period.

At the start of the programme, 65 per cent reported having “average” or “good mental health”, with 28 per cent reporting “poor mental health”. After the programme 21 per cent returned “poor mental health” scores, a reduction of 7 percentage points. At the other end of the scale there was an 11 percentage point increase in the number of people returning “good mental health” scores. The intervention is cost-effective for patients remaining in the programme for one year and becomes increasingly more cost-effective the longer they maintain their increased physical activity levels (Ward, Phillips et al 2009).



Effective approaches to increasing physical activity include brief interventions in primary care. There is limited evidence on the effectiveness of exercise referral schemes and community walking/cycling schemes although NICE recommends that all efforts to increase physical activity should continue (NICE 2006a).

‘Green exercise’ (physical exercise in a natural environment) is associated with increases in self-esteem, positive mood and self-efficacy (Pretty et al. 2003; Countryside Recreation Network 2005). Closeness and accessibility of green spaces in residential areas also influences overall levels of physical activity among children and young people. The more green space there is, the greater the amount of physical activity. These benefits may continue throughout adult life. Drawing on data collected across Britain, Ward Thompson et al (2008) found that people who spend time in natural environments as children are more likely to do so as adults, and with their own children.

Box 21: Merthyr Tydfil Exercise Referral scheme - 'Pathways to Health'

'Pathways to Health' is part of the Welsh Assembly Government funded, National Exercise Referral Scheme being rolled out in 13 areas, using a randomised control trial design over the next 2 years. Exercise referral provides an opportunity for clients to access a high quality, supervised, 16 week exercise programme with the aim of encouraging long term adherence to physical activity. Longer term support is offered via a number of exit strategies such as reduced gym membership or linking to local walking groups.

In Merthyr Tydfil, the scheme runs from sites across the Borough, with the majority of GP practices now referring, together with a number of other primary and secondary care sources. Up to the end of June 2009, 488 referrals were received.

The team are employed and managed by the Local Authority, with professional support from the Local Public Health Team, guidance from a multiagency steering group and partnerships between health and leisure.

A full evaluation of the scheme will be undertaken after 12 months, but initial results are very encouraging.

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Box 22: Mentro Allan

Merthyr Tydfil and Blaenau Gwent

Merthyr Tydfil and Blaenau Gwent have access to some of the most outstanding outdoor and natural resources in Wales. Mentro Allan is a joint partnership project to enable the local community to access the amazing natural resources available to its residents in order to increase physical activity levels and improve health. The target groups are people with poor mental health, people on low incomes and older people. Dedicated staff provide support and guidance to enable people to enjoy the variety of physical activities available in the natural outdoors.

Mentro Allan is based around four 'themed' activities situated in various locations across the Merthyr Tydfil and Blaenau Gwent geographical area:

- Walking activities
- Outdoor activities
- Parks and Gardening activities
- Exergaming

Mentro Allan will also provide training opportunities.

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Anglesey

Mentro Allan in Anglesey is aimed at young women from the ages of 16 to 30 living on Anglesey, giving opportunities to participate in Outdoor Activities on Anglesey for Free. Current activities include Horse Riding, Kayaking, Golf, Mountain Biking, Walking and Climbing. There are also volunteer and training opportunities.

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Box 23: Tŷ Mor Cycling

The cycling group runs three times a week at Tŷ Mor and aims to promote the mental health and wellbeing of people using mental health services. The main aims of the project are to:

- promote good mental health and well being;
- improve physical fitness;
- encourage group participation;
- give people a sense of achievement.

Initial responses show that Service Users generally feel energised and more positive in mood after their bike ride. A few Service Users have not ridden a bike for over 20-30 years. One person who didn't think she'd be able to ride the bike after such a long time was overjoyed when she'd cycled around the lake. Riding in a group promotes confidence.

When the Service Users return from their ride they speak with others at the centre and express how good they feel and this encourages others to talk about diet and exercise. Overall the project appears to have helped to promote the good mental health and well being of the group. For the future, a more formal evaluation will be conducted to measure outcomes.

The overall cost of the project is modest. The bikes cost £680, plus the cost of staff (employed by Denbighshire County Council) to run the three sessions.

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11.4 Lifestyle advice: Cost-effectiveness

There is robust evidence to suggest that advice from GPs can have a beneficial effect on lifestyle behaviours. Much of this relates to smoking, where there is review-level evidence to show that simple, brief, unsolicited advice from GPs is effective in increasing rates of smoking cessation (Law and Tang 1995) and is extremely cost-effective, mainly because it is so cheap: a typical GP consultation cost around £30 in 2007/08 (Curtis 2008). There is also good evidence of effectiveness in relation to alcohol, where a review of six published studies suggests that between 5 and 10 minutes of advice from GPs to patients with harmful alcohol consumption leads to reductions in consumption of around 25-35% at follow-up six months or a year later (Anderson 1993).

While the evidence in relation to diet and exercise is less strong, in all these areas only a very low level of effectiveness is needed to make the intervention cost-effective, given the scale of potential benefits and the very modest cost of GP advice.³¹

11.5 Social support

There is good quality longitudinal and cross sectional evidence, including some review level studies, that strong social networks and social support play a significant role in protecting mental wellbeing, preventing mental health problems and improving outcomes (Brugha et al 2005; Melzer et al 2004). The level of perceived support appears to be a key factor in influencing mental health. Although material living conditions and socio-economic status are stronger predictors of ill health, social support can partially offset the effects of deprivation, notably for children. A major programme of research exploring health assets concluded recently that social relationships are most effective in maintaining resilience in the face of adversity, notably through their impact on feelings of integration, competence, self-belief and positive planning for the future (Bartley 2006).

Strengthening levels of social support and identifying structural barriers to social contact, notably for those who are isolated or excluded, presents a significant policy challenge and is likely to involve action across many different areas including education, transport, housing, regeneration and residential care (Friedli and Carlin 2009).

³¹ However, a significant limitation of lifestyle advice is that it may reinforce or increase health inequalities as uptake is greater among people in higher socio-economic groups.

11.5.1 Time Banks

Time Banks are a mutual volunteering scheme using time as a currency. Time bank activities can be very wide ranging, including DIY, befriending, learning new skills, such as languages or word processing, sewing, cooking, giving lifts, shopping, and gardening. Time Banks have been widely used to reduce isolation and strengthen social support. They may also be used to build social cohesion, acknowledging and rewarding people who take an active part in community activities, such as organising social events, offering advice, street cleaning, environmental improvements and graffiti removal.

11.5.2 Time banks in Wales

Community organisations invite community members not to be passive recipients of community services, but to help actively deliver them, to run the community cafes, to transfer learning, to run support groups, afterschool clubs, bingo nights and comedy events. For every active hour that a community member 'gives' to the community organisation is an hour which can be used to access community events, trips and services. The results are dramatic, levels of active engagement rapidly increase, negative social problems decrease and the negative cycles of dependency and inactivity begin to unravel.

(Public Service Management Wales 2008)

Welsh Timebanks are 'hosted' within public and community agencies. Community members are then invited to actively engage and take ownership of public services. The 'host' agency acts as the central bank and acknowledges members for their time with credits. These credits can then be used for recreational services, to go on trips or attend local events.

This model aims to promote participation and mutual activity, encourage civil renewal and build social capital. For young people, Timebanks like T4YP in Wales draw on the evidence that children and young people's wellbeing is closely related to their ability to participate actively in society, to feel valued by others and to express their creativity and imagination (Russell Commission 2005).³²

³² Source: <http://www.timebankingwales.org.uk/index.php>

11.5.3 Youth Time Banking Projects

Box 24: Glyncoch Time 4 Young People (T4YP) project

“The concept of Time 4 Young People (T4YP) timebanking project is based upon the idea that unleashing young people’s own ideas and creativity is the most important step in helping to regenerate their communities from within. By recognising young people’s contribution to their local communities with time credits for events and other community-based activities, youth groups and other youth-focused agencies create a culture of ‘active citizenship’ and mutual respect between young people and their local environment.” (Ryan-Collins et al 2008)

Young people have earned time credits by:

- Helping to run community activities and the community centre.
- Putting on concerts for the community.
- Doing art projects, including a mural for the local primary school.
- Take part in environment clean-ups. Planting trees.
- Setting up a new youth organisation - the Glyncoch Youth Action Team (GYAT).
- Helping to run children’s play sessions.
- Helping to run youth sessions.

Trips and activities to use time credits include:

- Quad biking and ice skating
- My Fair Lady theatre trip where the young girls took their mums/aunties.
- A trip to London.
- Trips to the local arts centre.
- A three-day outdoor-pursuit weekend.
- A BBQ and ultimate Frisbee trip.

Following the introduction of the time bank, a time audit showed an increase of almost 100 per cent in active citizenship, from 120 hours to 1020 hours per year. The number of young people actively involved in the community has increased from 25 to 35. As a result of the time bank the young people were supported to set up their own decision-making organisation - GYAT (Glyncoch Youth Action Team). GYAT involves young people running the youth group and making decisions on activities, trips, budgets.

Source: Ryan-Collins et al (2008) <http://www.neweconomics.org/gen/uploads/u4o0dteqqt15ydu0gzphnuf011112008183530.pdf>

See also Aked et al 2009

Box 25: Bettws T4YP

In Bettws, a small valleys community in South Wales, Police were faced with the highest levels of youth anti-social behaviour out of 39 wards in the borough. In response, a new partnership between the Boys and Girls Club, Communities First Partnership, School, local community groups, Time Banking Wales and the Police developed to establish a T4YP Time Bank.

Young people from the area earned time credits by giving their time to community based projects, facilitated by the Boys and Girls Club, community groups and the school. These includes anti-bullying projects, environmental projects, supporting local community groups with activities, helping to run children and youth activities at the Boys and Girls Club such as a Halloween party, attending training by the police and making decisions with staff and local community police at the youth PACT meeting.

The young people used their time credits on attending classes at the youth club for example First Aid Courses, health and beauty sessions, judo, cheerleading and carpentry courses or attending events and social activities.

The project has been running for a year and has over 140 members, generating over five thousand active hours in the community. The project has had a dramatic impact on levels of anti-social behaviour. The Police have recorded a 17% reduction in crime (mainly anti-social behaviour) over the past year, within Bettws, since the project began.

There are now around 16 T4YP projects in the Valleys with another 8 in development, mostly funded by the Communities First scheme which strongly advocates community-led approaches to regeneration.

In their analysis (Ryan Collins et al 2008), nef found that apart from additional activities and trips, there are no additional staff costs in running the T4YP time banks. Timebanking Wales is looking to reduce administrative costs further by introducing currencies in the different T4YP communities rather than using pass books. Young people will then be issued with currency according to the number of hours they have earned which they can put towards community-organised trips and activities.

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12.0 Supporting communities: environmental improvements

The natural world, the built environment and public spaces all influence mental health (Halpern 1995; Weich et al 2002; Whitley et al 2005; Ellaway et al 2001; Hopton and Hunt 1996). There is growing evidence of the mental health benefits of the natural environment, including outdoor urban and rural public spaces: parks, woodland and forests, fields, mountains, rivers and lochs. Many of the mental health benefits of contact with nature are linked to the extra benefits or added value that come from the combination of the natural environment and other factors that support psychological wellbeing, for example physical activity, companionship, opportunities for meaningful activity, reflection, adventure and learning. The natural environment can provide greater motivation for people to get involved, notably in physical activity, but also in volunteering, gardening and other activities beneficial to mental health.

Environmental predictors of poor mental well-being include:

- Neighbour noise;
- Feeling overcrowded;
- Feeling unsafe/fear of crime;
- Damp housing is significantly and independently associated with GHQ12 scores over 5 (Hopton and Hunt 1996).

Protective features include places to escape to (e.g. green open spaces), places to stop and chat, events to bring people together, community facilities and social and entertainment facilities.

(Guite et al 2006; Chu et al 2004; Clark et al 2007)

Box 26: Sustrans - The Green Exercise - The Natural Health Service

This initiative is a coalition of 3 organisations: Sustrans Cymru, BTCV Cymru and Groundwork Wales.

The aim is to achieve sustainable public health improvement within the natural environment to contribute to healthier lifestyles, including helping to address the rising levels of obesity in Wales.

In a well controlled before and after study, using objective measures of a nearby natural environment, Wells found that a significant relationship between 'greenness' and cognitive function in low income children (Wells 2000). Children whose homes improved most in terms of greenness following relocation, had the highest levels of cognitive functioning following the move to a new home.

Those living in the most deprived areas are most likely to experience 'street level environmental incivilities' (litter, dog fouling, lack of safe places for children to play, few pleasant places to walk). Those with the highest level of street level incivilities are twice as likely to report anxiety and 1.8 times more likely to report depression (Curtice et al 2005). Street level environmental incivilities also impact on opportunities for social contact. These findings, although from cross sectional studies, suggest the potential of addressing street level concerns that may be relatively low in cost.

A Japanese study found longevity of older people in urban areas increased in accordance with the access to proximity of walk-able green spaces (Takano et al 2002). After controlling for the effects of the residents' age, sex, marital status, and socioeconomic status, the factor of walk-able green streets and spaces near the residence showed significant predictive value for the survival of the urban senior citizens over the following five years.



Box 27: Mental health benefits of woodlands for young people³³

A UK wide report for the Forestry Commission concluded that the therapeutic effect of woodland included *“a multitude of benefits on young people’s physical development, emotional and mental health and wellbeing, as well as their social development”* (Tabbush and O’Brien 2003).

Studies on the impacts of Forest School³⁴ on children in England and Wales, found positive effects on children’s confidence, social skills, language/communication, motivation, concentration, physical skills and knowledge and understanding of the natural environment (Murray and O’Brien 2003; 2005; Murray 2004; O’Brien and Murray 2007).

“for children taking part there is a link between Forest School activities carried out in a specific environment and six specific, positive outcomes that relate to their self confidence, self-esteem, team working, motivation, pride in, and understanding of their surroundings”.

Murray R (2004) Forest School Evaluation Project: a study in Wales

<http://www.neweconomics.org/gen/uploads/bheolf55nxgesmexvhdh0v4529072004140937.pdf>

Box 28: Social support/social networks and traffic density in residential areas

A recent study in Bristol replicates earlier research and found a dramatic deterioration in the social life of streets with heavy motor vehicle traffic (Hart 2008). The average resident on a busy street had less than one quarter of local friends compared with those living on a similar street with little traffic. Hart found that levels of motor traffic on residential streets are associated both with poor health and weakened social cohesion. In light traffic streets, the ‘home territory’ i.e. the area over which people feel a sense of responsibility is far broader than in heavy traffic areas and included three times the number of ‘gathering spots’. The study controlled for personality differences, showing that the primary influence was the external effect of traffic, with a particular toll on children and the elderly.

A study by Leyden (2003) carried out in and around Galway, Ireland found that “persons living in walkable, mixed use neighbourhoods were more likely to know their neighbours, participate politically, trust others and be socially engaged, compared with those living in car-oriented suburbs.”

For many areas, the growth in motorised traffic now represents a major threat to quality of life. As heavy MVT is more prevalent in deprived residential areas, action on traffic control can make a contribution to reducing health inequalities, in addition to strengthening opportunities for social contact.

³³ <http://www.forestschoollwales.org.uk/>

³⁴ **Forest School** provides an opportunity for active learning in a woodland environment. It involves children visiting a local wood on a regular basis and over an extended period of time (Borradaile 2006)

Parks, play areas and other open spaces provide an established route to increasing opportunities for social contact (Worpole and Knox 2007).

Box 29: Green open spaces and health inequalities

In a recent population study, Mitchell and Popham found that populations exposed to the greenest environments (parks, woodlands, open spaces) *also have lowest levels of income-related inequality in health* (Mitchell and Popham 2008).

Health inequalities related to income deprivation in all-cause mortality and mortality from circulatory diseases were lower in populations living in the greenest areas. The health gap was roughly halved compared with those with fewest green spaces. Possible mechanisms include physical activity, stress buffering and the direct relationship between contact with nature and reduced blood pressure.

12.1 Environmental improvements and cost effectiveness

Although there is limited data on effective interventions and almost no available data on cost effectiveness, there is growing public and policy concern about the environment and its impact on well-being. While it is not possible to provide any definitive statements on the cost benefits, investing in environmental improvements may not necessarily involve high cost interventions (e.g. addressing street level incivilities) and will help to ensure a balance between interventions that focus on individuals and those that address the wider determinants of mental health and well-being (Wilkinson 2005).

13.0 Conclusions

The evidence summarised in this report demonstrates a very strong general case for mental health promotion, broadly defined to include the prevention of mental illness and the promotion of positive mental health and well-being.

On any reckoning the costs of mental ill-health - and hence the potential benefits of prevention - are extremely high, partly because of the widespread occurrence of mental illness, partly because of its typically early manifestation and persistence over the lifespan and partly because of the multi-dimensional nature of its consequences.

According to new figures prepared for this report, the overall cost of mental health problems in Wales (2007/08) is estimated at £7.2 billion a year. By way of comparison, the aggregate cost of £7.2 billion is larger than the total amount of public spending in Wales on health and social care for all health conditions combined, which amounted to £6.1 billion in 2007/08. At the same time, the treatment of many clinically diagnosed mental disorders is of limited effectiveness.

Although they are more difficult to quantify at this stage, the benefits of positive mental health are also likely to be considerable. These include improved physical health, reductions in health damaging behaviour, greater educational achievement, greater productivity, reduced crime and higher levels of 'pro-social' behaviour or participation in community life.

The growing interest in well-being indicators and the use of scales that measure different elements of well-being will make it easier to assess the relationship between positive mental health and improvements in these domains. In the long term, these will also help to clarify the relative contribution of social, economic and environmental determinants of mental health and better inform decisions about interventions.

In the meantime, this report has shown that both prevention and promotion have the potential to achieve significant savings in Wales. Based on conduct disorder, one example of a common mental health problem for which there is robust evidence of effective interventions, the total value of prevention in a one-year cohort (33,000 births) would be **£247.5 million**, with the total value of promoting positive mental health amounting to **£1,113.75 million**.

In comparison, the costs of intervention are very low, ranging from £1,350 to £6,000 per child for pre-school parenting programmes. Substantial investment in these programmes is therefore justified even if their effectiveness is limited, given the size of potential benefits relative to cost. A range of evidence suggests that success rates at the level required can be achieved in real life settings.

Many things affect mental health and better mental health has many potential benefits. A concern for mental health should therefore be everybody's business, supporting the development of mentally healthy families, mentally healthy schools, mentally healthy workplaces and mentally healthy communities, as well as policies (notably economic, fiscal and environmental) that support mental health and well-being at all levels. A key role for health promotion and public health should be to foster this wider perspective and to encourage the mainstreaming of mental health in as wide a range of settings and organisations as possible.

In terms of priorities there is a compelling case for putting support for parents and childhood interventions at the forefront. Other items on our provisional list of 'best buys' include:

- Supporting parents and early years: parenting skills training/pre-school education/home learning environment;
- Supporting lifelong learning: health promoting schools and continuing education;
- Improving working lives: employment/workplace;
- Positive steps for mental health: lifestyle (diet, exercise, alcohol, social support);
- Supporting communities: environmental improvements.

Together, these interventions have considerable potential to deliver both economic benefits and improved quality of life for the whole population of Wales.

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Appendix A: Warwick-Edinburgh Mental Wellbeing Scale

The Warwick-Edinburgh Mental Well-being Scale (WEMWBS)

Below are some statements about feelings and thoughts.

Please tick the box that best describes your experience of each over the last 2 weeks.

STATEMENTS	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	1	2	3	4	5
I've been feeling useful	1	2	3	4	5
I've been feeling relaxed	1	2	3	4	5
I've been feeling interested in other people	1	2	3	4	5
I've had energy to spare	1	2	3	4	5
I've been dealing with problems well	1	2	3	4	5
I've been thinking clearly	1	2	3	4	5
I've been feeling good about myself	1	2	3	4	5
I've been feeling close to other people	1	2	3	4	5
I've been feeling confident	1	2	3	4	5
I've been able to make up my own mind about things	1	2	3	4	5
I've been feeling loved	1	2	3	4	5
I've been interested in new things	1	2	3	4	5
I've been feeling cheerful	1	2	3	4	5

Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)

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Appendix B: Measuring the economic and social costs of mental health problems in Wales

As noted in the main text, the costs of mental health problems can be grouped together under three main headings: the costs of health and social care; the costs of output losses in the economy; and the personal or human costs of mental health problems, representing their adverse impact on the quality of life. Details of the methods and sources of data used in analysing these various components of cost are set out below. Further, more technical information on methodology may be found in a study of the economic and social costs of mental health problems in England (Sainsbury Centre for Mental Health, 2003), on which the general approach used here is largely based.

The costs of health and social care

The estimated costs of health and social care for people with mental health problems in Wales in 2007/08 are given below. As can be seen, the main elements are public spending on mental health services and the attributed costs of informal care.

	£ million	% of total
NHS and social care services	746.7	70.6
Informal care	251.9	23.8
Other	59.2	5.6
Total	1,057.8	100.0

NHS and social care services

The total of £746.7 million for this item breaks down between £682.5 million for spending on health services for people with mental health problems provided by the NHS and £64.2 million for spending on social care services provided by local authorities.

The figure for NHS spending is derived from the NHS Expenditure Programme Budget for 2007/08 published by the Statistical Directorate of the Welsh Assembly Government (Statistical Directorate, 2009), which provides a detailed breakdown of NHS expenditure by health condition. Total spending by the NHS in 2007/08 was £4,796.5 million, of which £580.4 million was identified as attributable to mental health problems. The programme budget includes an unallocated item of £641.6 million, including spending of £340.3 million on general medical services, i.e. the services provided by GPs. It has been found in other studies that around 30% of all GP consultations are associated with mental problems (Scottish Association for Mental Health, 2006) and on this basis a further allocation of £102.1 million has been added to the figure of £580.4 million for spending on mental health problems identified in the programme budget. The figure of £64.2 million for spending on social care services by local authorities is given in Social Services Statistics Wales published by the Data Unit of the Welsh Assembly Government (Data Unit, 2009).

Informal care

It is estimated in Sainsbury Centre (2003) that the cost of informal care provided for people with mental health problems by relatives and friends amounted to £3.9 billion in England in 2002/03. This was based on survey data for the UK as a whole which provided information on the total number of hours spent by carers, to which a monetary value was then imputed on the basis of what it would cost to produce an equivalent output if undertaken as paid work by a third party such as an assistant nurse or nursing auxiliary.

Based on this figure for England (after uprating to 2007/08 values in line with average earnings), the estimate of £251.9 million for informal care relating to mental health problems in Wales is calculated by taking into account: relative population size; relative pay rates (i.e. average earnings in Wales compared with England); and national survey data showing that the overall prevalence of mental health problems, and hence the likely extent of caring, is 10-15% higher in Wales than in England (Singleton et al., 2001).

Other costs

Other costs of care include: private spending on mental health services by individuals and by charities and voluntary organisations; the costs of accommodation for people who are homeless and who have mental health problems; and the costs of administration for social security benefits paid to people because of their mental ill health. It is estimated in Sainsbury Centre (2003) that in England the combined cost of these items amounted to 5.6% of the total costs of health and social care relating to

mental health problems and in the absence of detailed information it is assumed that the same proportion applies in Wales.

As an important aside on methodology, it should be noted that while the above figures include the cost of administering social security benefits, they exclude the much larger cash cost of the benefits themselves. The main reason for this is that these costs are effectively subsumed in the measurement of output losses in the economy which result from the adverse impact of mental health problems on people's ability to work.

To elaborate briefly, if individuals are no longer able to work because of mental ill health they generally become eligible for social security benefits such as Incapacity Benefit. The financing of these benefits is a cost to taxpayers but not to the economy as a whole. The true cost to the economy when someone stops working is the loss of output that would have otherwise have been produced, as measured by the individual's gross earnings when in work. The cost of this loss falls partly on the individual (in the form of lower income) and partly on the taxpayer (in the form of reduced revenue from taxation and higher spending on social security), but this is merely an observation on how the cost is distributed between different groups in society and has no bearing on its total size or economic value. As long as the loss of output is properly measured according to the individual's gross earnings when in work, it would be double-counting to include both this cost and the cost of social security spending. In effect, the latter is already included in the former.

The costs of output losses

Mental health problems have a variety of adverse effects on employment and output. The costs to the Welsh economy are estimated as follows:

	£ million	% of total
Sickness absence and other in-work costs	1,161.5	43.3
Worklessness	1,409.6	52.6
Premature mortality	110.0	4.1
Total	2,681.1	100.0

In-work costs

Perhaps contrary to popular belief, most people with mental health problems are in paid employment and are almost as likely to be working as anybody else. The prevalence of mental health problems in the workforce is not much different from that in the population at large and at any one time about one worker in six will be experiencing depression, anxiety or problems relating to stress. Only a small proportion of these problems are directly caused by work or working conditions.

A recent study has estimated that in the UK as a whole the total cost of mental health problems in the workplace amounted to nearly £26 billion in 2006 (Sainsbury Centre, 2007). This includes:

- £8.4 billion a year in sickness absence, corresponding to 70 million working days lost each year because of mental health problems;

- £15.1 billion a year in reduced productivity at work or 'presenteeism' (defined as the loss in productivity that occurs when employees come to work but function at less than full capacity because of ill health); and
- £2.4 billion a year in the costs of replacing workers who leave their jobs because of mental ill health.

Based on the UK total (uprated to 2007/08 values in line with average earnings), the estimate of £1,161.5 million for in-work costs in Wales is calculated by taking into account: the overall numbers employed in Wales relative to the size of the UK workforce as a whole; the level of earnings in Wales relative to the UK average; and the above-average prevalence of mental health problems in Wales.

Worklessness

In the UK as a whole 25.2% of the population of working age were not in work in 2007/08, either because they were unemployed (i.e. not in work but actively looking for work) or because they were economically inactive (i.e. not in work and not looking for work). The corresponding rate in Wales was somewhat higher at 28.4% (Welsh Assembly Government, 2009). Other indicators tell a similar story. For example, 15.7% of all people of working age in Wales were claiming out-of-work benefits in 2007/08 compared with 11.9% in the UK generally, and 18.5% of all working-age households contained no-one in work compared with a UK average of 15.6% (Welsh Assembly Government, 2009). In part this higher rate of worklessness in Wales reflects a higher prevalence of mental health problems, although other factors are clearly also important.

A recent study by the King's Fund has estimated that the total cost of worklessness in terms of lost earnings attributable to mental health problems amounted to £26.1 billion in England in 2007 (McCrone et al., 2008). Drawing on this estimate, the figure of £1,409.6 million for the cost of worklessness in Wales is calculated by adjusting for the size of the non-working population in Wales relative to that in England (which takes into account the higher prevalence of mental health problems in Wales) and also for relative wage levels in the two countries.

Premature mortality

There were 290 suicides in Wales in 2007 (Samaritans, 2009) and in line with previous studies it is assumed that around 90% of these deaths were associated with mental health problems. Suicide rates are particularly high among men in the younger age groups. While the primary impact of suicide is clearly in terms of the human loss and the impact of bereavement on others, there is inevitably also a financial cost. Taking into account the overall reduction in expected years of working life and average earnings, the cost of lost output that is attributable to premature mortality associated with mental health problems is valued at £110 million in Wales for 2007/08.

Human costs

As just described, mental health problems can reduce the capacity of those affected to work and it is clear that this negative impact on the output of the Welsh economy is a genuine cost. On the other hand, in assessing the overall impact of mental health problems, it is also clear that this so-called "human capital" approach tells only part of the story.

Undoubtedly the most important and compelling costs of mental health problems are the less tangible ones of suffering, distress and disability. Another problem is that by its very nature the human capital approach cannot ascribe any cost of ill health to individuals who are outside the labour market, such as children and older people.

Any comprehensive assessment of the costs of mental health problems should therefore attempt to place a monetary value on the reductions in the quality of life that are caused by these problems. To the extent that this is regarded as contentious, any such attempt can be justified primarily on the grounds that it is better to be roughly right than precisely wrong, and it is clearly wrong to ascribe a zero value to the human costs of mental illness.

A detailed account of the methodology used for quantifying and valuing human costs is given in Sainsbury Centre (2003). In brief, three main steps are involved:

- Using survey evidence on a general measure of health status (the quality-adjusted life year or QALY) to quantify the adverse effects of mental health problems, classified as 'mild' or 'severe', on an individual's quality of life;
- Relating this measure to prevalence data on the number of people in the population with mild or severe mental health problems in order to generate an estimate of the total number of QALYs lost annually as a result of mental ill health; and
- Deriving an estimate of the monetary value of a QALY and using this to convert the estimated number of QALYs lost each year to a monetary equivalent.

It is estimated in Sainsbury Centre (2003) that the total number of QALYs lost because of mental health problems was nearly 1.4 million in England in 2002. As official surveys of psychiatric morbidity show that there was virtually no change in the overall prevalence of mental health problems in England between 2000 and 2007 (McManus et al., 2009), this estimate can be taken as applying without adjustment for 2007. Based on this figure, an equivalent total for Wales can be calculated by taking into account relative population size and also the somewhat higher prevalence of mental health problems in Wales compared to England. On this basis it is estimated that the number of QALYs lost in Wales because of mental health problems was around 92,000 in 2007.

Using a variety of methods, the monetary value of a QALY was assessed in Sainsbury Centre (2003) at £30,000 in 2002/03 prices. A plausible assumption is that over time the value of a QALY moves in step with money GDP per head and a calculation on this basis gives a figure of around £38,000 for the value of a QALY in 2007/08 prices. Given an estimate of 92,000 for the total number of QALYs lost in Wales each year, the overall monetary value of the human costs associated with mental health problems can therefore be estimated at just under £3.5 billion in 2007/08.

While undoubtedly subject to a considerable margin of error, the estimated total is nevertheless of interest. It suggests, for example, that the human costs of mental health problems are nearly five times the cost of all mental health services in Wales provided by the NHS and local authorities.