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Including mental health among the new sustainable development goals

The case is compelling

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The United Nations will soon decide what will follow its millennium development goals. The case for including mental health among the new sustainable development goals is compelling, both because it cuts across most of the suggested new goals and because of the unmet needs of the 450 million people with mental illness.¹

Poorer mental health is a precursor to reduced resilience to conflict. It's also a barrier to achieving the goal of promoting peaceful and inclusive societies for sustainable development, providing access to justice for all, and building effective, accountable, and inclusive institutions at all levels. In addition, conflict is itself a risk factor for adverse mental health,² and in the aftermath of conflict the needs of vulnerable groups such as people with mental illness are often accorded the lowest priority.

The improvement of mental health systems will also have a decisive role in making cities and human settlements inclusive, safe, resilient, and sustainable, and this is especially important given the global trend towards urbanisation with its associated risk factors for mental illness.

A third suggested goal is to promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all. People with mental illness have far lower rates of employment than the rest of the population, and periods of economic recession are related to worse mental health, especially among men.³ More generally, people with untreated mental disorders have a negative economic effect because they increase school and work absenteeism and dropout rates, healthcare spending, and unemployment rates.⁴ Disregarding the needs of the population for mental healthcare impairs productivity,⁵ costing the world in excess of \$16tr (£9.5tr; €12tr) a year in lost economic output.⁶



Him, too

To ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, we will have to recognise that mental health problems, especially developmental disorders, are often associated with educational underachievement. Moreover, educational stressors are risk factors for suicidality among school and college students. Mental health is also relevant to the goal of ending hunger, achieving food security, improving nutrition, and promoting sustainable agriculture. Mental illness in mothers is a risk factor for child undernutrition,⁷ and poor diet among people with severe mental illness contributes to their worse physical health.⁸

Ensuring healthy lives and promoting well-being for all at all ages is also impossible without a consideration of mental health. Inequality within and among countries cannot be fully addressed unless we recognise that nearly a quarter of the world population—the number who experience a mental illness each year—experience systematic discrimination in most areas of life.⁹

Indeed, the right to health, as incorporated in the United Nations Convention on the Rights of Persons with Disabilities, is manifestly neglected as the life expectancy among people with mental illness is up to 20 years lower among men and 15 years lower among women than among their counterparts without mental

illness.¹⁰ People with severe infections and non-communicable diseases also show premature mortality if their adherence to medication is compromised by undetected or untreated coexisting mental illness.¹¹

Massive treatment gap

To turn to the arguments for directly meeting the needs of people with mental illness in the new development goals, the basic facts are clear and deeply disturbing. In high income countries about one quarter of people with mental illness receive care, and in low income countries fewer than one in ten do so.¹² Two thirds of people with depression in the UK are not getting any treatment.¹³ By comparison, treatment rates for the main non-communicable diseases in low income countries commonly exceed 50%.¹⁴ In other words, the mental health treatment gap is vast in all countries.¹⁵ Any approach to universal health coverage must therefore include the provision of treatment to people with mental illnesses. Together, these contribute to nearly a quarter of total years lived with disability across all conditions worldwide.¹⁶ At present, low income countries allocate about 0.5%, and lower middle income countries 1.9%, of their overall health budget to mental healthcare.¹⁷

The choice of sustainable development goals matters because national governments and international donors will give these the highest priorities for investment, as they did with the millennium development goals. We therefore call on the United Nations to include within the health related goal the following separate target: the provision of mental and physical health and social care services for people with mental disorders, in parity with resources for services addressing physical health. We also propose the inclusion of two key indicators identified in the WHO Mental Health Action Plan 2013-2020: service coverage for severe mental disorders will have increased by 20% by 2020 and the rate of suicide will be reduced by 10% by 2020.

Provenance and peer review: Commissioned; not externally peer reviewed.

Competing interests and references are available on thebmj.com.

Cite this as: *BMJ* 2014;349:g5189

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- ▶ Editorials: Dyslexia: a hundred years on (*BMJ* 1996;313:1096)
- ▶ Research paper: Dyslexia (*BMJ* 1988;297:501)

The evidence base does not support the use of colour in the management of reading difficulty

Treating reading difficulties with colour

UK dyslexia charities should present a more balanced view

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Around 3-6% of children in the United Kingdom have substantial difficulties learning to read, a condition often referred to as dyslexia. They are at high risk of educational underachievement. In a 1996 editorial in *The BMJ*, Margaret Snowling argued that dyslexia is a verbal (not a visual) disorder.¹ An accumulation of evidence supports this position and shows that reading difficulties are best dealt with by interventions that target underlying weaknesses in phonological language skills and letter knowledge.² The 2009 Rose report, which provides guidance for professionals in schools on identifying and teaching young people with dyslexia and reading difficulties, stresses the importance of early, phonological interventions.³

Despite this, dyslexia is often associated with subjective experiences of visual distortions that lead to discomfort during reading (sometimes termed visual stress). It has been argued that coloured overlays and lenses can alleviate these symptoms.⁴ Symptoms of visual stress are not unique to dyslexia, and proponents do not claim that the use of colour directly addresses the underlying cause of the reading difficulty. However, they argue that the reduction in visual distortion brought about by a change in colour can improve reading accuracy and fluency.⁴

A 2008 systematic review examined eight randomised controlled trials of coloured overlays and lenses for reading difficulties.⁵ All studies

had serious limitations that weaken any conclusions drawn, including small sample sizes, inadequate control groups, inadequate reporting of randomisation methods, high levels of attrition, and short follow-up. The report concluded that the use of coloured filters did not lead to a clear improvement in reading ability or symptoms of visual stress in people with reading disability.⁵

A more recent systematic review evaluated a range of interventions and again concluded that the evidence base does not support the use of colour in the management of reading difficulty. When the experimental group was compared with a placebo control group the treatment effects were negligible.⁶

There are no validated diagnostic tests for visual stress and the symptom complex is vague, including frequent blinking, losing one's place on the page, and "eye strain." Nevertheless, coloured overlays and lenses have become widespread in classrooms and higher education institutions as a core part of the remediation for reading difficulty.⁷ Measures of visual stress are often included in dyslexia screening tests.⁸ The number of students using this type of treatment is not known, but a recent study suggested that 56% of a sample of university students with dyslexia were currently using, or had previously been exposed to, coloured overlays and lenses.⁷

Possible reasons for this widespread use include uncritical reporting in the media and the lack of a body equivalent to the National Institute for Health and Care Excellence (NICE) reviewing the evidence base for educational interventions. Another important factor is endorsement from dyslexia charities.

National charities promoting the interests of children and adults with dyslexia are often the first port of call for affected individuals and parents. These charities offer a valuable source of information about dyslexia and its management. We have reviewed information on the use of overlays and tinted lenses provided by the websites of prominent dyslexia charities, eight in the UK and three in other English speaking countries.

Six of the eight UK charities provided information about coloured overlays and lenses in dyslexia. In all six cases, the message was one of endorsement, and the conflicting evidence base was not discussed. The three overseas charities presented a

different picture. Dyslexia Ireland includes the use of overlays under the section on alternative or complementary therapies.⁹ The International Dyslexia Association and Specific Learning Difficulties Australia both provide links to academic websites that take a sceptical view of the existence of visual stress and treatment with overlays.

Advice issued by the professional bodies whose members encounter children and adults with reading difficulties also does not support the use of colour. A recent joint statement from the American Academy for Pediatrics, Council for Children with Disabilities, American Academy of Ophthalmology, American Association for Pediatric Ophthalmology and Strabismus, and the American Association of Certified Orthoptists concluded that "scientific evidence does not support the efficacy of . . . special tinted filters or lenses in improving long term educational performance."¹⁰ Similarly, a review prepared on behalf of the Royal College of Ophthalmologists concluded that "manipulation of the visual system using colour to facilitate reading lacks scientific support."¹¹

Way off beam

It is concerning that so many UK dyslexia charities are giving an inaccurate account of the evidence for the use of coloured lenses and overlays for managing reading difficulties. Consensus statements from influential bodies,¹⁰ rigorous systematic reviews,^{5 6} and recent trials do not seem to have influenced the advice. People using these websites could be persuaded to spend large amounts of money on precision tinting systems or expect the NHS to support this.

Dyslexia charities have an important role in presenting constructive and helpful messages to people with dyslexia and their educators. Our observation does not detract from the positive role of these charities—advice on coloured overlays and lenses is only a small part of the information provided. However, an evidence based approach from UK dyslexia charities educated by good science would enable the public to make a more informed choice.

Provenance and peer review: Not commissioned; externally peer reviewed.

Competing interests and references are available on thebmj.com.

Cite this as: *BMJ* 2014;349:g5160

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- News: Active commuting is important in raising exercise levels (*BMJ* 2006;332:1352)
- Research: Promoting walking and cycling as an alternative to using cars (*BMJ* 2004;329:763)

Given the political sensitivity around policies that discourage use of cars, it is crucial that the public health community provides strong and consistent messages

Healthier commuting

Leave your car at home

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There is increasing interest in persuading the public to drive less and to walk and cycle more to achieve health, transport, and environmental policy objectives. Immediate health benefits from this transition will be derived from increased physical activity and associated protection from weight gain, reduced air pollution, and less noise.

The linked article by Flint and colleagues looks at this first health benefit in a UK based study examining associations between mode of travel to work and adiposity. The authors found that people who walk or cycle to work had a lower body mass index and lower percentage body fat than those using private transport (cars and motorcycles).¹ These anticipated findings add to a well developed evidence base from other settings summarised in systematic reviews.² Despite use of a cross sectional design, the study of Flint et al builds on existing evidence by using a large national dataset with objectively measured outcomes, as well as being able to adjust for important covariates such as diet and work based physical activity.

The most interesting and perhaps important finding of the study was the reduced adiposity associated with commuting to work by public transport. For example, in fully adjusted models the mean body mass index of men travelling to work by public transport was lower by 1.1 (95% confidence interval 0.5 to 1.7) than that of men using private transport. The corresponding difference for those walking or cycling (combined) to work was 1.0 (0.4 to 1.6) lower. This benefit is likely to accrue because use of public transport generally involves walking and occasionally cycling to transport access points or interchanges, thus increasing incidental physical activity.

More free bus passes for older people

This is illustrated by a US study which found that users of public transport walk for an average of 19 minutes as part of their daily commute and 29% of public transport users achieve recommended levels of daily physical activity from this mode of travel alone.³ Consistent with this is the finding that provision of free bus travel to older people in

England has been associated with greater use of public transport, more frequent walking, and a lower likelihood of becoming obese.^{4 5}

The study by Flint et al highlights the importance of the commute to work as an opportunity to increase population levels of physical activity. Unfortunately active commuting has declined steadily in most high income countries since the mid-20th century as car ownership has grown. For example, the percentage of the English population travelling to work by car or motorcycle increased from 42% in 1971 to 67% in 2011. In that year, 18% travelled to work using public transport, 11% walked to work, and only 3% cycled to work.⁶

Similar trends are emerging in many low and middle income countries, where investments in road infrastructure have been prioritised, and levels of motor vehicle ownership have soared. For example, there was a 38-fold increase in the number of registered motor vehicles in India between 1981 and 2009. Within country differences exist, with persons living in urban India being much less likely to use active travel to work than their rural counterparts.⁷ This variation likely explains some important urban-rural differences in the prevalence of diabetes and cardiovascular disease in the country.⁸

The importance of active travel for achieving desired health, transport, and environmental outcomes is increasingly being recognised by national and international policy makers. The World Health Organization's *Global Action Plan for the Prevention and Control of Non-Communicable Diseases (2013-20)* urges member states to "introduce urban planning and transport policies to improve the accessibility, acceptability and safety of, and supportive infrastructure for, walking and cycling."⁹

But what specific transport policies should governments implement to increase active travel? Measures that address the structural, environmental, and financial barriers to active travel are more likely to have sustained impacts as they are able to help embed physical activity into everyday

activities.¹⁰ Considerable experience is available from natural experiments internationally, especially from Denmark, Germany, and the Netherlands, where sustained investments in cycling infrastructure in particular have helped these countries buck the global trend of declining levels of active travel.¹¹

Summarising this experience along with the available research evidence, the National Institute for Health and Care Excellence (NICE) asserts that "pedestrians, cyclists and users of other modes of transport that involve physical activity (i.e. public transport) should be given the highest priority within transport policy."¹⁰ Specific transport policy recommendations by NICE include reallocating road space to support walking and cycling, restricting motor vehicle access in residential areas, introducing road user charging schemes, introducing traffic calming schemes to restrict vehicle speeds, and creating safe routes to schools. Ensuring public transport is safe, accessible, and affordable, especially for children, elderly people, and low income groups, is also critical to enable transitions away from car use.

Given the political sensitivity around policy measures that discourage use of cars, it is crucial that the public health community, including healthcare professionals, provide strong and consistent messages to politicians and the public which frame these measures as positive public health actions. Healthcare professionals are additionally well placed to advise patients to "leave your car at home" and increase the number of trips they make for work, shopping, and leisure using public transport, walking, or cycling. This will not only improve their patients' health in the short term but also help reduce the likelihood of hazardous climate change further in the future.¹²

Provenance and peer review: Commissioned; not externally peer reviewed.

Competing interests and references are available on thebmj.com.

Cite this as: *BMJ* 2014;349:g5020

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They've transitioned

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► Editorial: How should we rate research? (*BMJ* 2006;332:983)

► Personal view: What funders and others can do to help save clinical academic medicine (*BMJ* 2004;329:806)

Interdependencies among clinical research funders

Metrics for British cancer research show it's a national success story

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The United Kingdom may have finally emerged from its longest economic slump in more than a century,¹ but further deep cuts in government spending are expected in an attempt to reduce the country's deficit. Rather than cutting acute healthcare services, a raid on medical research budgets may seem more palatable to government ministers. So would such a step matter, beyond its obvious impact on academic researchers?

This question was explored in a recent report commissioned by Cancer Research UK,² which is responsible for around a third of the £1bn (€1.26bn; \$1.7bn) a year awarded by UK medical charities to researchers.³ Based on a series of systematic reviews and bibliometric analyses of research published in 2011, augmented by interviews with senior cancer researchers and funding representatives, the report draws several conclusions.

Firstly, it reconfirms the relative global importance of medical research in the UK,⁴ at least in cancer research. As a country, Britain continues to punch well above its weight, with 7% of all cancer papers in 2011 originating from the UK. This is an important finding. The UK has protected its health research budget since 2008 (although not adjusted it for inflation), and until 2015-16 on the basis that such funding should attract inward investment to the UK via commercial science funders.⁵ This report cannot test this assumption, but at least it suggests that the high quality and high volume of clinical research relative to our modest academic base has been maintained: UK research funders generally, as a minimum, get high relative value for their investment.

Secondly, the report finds evidence for substantial "interdependence" among cancer research funders. Two major sets of interdependencies are identified—financial and institutional. Where research papers acknowledged the funder (surprisingly only half of papers), multiple funders were identified, with a mean 3.3 funders per paper, including an industry sponsor in 18% of cases. This is a measure of the complexities of undertaking large scale medical research today. Funding is needed for direct



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UK research funders get high relative value for their investment

research costs (for example, the short term project research team), the "supervision" time that principal investigators need to provide, the staff costs of those on fellowships and studentships, and the infrastructure support for the work that has to be maintained across studies. It is also needed for the institutional overheads needed to provide an enduring academic environment (identified at 22-24% by cancer research funders). Each of these cost components may be supported by different funders, but all are needed to deliver the research.

The report doesn't discuss the impact on the viability of the entire research project of dropping the funding of one element, but the risks of such an eventuality seem to be high. The report calculates that activity falls disproportionately faster than funding, at least in the short term—a 1.3% productivity loss for every 1% reduction in funding. However, this is based on limited and old data.⁶

Economies of scale: a myth?

Intriguingly, the report also provides data that debunk the belief, beloved by funders, in "economies of scale." Apparently, these do not operate much beyond research teams composed of six to eight people, except when expensive equipment is needed. Academics who structure research groups might be surprised that teams of around eight might be most cost efficient.

The other major interdependency is among institutions. Cancer research is increasingly complex, and two thirds of publications now rely on collaborations (43% international). Importantly, the report also found that a few institutions were extremely productive—a core of 26% of organisations (only 2% of the total number of organisations publishing) were responsible for more than 72% of output. Such a critical mass is probably replicated in clinical areas other than cancer. Importantly, it wasn't just a volume metric either, a bibliometric analysis of citations suggested that papers that acknowledged a research funder and that came from the core institutions were cited more often too.

Finally, the report suggests that donors to UK medical charities seem relatively unswayed by government policies towards research funding. Such passivity is probably a good thing; individuals mainly donate to causes "that mean something to them."⁷

All sounds like a pack of cards? The government should maintain investment in clinical research. The metrics for British cancer research (yes—that is Scotland, Wales, and England) show it to be a national success story.

Provenance and peer review: Commissioned; not externally peer reviewed.

Competing interests and references are available on thebmj.com.

Cite this as: *BMJ* 2014;349:g4892