Mental illness and unhappiness

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<div align="center">**ABSTRACT**</div>

Mental illness and unhappiness*

This paper is a contribution to the second *World Happiness Report.* It makes five main points.

1. Mental health is the biggest single predictor of life-satisfaction. This is so in the UK, Germany and Australia even if mental health is included with a six-year lag. It explains more of the variance of life-satisfaction in the population of a country than physical health does, and much more than unemployment and income do. Income explains 1% of the variance of life-satisfaction or less.

2. Much the most common forms of mental illness are depression and anxiety disorders. Rigorously defined, these affect about 10% of all the world's population – and prevalence is similar in rich and poor countries.

3. Depression and anxiety are more common during working age than in later life. They account for a high proportion of disability and impose major economic costs and financial losses to governments worldwide.

4. Yet even in rich countries, under a third of people with diagnosable mental illness are in treatment.

5. Cost-effective treatments exist, with recovery rates of 50% or more. In rich countries treatment is likely to have no net cost to the Exchequer due to savings on welfare benefits and lost taxes. But even in poor countries a reasonable level of coverage could be obtained at a cost of under $2 per head of population per year.

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Mental illness is one of the main causes of unhappiness. This is not a tautology. For, as the first *World Happiness Report* showed,[1] people can be unhappy for many reasons – from poverty to unemployment to family breakdown to physical illness. But in any particular society, chronic mental illness is a highly influential cause of misery.

By far the most common forms of mental illness are depression and anxiety disorders, so we particularly concentrate on these in this paper. We develop the following key points:

1. Mental illness is a highly influential – and in the countries we have assessed, the single biggest – determinant of misery (see Table 1).

2. Prevalence varies between countries, but these conditions affect about 10% of the world's population at any one time.

3. Worldwide, depression and anxiety disorders account for up to a fifth of all disability. This involves massive costs in lost output as well as increased physical illness.

4. Even in rich countries, less than a third of people who suffer from mental illness are in receipt of treatment and care; in lower-resource settings, the situation is considerably worse. This is serious discrimination; it is also unsound economics.

5. Cost-effective treatments exist. For depression and anxiety disorders, evidence-based treatments can have low or zero net cost. They can and should be made far more universally available.

6. Schools and workplaces need to be much more mental health-conscious, and directed to the improvement of happiness, if we are to prevent mental illness and promote mental health.

1. Mental illness as a key determinant of unhappiness

Mental health or psychological wellbeing makes up an integral part of an individual's capacity to lead a fulfilling life, including the ability to study, work or pursue leisure interests, and to make day-to-day personal or household decisions about educational, employment, housing or other choices. The importance of good mental health to individual functioning and wellbeing can be amply demonstrated by reference to values that sit at the very heart of the human condition:

- *Pleasure, happiness and life-satisfaction*: There is a long-standing and widely accepted proposition that happiness represents the ultimate goal in life and the truest measure of

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[1] Helliwell et al. (2012), Chapter 3.

wellbeing. It is hard if not impossible to flourish and feel fulfilled in life when individuals are beset by health problems such as depression and anxiety.

- *Family relations, friendship and social interaction*: Individuals' self-identity and capacity to flourish are deeply influenced by their social surroundings, including the opportunity to form relationships and engage with those around them (family members, friends, colleagues). Difficulties in communication as well as loneliness and social isolation are well-documented concomitant consequences of mental illness.

- *Independent thought and action*: The capacity of individuals to manage their thoughts, feelings and behaviour, as well as their interactions with others, is a pivotal element of the human condition. Health states or conditions that rob individuals of independent thought and action – such as acute psychosis or profound intellectual disability – are regarded as among the most severely disabling. In the most recent Global Burden of Disease study, for example, acute schizophrenia has the highest disability weight out of 220 health state valuations made (0.76, where 0 equals no disability and 1 equals complete disability).[2]

It is in the interest of individuals, communities and countries to nurture and uphold these core human attributes.

Misery

We can see the crucial role of mental health by asking: what are the most important determinants of misery? It is now possible to address this question because in many countries representative samples of the population are now asked how satisfied they are with their lives. In the following analysis we define misery as being in the bottom quarter of the population in terms of life-satisfaction. We then attempt to explain which members of the population over 25 are in misery (on that definition) and which are not.

As the table shows, mental health problems represent the most important explanatory variable. They are more important than physical illness, which in turn is more important than income or unemployment.[3] These priorities differ markedly from those followed by most politicians, largely because stigma inhibits the public expression of the demand for better treatment for mental illness.

So how can we improve the mental health of the adult population? There are two main strategies. One is to provide better healthcare and social support for adults who are mentally

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[2] Salomon et al. (2012).

[3] For the full analysis by Sarah Flèche see the appendix. In that analysis we also show the effect of lagged values for mental illness. When this is lagged one year, it is again more important than current physical illness. When mental health is lagged 6 years, the effects of lagged mental illness and current physical illness are similar in size. The annex also shows fixed effects results, with similar conclusions.

Table 1: How mental health affects misery[4]

(Standardized β-statistics)

	Britain (BHPS)	Germany (SOEP)	Australia (HILDA)
Mental health problems	0.46*	0.26*	0.28*
Physical health problems	0.08*	0.16*	0.08*
Log Income per head	-0.05*	-0.12*	-0.04*
Unemployed	0.02*	0.04*	0.05*
Age	-0.10*	-0.07*	-0.13*
Married	-0.11*	-0.06*	-0.10*
Female	-0.04*	-0.04*	-0.04*
Time, region dummies	✓	✓	✓
N	71,769	76,409	73,812

      * $p<0.01$

ill. But a second is to intervene earlier, since half of adults who are mentally ill experienced the onset of their mental health problems by the age of 15.[5]

To see the importance of early mental health intervention, we can look at a cohort of people born in one particular year and see what features of their childhood development best predict their life-satisfaction as adults. Here we focus on the British cohort born in 1970, for whom we have detailed measurements of their development as children at ages 5, 10 and 16 along three dimensions: emotional, behavioural, and intellectual. We also have a wealth of information about their family background – economic, social and psychological.

Holding constant these family background variables, Figure 1 shows the contribution of the child's development to her resulting life-satisfaction as an adult.[6] It is the emotional development of the child that turns out to be much the most important factor. Next comes the child's behaviour – another dimension of the child's mental health, and after that the child's intellectual development. If you are interested in wellbeing, intellectual development needs to be balanced by much more interest in emotional and social development. Similarly when we turn to the effect of family background, the most powerful factor (in this and other studies) is the mother's emotional health.[7]

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[4] Britain: BHPS (1997-2008). Germany: SOEP (2002-9). Australia: HILDA (2007-2010) Dates relate to observations, but lagged data are from earlier years where this is necessary. Regressions by Sarah Flèche (see appendix).
[5] Kim-Cohen et al. (2003). Kessler et al. (2005).
[6] Layard et al. (2013). See also Frijters et al. (2011).
[7] See, for example, Johnston et al. (2011).

Figure 1: What are the main childhood influences on adult life-satisfaction? (Britain)[8]
(Partial correlation coefficients)
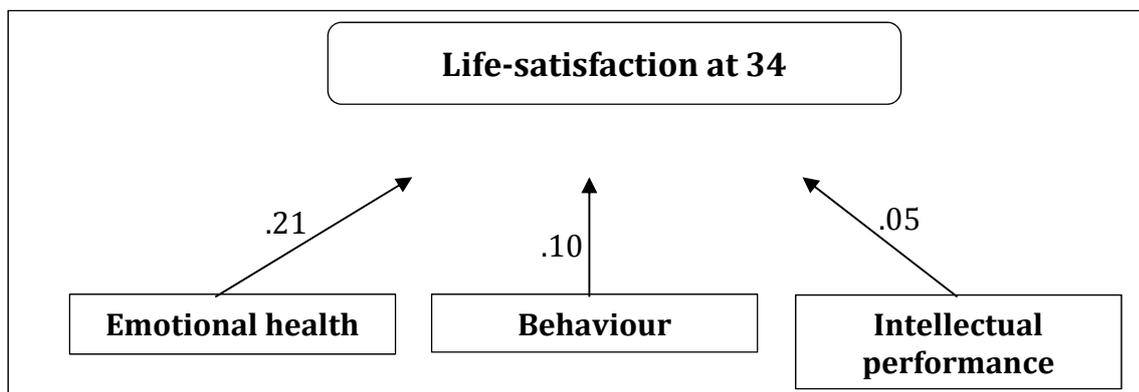
All these facts underline the key importance of mental health services at every age, but particularly in the formative stages of life when the key attributes of emotional health are at their most crucial stage of development. It is vital to have good child (as well as adult) mental health services – both to improve the quality of life of children and to stop mental illness that would otherwise continue into adult life. So how common are mental health problems?

2. The prevalence of mental illness worldwide

Mental disorders are a common occurrence in all regions and cultures of the world. For many years, a persistently held belief was that these disorders were the preserve of rich countries; epidemiological studies over the last generation have manifestly shown this not to be the case. In fact, by dint of population size, the large majority of persons with a mental disorder reside in low- and middle-income countries of the world. The prevalence of these conditions is dominated by the so-called "common mental disorders" of depression and anxiety, and they are indeed highly prevalent – between them they occur at any one time in nearly one in 10 persons on the planet (676 million cases; see Table 2 for some overall global estimates).[9] In childhood and adolescence, behavioural disorders constitute the most common problems, accounting for a further 85 million cases.

Prevalence rates differ between countries but not greatly between groups of countries (when grouped by income level). For example, the World Health Survey found the following point estimates for depression among adults:[10] high-income countries 7.1%, upper middle-income 7.6%, lower middle-income 6.4% and low-income 6.0%. Such estimates of course

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[8] Layard et al. (2013).
[9] Vos et al. (2012).
[10] Rai et al. (2013).

mask variations with respect to age and sex. The prevalence of depression among women, for example, is substantially higher than among men.[11]

By weighting the time that individuals spend in these different health states by their estimated level of disability, one can get a better sense of the relative contribution that these disorders make to the overall burden of disease in a population. Figure 2 shows that, across different regions of the world, depression and anxiety disorders alone account for 10-18% of *all* years lived with disability in those populations. The disability burden is highest in adolescence and young adulthood (20% among 15-19 year olds), falling steadily to 10% by the age of 60-64 years (see Figure 3).

Table 2: Global estimates of the prevalence of common mental disorders[12]

	Percent of the world's population	Total number of cases in the world
Depression (incl. dysthymia)	6.8	404 million
Anxiety disorders	4.0	272 million
Childhood behavioural disorders (ADHD, conduct disorder)	1.2	85 million

Figure 2: Percent of total years lived with disability (YLD) due to depression and anxiety disorders, by world sub-region[13]

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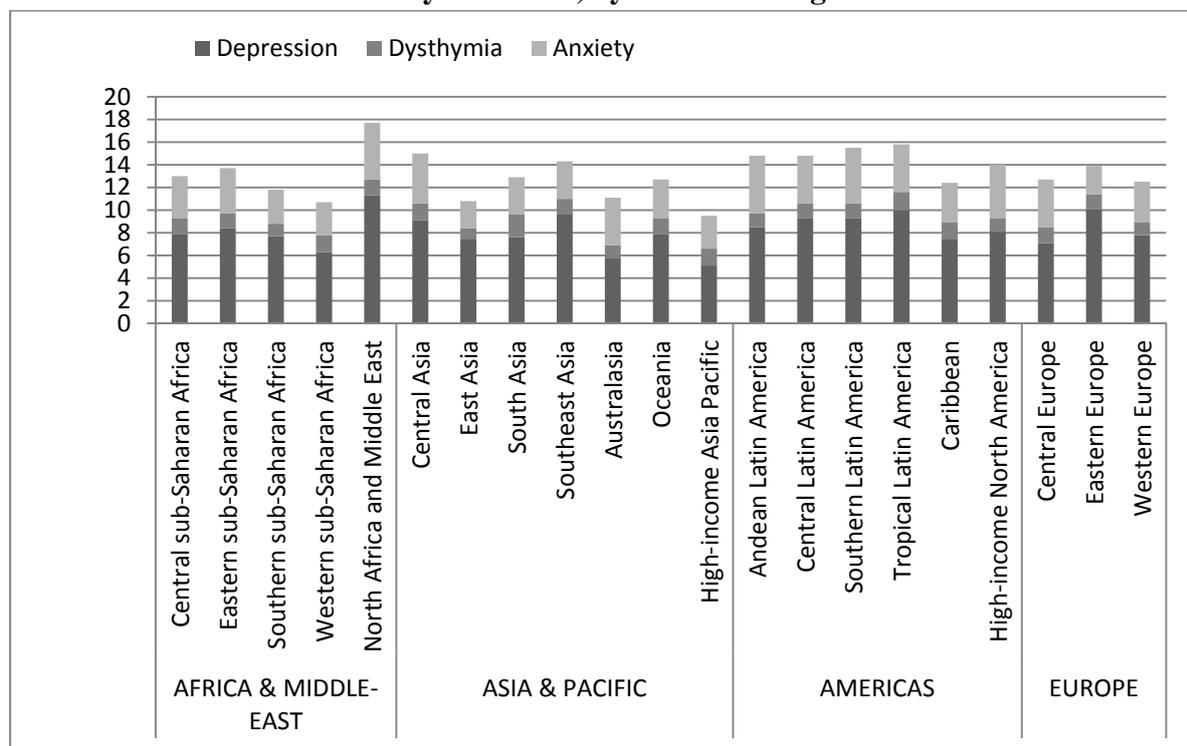
[11] 5.9% compared to 3.8%, according to a recent systematic review, see Ferrari et al. (2013).
[12] *Source*: Vos et al. (2012).
[13] *Source*: GBD 2010 summary dataset http://ghdx.healthmetricsandevaluation.org/sites/ghdx/files/record-attached-files/IHME_GBD_2010_COD_1990_2010.CSV

Figure 3: Percent of total years lived with disability (YLD) due to depression and anxiety disorders, by age group[14]
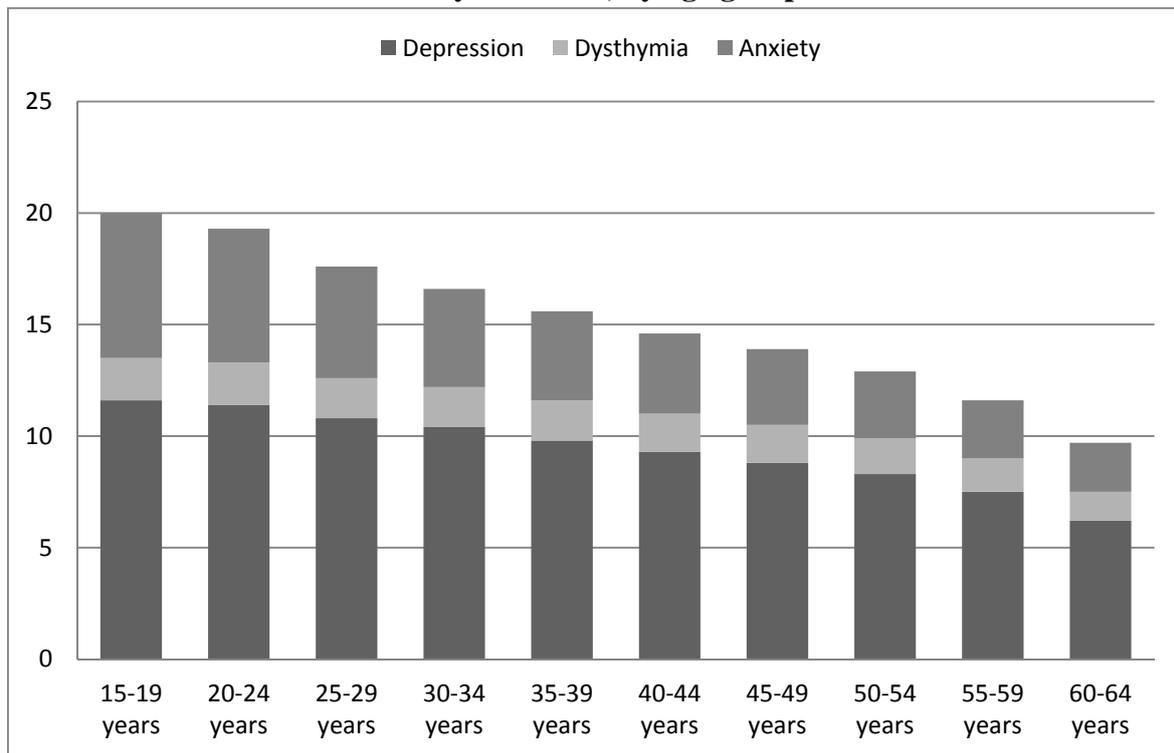
Research is only now beginning on what factors explain the observed variation in mental illness among countries. It is sufficient here to record that there is some relation at the country level between the scale of mental illness and the level of national happiness.[15]

3. The under-treatment of mental illness

A key contributing factor to the burden of mental disorders is the lack of appropriate care and treatment for those in need. This difference between identified need and actual service provision has been referred to as the "treatment gap." Making use of community-based psychiatric epidemiology studies that included data on the percentage of individuals receiving care, the median treatment gap for schizophrenia has been estimated at 32%, but for all other conditions – including bipolar disorder, depression, dysthymia, anxiety disorders and alcohol dependence – it well exceeded 50%.[16]

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[14] *Source*: GBD 2010 summary dataset.

[15] For the 66 countries with available data (Ayuso-Mateos et al. (2010), Data Supplement 1), there is a -.09 correlation between the prevalence of depressive episodes and the ladder life evaluation used in Chapter 2. Correlations are somewhat higher with two measures of negative affect yesterday: sadness (+.21) and worry (+.15). The highest correlations with measures of positive affect yesterday are with enjoyment (-.16), and laughter (-.12). It should be said that due to small sample numbers none of these correlations is significant at the 5% level.

[16] Kohn et al. (2004).

Again, global estimates mask important variations between different geographical or income settings, as well as different conditions and severity levels. Figure 4 reinforces this point by revealing just how very low service uptake rates are for mental and substance use disorders in most low- and middle-income countries, even when the degree of disability or health loss is severe: only 10-30% of severe cases were in contact with services over the previous year in low- and middle-income countries, compared to (a still inadequate) 25-60% in high-income countries.[17]

Figure 4: Rate of service use for anxiety, mood and substance use disorders[18]
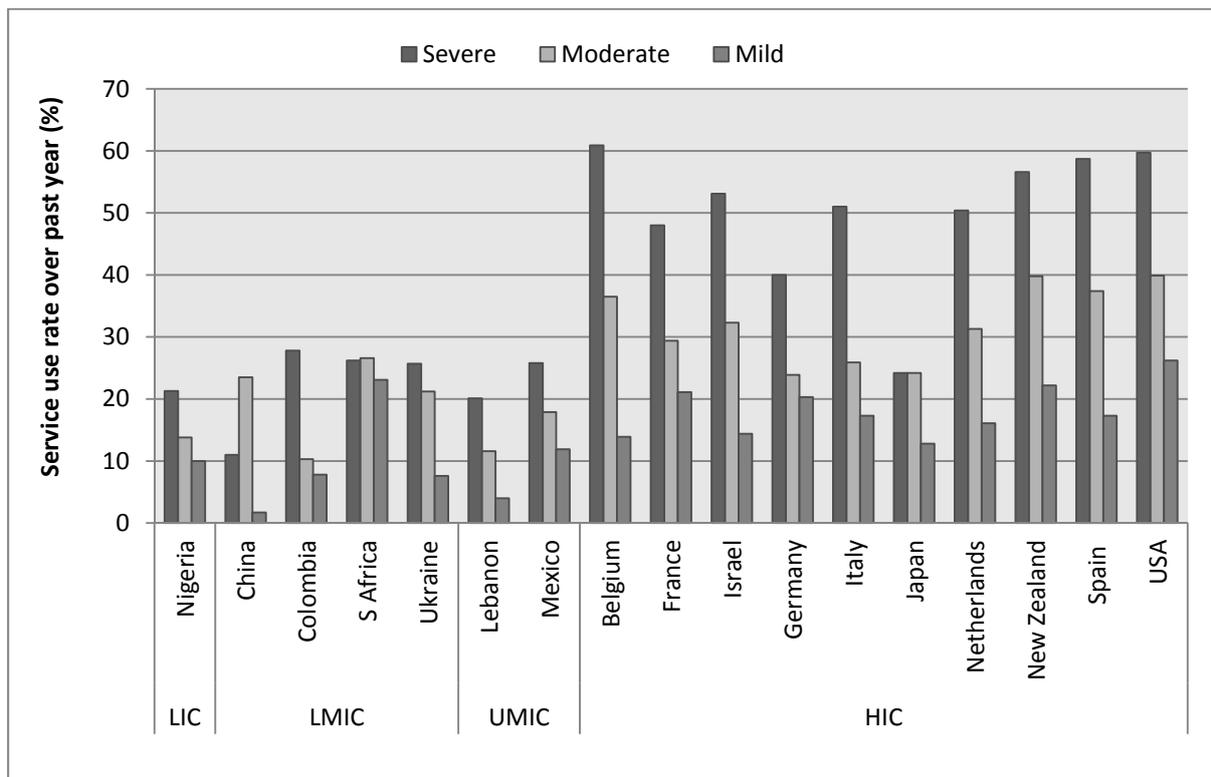
[17] Wang et al. (2007).
[18] *Source*: Wang et al. (2007).

4. The cost of mental illness

The low rate of treatment of mental compared with physical illness is a case of extreme discrimination. It also makes no sense because:

- untreated mental illness exerts huge costs on society, and
- good treatments exist, which are not expensive.

We look first at the social costs of mental illness.

Loss of output and employment

The most obvious of these are the loss of output that results when people cannot work. In OECD countries employment would be 4% higher if people who are mentally ill worked as much as the rest of the population.[19] And, even if they are in work, people who are mentally ill are more likely to go off sick. If they were no more absent than other workers, hours worked would rise by 1%. On top of this, people experiencing mental health problems perform below par when they are at work. This "presenteeism" reduces output by at least another 1%. Thus if we add all these factors together OECD output is reduced by up to 6% by mental illness. Estimates are not available for other countries.

From a public policy point of view, however, governments may be less worried about the cost to the economy than about the cost to the public finances. These can be very substantial. In high-income countries, those who cannot work get disability benefits, and they also pay much less in tax than they otherwise would. In most high-income countries, mental illness accounts for at least a third of those on disability benefits – and more if psychosomatic conditions are included. Finance ministries in high-income countries are typically losing at least 1.5% of Gross Domestic Product (GDP) in disability benefits and lost taxes due to mental illness.

Physical healthcare

Mental illness also has a huge effect on physical health, and thus on the need for physical healthcare. Broadly speaking, compared with other people of the same age, people who are mentally ill are 50% more likely to die.[20] For people who have been admitted to the hospital for mental health reasons, the difference in life expectancy is some 15-20 years.[21]

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[19] OECD (2012), p.41.
[20] Mykletun et al. (2009), Satin et al. (2009), Nicholson et al. (2006), Roest et al. (2010).
[21] Wahlbeck et al. (2011).

Moreover, if people with depression or anxiety disorders have a given physical condition, they are likely to receive 50% more healthcare than other patients who have similar physical conditions.[22] In advanced countries these extra healthcare costs may amount to at least 1% of GDP.

Mental healthcare

So there are significant costs of mental illness, in terms of lost production and extra physical healthcare. If we also add in the cost of child mental illness, we have further major costs to include in terms of crime, social care and educational underachievement.

The main objective of mental healthcare is to raise the quality of life of patients and their families. But the case is stronger still when we take into account the costs to society and to the government.

So finally, how much do countries spend on mental healthcare? No government spends more than 15% of its health budget on mental healthcare,[23] and even there (England and Wales) this amounts to only 1% of GDP. Other countries spend much less – see Figure 5. The underspend is particularly large in low-income countries.

When we consider the huge impact of mental health on life-satisfaction, these figures are disproportionately low when compared with other items of government expenditure. But that judgment depends of course on the fact that cost-effective treatments exist that could be made much more widely available.

Figure 5: Mental health spending in different types of countries[24]
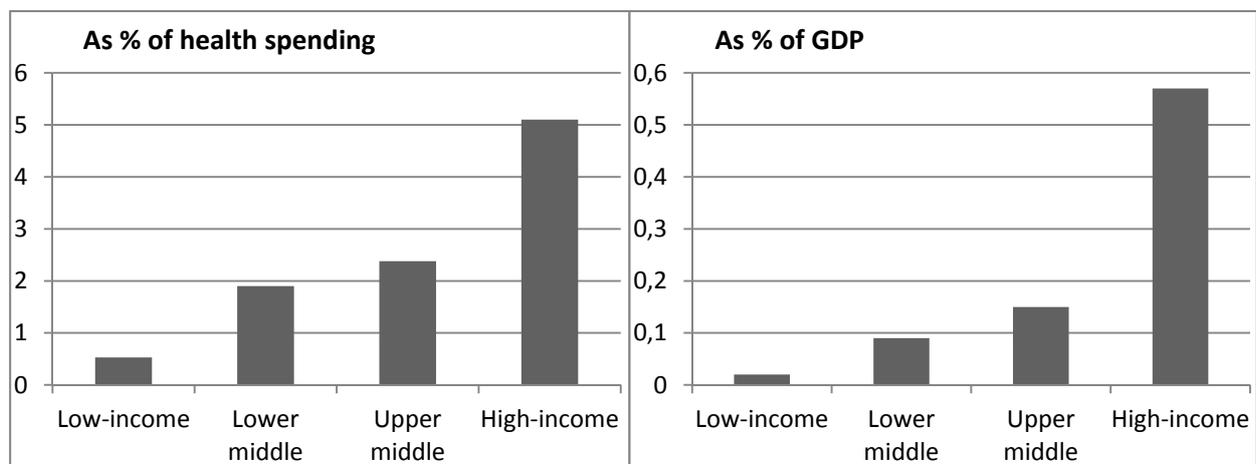
[22] Naylor et al. (2012).
[23] WHO (2008), p.118.
[24] WHO (2011).

5. Evidence-based treatments

Until the 1950s there was little that could be done for people with mental health problems other than to provide kind, compassionate care. But from the 1950s onwards new drugs were discovered that can help with depression and anxiety disorders, bipolar disorder and psychotic disorders. Then from the 1970s onwards new forms of evidence-based psychological therapy were developed, especially cognitive behavioural therapy (CBT), which have been subjected to the same rigorous testing as drugs. Let us begin with treatments for the most common mental health problems: depression and anxiety disorders.

Adult mental health

For major depression, drugs lead to recovery within four months in over 50% of cases. But rates of relapse remain high unless drugs continue to be taken. Psychological therapy such as CBT for up to 16 sessions produces similar recovery rates, but these are followed by much lower relapse rates than with drugs, unless the drugs continue to be taken. For anxiety disorders, recovery rates with drugs and CBT are also over 50%, but those who recover through CBT have low subsequent rates of relapse.

Both drugs and therapy are relatively inexpensive compared with treatments for most physical illnesses. For example, a typical course of 10 sessions of CBT may cost $1,500 in a high-income country. Against this cost we have to set the humanitarian benefits of better mental health plus the economic benefits discussed earlier. Even if we consider only the public sector's savings on disability benefits and lost taxes, these are likely to be at least as large as the gross cost – reducing the net cost of wider access to psychological therapy to zero.

This important and surprising situation is possible because the costs of treatment are not large (in Britain £750) and the economic costs of disability are very high (in Britain some £750 per month if someone is disabled rather than working). To illustrate, if 100 people are treated, and in consequence four of them work for two years who would otherwise have remained disabled, this would be enough to reduce the net cost of the treatment to zero. Thus even quite small effects can reduce the net cost to zero.[25]

It was this argument that helped to persuade the British government to roll out from 2008 onwards an ambitious programme for Improving Access to Psychological Therapies (IAPT). This programme now treats half a million people a year and is still expanding. Recovery rates are close to levels obtained in clinical trials, and the employment record of those treated confirms the assumptions made in the previous paragraph.[26] Similar programmes are being considered in other countries. For example, population-based research

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[25] Layard et al. (2007).
[26] Clark (2011).

on the costs and effects of depression treatment in primary healthcare in Chile has led to its inclusion and prioritisation within the country's national health programme.[27]

In poorer countries there will be much smaller flowbacks to the public finances, since disability benefits are much lower or non-existent. But the economic case remains strong. Two separate studies in India estimate the cost of episodic treatment of depression with antidepressants in primary care to be 150-300 rupees per month, equivalent to about $20-40 for a six-month treatment episode,[28] while an analysis for the South-East Asia region as a whole put the six-month cost of treatment at $30-60. Treatment produces a health improvement of at least 20 "disability-free days" or 0.06 disability-adjusted life-years (DALYs), resulting in a cost per healthy life-year gained in the range of $500-1,000. That is the same as saying that $1,000,000 will buy 1,000-2,000 years of healthy life. One only has to place a very modest monetary value on a healthy year of life – such as the average annual income per person – to make the return on investment highly favorable.

This of course does not consider the returns to productivity, the value of which also greatly surpasses the cost of treatment. Specifically, the cost of providing 10 sessions of CBT equates to about half the average monthly wage in high-income countries, so were this (very conservatively) to apply to a low-income country with, say, an average monthly wage of $200, then treating 100 patients will cost $10,000 but yield an expected 100 months or $20,000 of additional output if just four of them return to work for two years. The economic cost-benefit test is passed with flying colors.

So there is a strong case for increased provision of both medication and psychological interventions in poorer countries. In richer countries medication is already widely available and the main need is for increased provision of psychological therapy: the majority of sufferers there want psychological therapy, and systematic reviews recommend at least one form of psychological therapy for every common mental health condition.[29] At the same time as increasing the GDP, such an intervention will increase the health of the population.

What about the resources actually needed to implement an integrated package of cost-effective care and prevention? One financial analysis was carried out for 12 selected low- and middle-income countries to estimate the expenditures needed to scale up over a 10-year period the delivery of a specified mental healthcare package, comprising pharmacological and/or psychosocial treatment for schizophrenia, bipolar disorder, depression and hazardous alcohol use. The analysis estimated that in order to meet the specified target coverage levels (80% of cases for psychosis and bipolar disorder, 25-33% of cases with depression and risky drinking), annual spending for this package would need to be up to $2 per capita in low-income countries (compared to $0.10-0.20 now), and $3-4 in middle-income countries.[30] So

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[27] Araya et al. (2012).
[28] Chisholm et al. (2000); Patel et al. (2003). See also Buttorff et al. (2012).
[29] e.g The Cochrane Collaboration or Britain's National Institute for Health and Care Excellence (NICE).
[30] Chisholm et al. (2007).

for a middle-income country of 50 million people, total annual spending on the package would amount to $150-200 million.

The Ethiopian Ministry of Health recently used an updated version of this costing tool to help them plan their national mental health strategy. It showed that modestly increasing coverage of basic psychosocial and pharmacological treatment of psychosis, bipolar disorder, depression and epilepsy will require $25 million over the next four years, equivalent to just $0.07-0.08 per capita per year.[31]

Child mental health problems

Half of all mental illness manifests itself by the age of 15. Child mental illness can be divided between "internalising" disorders (anxiety and depression) and "externalising" disorders (conduct disorder and Attention-Deficit Hyperactivity Disorder (ADHD)). Anxiety disorders can be effectively treated by psychological therapy with 50-60% recovery rates. Depression can also be treated by CBT, interpersonal therapy or (in carefully selected cases) medication, with good success rates. Conduct disorder if mild to moderate can be treated by parent training such as the Webster-Stratton method, while a child with ADHD will recover in at least 70% of cases if treated with the psychostimulant drug Methylphenidate.[32] A recently completed trial undertaken in Jamaica demonstrated that a low-cost, school-based intervention substantially reduced child conduct problems and increased child social skills at home and at school.[33]

All these treatments are relatively cheap, and generate major savings to the public finances through reduced crime and social failure and improved economic performance. There is a strong humanitarian presumption in favour of early treatment, and also a strong economic case.[34]

When it comes to severely disturbed children, those with severe conduct disorder (say 1% of a typical child population) have the capacity to impose enormous costs on a society. In Britain they are estimated to cost society some £150,000 more in present value terms than other children. Suitable treatments include Multi-Systemic Therapy which can cost between £6,000 and £15,000 per child. Clearly this would pay for itself even if the success rate was only one in 10.

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[31] Federal Democratic Republic of Ethiopia (2012).
[32] Roth and Fonagy (2005).
[33] Baker-Henningham et al. (2012).
[34] For various attempts at simulation, see Knapp et al. (2011), Table 11 et seq.

6. Evidence-based strategies for prevention

But we should also do all that we possibly can to prevent the emergence of mental illness in the first place. So what are the main risk factors causing mental illness, and the main protective factors against it? Table 3 provides an illustrative set of factors.

Table 3: Risk factors and protective factors for mental health[35]

Level of determinant	Risk factors		Protective factors
Individual attributes	Low self-esteem	↔	Self-esteem, confidence
	Emotional immaturity	↔	Ability to manage stress & adversity
	Difficulties in communicating	↔	Communication skills
	Medical illness, substance abuse	↔	Physical health, fitness
Social circumstances	Loneliness, bereavement	↔	Social support of family & friends
	Neglect, family conflict	↔	Good parenting/family interaction
	Exposure to violence/abuse	↔	Physical security and safety
	Low income and poverty	↔	Economic security
	Difficulties or failure at school	↔	Scholastic achievement
	Work stress, unemployment	↔	Satisfaction and success at work
Environmental factors	Poor access to basic services	↔	Equality of access to basic services
	Injustice and discrimination	↔	Social justice, tolerance, integration
	Exposure to war or disaster	↔	Physical security & safety

So mental wellbeing can be put at risk by a wide range of factors that span not only the life-course but also different spheres of life: cognition and behaviour at the individual level; living and working conditions at the social level; and, opportunities and rights at the environmental level. Protection and promotion of mental health need to be built in at every level. Building the evidence base for mental health promotion and the prevention of mental disorders is particularly important, given current gaps and weaknesses in knowledge.

At its core, mental health or psychological wellbeing rests on the capacity of individuals to manage their thoughts, feelings and behaviour, as well as their interactions with others. It is essential that these core attributes of self-control, resilience and confidence be allowed to develop and solidify in the formative stages of life, so that individuals are equipped to deal with the complex choices and potential adversities they will face as they grow older. Promoting a healthy start in life is therefore vital, and there is ample evidence to indicate that early intervention programmes have an important protective or preventive effect.

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[35] *Sources*: WHO (2004); WHO (2012). See also Cruwys et al. (2013).

Early child development holds considerable promise for protecting and promoting health.[36] The most successful programmes addressing risk and protective factors early in life are targeted at child populations at risk, especially from families with low income and education levels, including: home-based interventions in pregnancy and infancy; efforts to reduce tobacco and alcohol use during pregnancy; and parent management training and pre-school programmes.[37] Recent reviews of evidence from low- and middle-income countries likewise found significant positive effects for interventions delivered by community members on children's development and the psychosocial functioning of both mothers and children.[38] For example, research from Jamaica has shown how adding psychosocial stimulation to a nutrition intervention can help reduce the development of long-term disabilities in undernourished infants and other young children.[39]

Mental health promotion and protection strategies may be targeted at specific groups or be more universal in nature. Evidence-based interventions for supporting families and community-level interventions include: home-based interventions, for socioeconomically disadvantaged families (as above); school-based interventions supporting social and emotional learning; work-based interventions for adults looking for employment or struggling to cope at work; and community-based interventions aimed at enhanced social participation of older adults or providing psychosocial support for persons affected by conflict or disaster.[40]

7. Concluding remarks

So we need a completely different attitude to mental health worldwide. This should affect the availability of treatment, as well as major steps to prevent mental illness and to promote mental health. We offer a few thoughts.[41]

Treatment

It is reasonable to expect that treatment is as available for mental illness as it is for physical illness. This is a basic matter of equity and human rights. It is enshrined in law in many countries including the USA, the UK and South Africa, but is currently some distance from being achieved. The effects of treatment are now highly predictable and relatively

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[36] See references in Lake (2011).
[37] WHO (2004).
[38] Kieling et al. (2011).
[39] Walker et al. (2005).
[40] WHO (2004), McDaid and Park (2011).
[41] For more specific recommendations, see the Comprehensive Mental Health Action Plan agreed by WHO Member States at the World Health Assembly in May 2013.

inexpensive. More treatment of mental illness is therefore probably the single most reliably cost-effective action available for reducing misery.

Treatments are now well-developed and their impact on recovery is well known. This is however a relatively new situation and it is time now for the world to provide these treatments more widely. To provide even basic mental health services for all in need, countries will need to spend a larger proportion of their GDP on mental healthcare.

In advanced countries the largest neglected groups are those with depression and anxiety disorders and children with behavioural disorders. They urgently need a better deal. In poorer countries, even those with the most severe conditions are mostly not in treatment. Remedying that is the first priority in these countries.

It is vital that primary healthcare providers (e.g. general practice doctors, nurses and community health workers) are much better trained in recognising and treating mental illness. The World Health Organization has developed clear and feasible guidelines for this.[42] At the same time a new cadre of psychological therapists may need to be developed, whose services are available on the same basis as other medical services. In poorer countries there is also a major role for key counselors and community health workers.

Prevention and promotion

We also need a more mental health-conscious society. Every school teacher needs to be aware of mental health problems and be able to identify them in the children they teach. Similarly all managers should be aware of these problems and know what action to take when employees go off sick or are experiencing mental health problems. Governments also need to plan for mental health consequences of macroeconomic and social changes.

The social environment also has to change. Excessively macho environments generate stress which can easily turn into mental illness.[43] Both schools and employees should treat the mental wellbeing of those in their care as a major priority.

Stigma and discrimination

Those who suffer from mental illness are doubly unfortunate. They have the condition in the first place, but in addition they are frequently discriminated against[44] and written off as hopeless cases. But, with the help of modern science, everyone can now be helped. It is time for every society to become much more open about mental illness, just as with other illnesses.

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[42] WHO mhGAP (2010).
[43] CSDH (2008).
[44] Thornicroft (2006).

This will also open the doors for people with mental illness playing a role in contributing to policy service development for mental health.

The adoption of the Comprehensive Mental Health Action Plan by the World Health Assembly clearly marks the political commitment of countries to mental health. A systematic implementation of the Action Plan has the potential to decrease the burden of mental illness as well as to decrease unhappiness in the world.[45]

Conclusion

Mental illness is a huge problem in every society and a major cause of misery in the world. The economic cost is also huge. But cost-effective treatments exist. Unfortunately however, most people who need treatment never get it. This can be reversed, and to do it will require countries to spend a higher proportion of their health budgets on mental health and to use these resources more efficiently. It ties in closely with the global happiness agenda in two ways. Better treatment for mental health would improve happiness directly; and improving happiness in other ways would reduce the frequency of mental illness.

If we want a happier world, we need a completely new deal on mental health.

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[45] WHO (2013); Saxena et al. (2013).

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Appendix

How mental health affects life-satisfaction
by Sarah Flèche and Richard Layard

In this note we explore more broadly how mental illness and other candidate variables affect life-satisfaction and misery. We use three data sets: the British Household Panel Survey (BHPS) 1996-2008, the German Socio-Economic Panel (SOEP) 2002-2008 and the Household, Income and Labour Dynamics in Australia Survey (HILDA) 2001-2010. The sample is confined to people aged 25 and over and excludes those in the top and bottom 5% of recorded household income.

The main independent variables are mental illness and physical illness, and the dependent variables are either life-satisfaction or misery. All these variables are defined below, before giving results.

Mental illness and physical illness

In the BHPS, mental illness is assessed through the 12 item General Health Questionnaire (GHQ-12). Items are rated from 1="better than usual" to 4= "much less than usual". Physical heath is measured using the 14 BHPS health problems' questions (Yes/No) and one single physical health variable is constructed: "number of physical health problems".

In the SOEP, mental illness and physical health are assessed through the SF-12 questionnaire. The items for mental illness are the following:

"How often did it occur within the last four weeks:

- that you felt run-down and melancholy?
- that you felt relaxed and well-balanced?
- that due to mental health or emotional problems you achieved less than you wanted to at work or in everyday tasks?
- that due to mental health or emotional problems you carried out your work or everyday tasks less thoroughly than usual?"

The items for physical health are the following:

- "When you ascend stairs, i.e. go up several floors on foot: Does your state of health affect you greatly, slightly or not at all?

- And what about having to cope with other tiring everyday tasks, i.e. when one has to lift something heavy or when one requires agility: Does your state of health affect you greatly, slightly or not at all?
- How often did it occur within the last four weeks: that you had strong physical pains?
- How often did it occur within the last four weeks: that due to physical health problems, you achieved less than you wanted to work or in everyday tasks?
- How often did it occur within the last four weeks: that due to physical health problems, you were limited in some form at work or in everyday tasks?"

Items are rated from 1 "Always" to 5 "Never". Two single variables are constructed: a summary measure of mental illness and a summary measure of physical health that are unweighted combinations of the above items. Lower values indicate better mental health and physical health status.

[For further information on SOEP, see Wagner, Gert G., Joachim R. Frick, and Jürgen Schupp. 2007. The German Socio-Economic Panel Study (SOEP) - Scope, Evolution and Enhancements. Schmollers Jahrbuch 127, no. 1, 139-169. http://schmollersjahrbuch.diw.de/schmollersjahrbuch/webcontent/2007/Wagner%20et%20al.pdf]

In the HILDA Survey, mental illness and physical health are assessed through the SF-36 questionnaire. Six summary variables are available: physical functioning, role-physical, bodily pain, mental health, role-emotional and vitality, all rated from 0 to 100. Two single variables are constructed: a summary measure of physical health (an unweighted combination of physical functioning, role-physical (interference with work or other daily activities due to physical health) and bodily pain) and a summary measure of mental health (an unweighted combination of mental health and role-emotional (interference with work or other daily activities due to emotional problems)). Lower values indicate better mental health and physical health status.

Serious mental illness and serious physical health problems cover roughly those in the bottom quartile of mental health and physical health.

Life-satisfaction and misery

Life-satisfaction is based on the following question:

"How dissatisfied or satisfied are you with your life overall?
[range of 1-7 with 1 labelled "Not satisfied at all" and 7 labelled "Completely satisfied" in the BHPS.]
[range of 0-10 with 0 labelled "Not satisfied at all" and 10 labelled "Completely satisfied" in the SOEP.]
[range of 0-10 with 0 labelled "Not satisfied at all" and 10 labelled "Completely satisfied" in the HILDA Survey.]

Misery covers roughly those in the bottom quartile of life-satisfaction.
[range of 1-4 in the BHPS], [range of 0-5 in the SOEP] [range of 0-6 in the HILDA Survey]

Results

Table 1 explains life-satisfaction and Tables 2 and 3 explains misery. The pattern of results in both tables is very similar. When mental illness is measured currently or lagged one year it dominates currently physical illness. When physical illness is measured currently and mental health lagged six years, mental illness dominates in the UK but physical illness in Germany and Australia. In all countries both variables dominate income and unemployment.

Tables 4-6 repeat Tables 1-3 with a fixed effect. Mental health continues to be the single most powerful factor.

Table 7 provides descriptive statistics. Note the following simple correlations between life-satisfaction and mental illness current and six-years lagged:

	Great Britain Life-satisfaction	Germany Life-satisfaction	Australia Life-satisfaction
Mental health problems	-0.56	-0.51	-0.38
Mental health problems (6 years earlier)	-0.32	-0.29	-0.19

Table 1: How Mental Health affects Life-Satisfaction
Partial correlation coefficients

	(BHPS) Life-satisfaction			(SOEP) Life-satisfaction			(HILDA) Life-satisfaction		
Mental health problems	-0.54**			-0.35**			-0.33**		
	(150.40)			(86.02)			(68.42)		
Mental health problems (1 year earlier)		-0.38**			-0.28**			-0.24**	
		(91.36)			(64.00)			(46.57)	
Mental health problems (6 years earlier)			-0.28**			-0.17**			-0.19**
			(66.11)			(21.91)			(24.33)
Physical health problems	-0.10**	-0.15**	-0.18**	-0.18**	-0.23**	-0.34**	-0.09**	-0.17**	-0.22**
	(27.25)	(35.83)	(40.40)	(44.06)	(49.76)	(40.80)	(18.87)	(32.71)	(26.39)
Log Income per head	0.02**	0.03**	0.03**	0.13**	0.13**	0.12**	0.01	0.01	0.01
	(6.56)	(8.05)	(8.10)	(38.11)	(35.59)	(17.11)	(1.20)	(1.08)	(0.85)
Age	0.18**	0.21**	0.22**	0.11**	0.12**	0.15**	0.23**	0.26**	0.27**
	(47.42)	(48.27)	(48.36)	(27.89)	(28.62)	(18.45)	(58.62)	(57.68)	(36.92)
Married	0.13**	0.13**	0.14**	0.07**	0.07**	0.08**	0.12**	0.12**	0.13**
	(38.54)	(34.91)	(35.01)	(21.22)	(19.95)	(12.22)	(33.68)	(28.17)	(18.73)
Unemployed	-0.02**	-0.03**	-0.04**	-0.04**	-0.05**	-0.03**	-0.03**	-0.03**	-0.05**
	(5.86)	(7.61)	(8.84)	(12.25)	(11.86)	(4.74)	(6.74)	(6.05)	(5.55)
Female	0.08**	0.06**	0.05**	0.07**	0.07**	0.07**	0.07**	0.07**	0.07**
	(25.54)	(17.90)	(13.95)	(22.04)	(19.10)	(10.54)	(20.69)	(18.54)	(10.94)
Time, region dummies	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	71,769	69,996	67,357	76,409	64,512	19,174	73,812	57,476	22,508
R-squared	0.37	0.23	0.17	0.26	0.23	0.21	0.20	0.18	0.17

T-statistics in parentheses ** p<0.01, * p<0.05

Age is a weighted aggregate of Age and Age^2 (based on a prior regression)

Table 2: How Mental Health affects Misery
Partial correlation coefficients

	(BHPS) Misery			(SOEP) Misery			(HILDA) Misery		
Mental health problems	0.46**			0.26**			0.28**		
	(135.50)			(64.79)			(53.54)		
Mental health problems (1 year earlier)		0.32**			0.21**			0.21**	
		(80.38)			(48.20)			(36.75)	
Mental health problems (6 years earlier)			0.23**			0.12**			0.15**
			(56.00)			(15.60)			(18.15)
Physical health problems	0.08**	0.13**	0.15**	0.16**	0.20**	0.30**	0.08**	0.15**	0.19**
	(21.29)	(30.05)	(35.06)	(37.25)	(41.56)	(34.84)	(15.23)	(26.02)	(21.78)
Log Income per head	-0.05**	-0.06**	-0.06**	-0.12**	-0.12**	-0.11**	-0.04**	-0.04**	-0.05**
	(13.57)	(14.24)	(13.98)	(33.87)	(32.03)	(15.03)	(10.52)	(9.24)	(6.29)
Age	-0.10**	-0.12**	-0.13**	-0.07**	-0.08**	-0.11**	-0.13**	-0.15**	-0.17**
	(25.97)	(28.89)	(30.61)	(18.97)	(20.20)	(13.27)	(32.30)	(32.68)	(22.75)
Married	-0.11**	-0.11**	-0.12**	-0.06**	-0.06**	-0.07**	-0.10**	-0.10**	-0.11**
	(30.90)	(29.18)	(29.79)	(16.68)	(15.67)	(10.48)	(25.74)	(21.84)	(14.45)
Unemployed	0.02**	0.04**	0.04**	0.04**	0.04**	0.03**	0.05**	0.05**	0.06**
	(6.94)	(8.54)	(9.65)	(9.83)	(9.96)	(4.39)	(9.36)	(8.28)	(6.80)
Female	-0.04**	-0.02**	-0.02**	-0.04**	-0.04**	-0.04**	-0.04**	-0.04**	-0.04**
	(12.33)	(7.15)	(4.37)	(13.08)	(11.43)	(6.09)	(11.86)	(11.02)	(6.50)
Time, region dummies	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	71,769	69,996	67,357	76,409	64,512	19,174	73,812	57,476	22,508
R-squared	0.27	0.16	0.12	0.17	0.15	0.15	0.14	0.12	0.11

T-statistics in parentheses ** p<0.01, * p<0.05. Age is a weighted aggregate of Age and Age^2 (based on a prior regression)

Similar results are obtained if misery is defined as the bottom 10% or 20%.

Table 3: How Serious Mental Illness affects Misery
Partial correlation coefficients

	(BHPS) Misery			(SOEP) Misery			(HILDA) Misery		
Serious Mental Illness	0.41**			0.23**			0.22**		
	(98.14)			(55.07)			(45.23)		
Serious Mental Illness (1 year earlier)		0.28**			0.19**			0.17**	
		(66.44)			(42.39)			(32.72)	
Serious Mental Illness (6 years earlier)			0.20**			0.13**			0.14**
			(47.99)			(16.90)			(17.38)
Serious Physical health problems	0.08**	0.10**	0.12**	0.17**	0.19**	0.26**	0.10**	0.14**	0.17**
	(20.53)	(25.01)	(28.33)	(39.71)	(40.96)	(30.42)	(22.14)	(26.72)	(20.53)
Bottom Income quartile	0.04**	0.05**	0.05**	0.10**	0.11**	0.09**	0.04**	0.04**	0.04**
	(10.56)	(11.28)	(10.88)	(26.44)	(25.33)	(11.99)	(9.05)	(7.37)	(4.27)
Age	-0.10**	-0.10**	-0.11**	-0.07**	-0.07**	-0.07**	-0.13**	-0.13**	-0.15**
	(24.66)	(25.70)	(25.77)	(18.01)	(17.58)	(9.62)	(33.25)	(30.53)	(20.29)
Married	-0.11**	-0.12**	-0.13**	-0.06**	-0.06**	-0.07**	-0.11**	-0.11**	-0.12**
	(30.43)	(29.54)	(30.66)	(17.26)	(16.04)	(10.17)	(27.27)	(23.20)	(15.38)
Unemployed	0.04**	0.04**	0.05**	0.04**	0.05**	0.04**	0.05**	0.05**	0.07**
	(9.16)	(9.84)	(10.57)	(10.95)	(11.00)	(4.72)	(10.25)	(8.88)	(6.94)
Female	-0.02**	-0.01**	-0.00	-0.03**	-0.03**	-0.03**	-0.04**	-0.04**	-0.04**
	(6.09)	(2.54)	(0.78)	(8.49)	(7.38)	(4.18)	(10.571)	(9.70)	(5.64)
Time, region dummies	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	71,769	69,996	67,357	76,409	64,512	19,174	73,812	57,476	22,508
R-squared	0.21	0.13	0.09	0.13	0.12	0.12	0.11	0.09	0.09

T-statistics in parentheses ** p<0.01, * p<0.05

Age is a weighted aggregate of Age and Age^2 (based on a prior regression)

Table 4: How Mental Health affects Life-Satisfaction
Partial correlation coefficients, fixed effects

	(BHPS) Life-satisfaction		(SOEP) Life-satisfaction		(HILDA) Life-satisfaction	
Mental health problems	-0.37** (92.34)		-0.29** (38.87)		-0.20** (34.63)	
Mental health problems (1 year earlier)		-0.08** (15.09)		-0.08** (12.37)		-0.03** (5.52)
Physical health problems	-0.03** (7.85)	-0.07** (13.62)	-0.08** (11.95)	-0.02** (3.36)	-0.06** (9.67)	-0.12** (17.41)
Log Income per head	0.01** (3.17)	0.02** (3.52)	0.03** (7.64)	0.06** (6.58)	0.02** (2.64)	0.01* (1.72)
Age	0.11** (8.08)	0.13** (7.86)	0.21** (9.73)	0.24** (9.99)	0.18** (9.46)	0.15** (6.09)
Married	0.07** (11.33)	0.08** (10.48)	0.06** (5.65)	0.05** (3.75)	0.13** (14.18)	0.13** (11.36)
Unemployed	-0.01** (3.18)	-0.02** (4.73)	-0.02** (4.03)	-0.03** (6.67)	-0.02** (4.80)	-0.02** (3.63)
Female	- -	- -	- -	- -	- -	- -
Individual Fixed Effects	✓	✓	✓	✓	✓	✓
Region dummies	✓	✓	✓	✓	✓	✓
N	71,769	69,996	76,409	64,512	73,812	57,476
R-squared	0.165	0.018	0.116	0.016	0.060	0.021

T-statistics in parentheses ** $p<0.01$, * $p<0.05$

Age is a weighted aggregate of Age and Age^2 (based on a prior regression)

Table 5: How Mental Health affects Misery
Partial correlation coefficients, fixed effects

	(BHPS) Misery		(SOEP) Misery		(HILDA) Misery	
Mental health problems	0.33**		0.24**		0.16**	
	(76.69)		(29.47)		(28.58)	
Mental health problems		0.07**		0.06**		0.03**
(1 year earlier)		(12.52)		(8.40)		(4.21)
Physical health problems	0.03**	0.06**	0.06**	0.04**	0.04**	0.09**
	(5.90)	(10.69)	(8.02)	(4.75)	(7.41)	(13.46)
Log Income per head	-0.01**	-0.01**	-0.02**	-0.06**	-0.02**	-0.01
	(2.07)	(2.37)	(4.53)	(5.82)	(2.01)	(1.07)
Age	-0.05**	-0.08**	-0.14**	-0.17**	-0.10**	-0.11**
	(3.40)	(4.78)	(5.84)	(6.45)	(4.93)	(4.11)
Married	-0.06**	-0.06**	-0.04**	-0.04*	-0.10**	-0.10**
	(8.13)	(7.66)	(3.55)	(2.69)	(10.63)	(8.71)
Unemployed	0.01**	0.02**	0.02**	0.03**	0.02**	0.01**
	(2.80)	(4.35)	(3.25)	(5.44)	(2.91)	(1.97)
Female	- -	- -	- -	- -	- -	- -
Individual Fixed Effects	✓	✓	✓	✓	✓	✓
Region dummies	✓	✓	✓	✓	✓	✓
N	71,769	69,996	76,409	64,512	73,812	57,476
R-squared	0.103	0.010	0.057	0.009	0.029	0.011

T-statistics in parentheses ** $p<0.01$, * $p<0.05$

Age is a weighted aggregate of Age and Age^2 (based on a prior regression)

Table 6: How Serious Mental Illness affects Misery
Partial correlation coefficients, fixed effects

	(BHPS) Misery		(SOEP) Misery		(HILDA) Misery	
Serious Mental Illness	0.25**		0.16**		0.09**	
	(64.44)		(22.50)		(21.15)	
Serious Mental Illness (1 year earlier)		0.05**		0.04**		0.01**
		(13.69)		(5.27)		(2.82)
Serious Physical health problems	0.02**	0.02**	0.07**	0.04**	0.04**	0.05**
	(4.06)	(5.77)	(9.28)	(4.87)	(7.52)	(9.40)
Bottom income quartile	0.01	0.01	0.02**	0.03**	0.01	0.00
	(0.60)	(1.25)	(4.97)	(4.09)	(0.62)	(0.27)
Age	-0.07**	-0.09**	-0.15**	-0.16**	-0.10**	-0.11**
	(5.05)	(5.69)	(6.19)	(6.10)	(5.10)	(4.47)
Married	-0.07**	-0.07**	-0.05**	-0.04**	-0.10**	-0.10**
	(9.42)	(8.84)	(4.16)	(2.96)	(11.06)	(8.87)
Unemployed	0.02**	0.02**	0.02**	0.03**	0.01**	0.01**
	(4.94)	(6.10)	(3.29)	(5.46)	(3.35)	(2.01)
Female	- -	- -	- -	- -	- -	- -
Individual Fixed Effects	✓	✓	✓	✓	✓	✓
Region dummies	✓	✓	✓	✓	✓	✓
N	71,769	69,996	76,409	64,512	73,812	57,476
R-squared	0.073	0.007	0.039	0.006	0.018	0.007

T-statistics in parentheses ** $p<0.01$, * $p<0.05$

Age is a weighted aggregate of Age and Age^2 (based on a prior regression)

Table 7: Descriptive statistics

| | (BHPS) | | | | (SOEP) | | | | (HILDA) | | | |
	Obs	Mean	Min	Max	Obs	Mean	Min	Max	Obs	Mean	Min	Max
Life-satisfaction	71769	5.21	1	7	76409	6.92	0	10	73812	7.92	0	10
Misery	71769	0.233	0	1	76409	0.207	0	1	73812	0.123	0	1
Mental Health Problems	71769	23.33	12	48	76409	8.47	4	20	73812	42.33	0	200
Serious Mental Illness	71769	0.242	0	1	76409	0.236	0	1	73812	0.243	0	1
Physical health problems	71769	1.206	0	10	76409	11.11	5	25	73812	69.12	0	300
Serious Physical health problems	71769	0.150	0	1	76409	0.263	0	1	73812	0.249	0	1
Log Income per head	71769	7.241	6.10	10.79	76409	9.81	8.82	10.61	73812	10.41	9.28	11.42
Bottom Income quartile	71769	0.247	0	1	76409	0.249	0	1	73812	0.249	0	1
Age	71769	50.69	25	100	76409	51.57	25	100	73812	49.28	25	93
Married	71769	0.742	0	1	76409	0.663	0	1	73812	0.745	0	1
Unemployed	71769	0.018	0	1	76409	0.040	0	1	73812	0.021	0	1
Female	71769	0.554	0	1	76409	0.535	0	1	73812	0.534	0	1