New studies in The Lancet reveal global impact of mental and substance disorders

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Two major new studies from the Global Burden of Disease Study 2010, led by Professor Louisa Degenhardt, of the National Drug and Alcohol Research Centre, at the University of New South Wales in Sydney, Australia, and Professor Harvey Whiteford, of the Queensland Centre for Medical Health Research at the University of Queensland in Australia, are today published in *The Lancet*.

One study reveals the global burden of mental and substance use disorders in 2010, and the other provides the first ever analysis of the global prevalence and effects of the illicit use of amphetamines, cannabis, cocaine, and opioids.

Mental and substance use disorders leading cause of non-fatal illness worldwide

Mental and substance use disorders were the leading cause of non-fatal illness worldwide in 2010, according to a new analysis from the Global Burden of Disease Study, published in *The Lancet*.

The result comes from a new analysis of the global burden (overall illness and death) attributable to mental and substance use disorders in 2010. Furthermore, mental and substance use disorders were together responsible for more of the global burden of death and illness than HIV/AIDS and tuberculosis, diabetes, or transport injuries. Depressive disorders accounted for the largest proportion of this burden, around two

fifths (40%).

A team of researchers in Australia and the US, led by Professor Harvey Whiteford, analysed data on the 20 mental and substance disorders included in GBD 2010 to model the prevalence, premature death, and non-fatal illness caused by these disorders in 187 countries.

The researchers found that mental and substance use disorders were the fifth leading contributor to death and disease worldwide. When the researchers analysed the contribution of mental and substance disorders to non-fatal illness only, they found that they were responsible for more than a fifth (22.8%) of all disease burden, the leading cause worldwide.

This disparity is accounted for by the fact that mental and substance use disorders were recorded as having caused comparatively few deaths (232 000) in 2010, relative to the overall illness they caused. Most of the deaths recorded were attributable to substance use disorders. However, the authors point out that there is considerable premature mortality in people with mental disorders, but in GBD, their deaths are coded to the physical cause of death. Following GBD protocol, deaths by suicide are coded under injuries, even though most suicide is a result of mental disorder. In addition, deaths from illicit drugs are often recorded as accidental poisonings – and although the study modelling accounted for this where possible, the true number of deaths caused by illicit drug use may be even higher.

From the 10 – 14 year age group onwards, girls and women had a greater burden of death and disease from mental disorders than did boys and men, whereas men had a greater burden from drug and alcohol dependence in all age groups.

The overall findings mask striking differences between world regions for some of the disorders analysed, with eating disorders showing the

greatest overall variation; the proportion of death and disease attributable to eating disorders was nearly 40 times higher in Australasia, where prevalence was highest, than in western sub-Saharan Africa, where it was lowest. Only China, North Korea, Japan, and Nigeria had burdens of death and disease from mental and substance disorders which were statistically lower than the global average.

A substantially increased availability of data on the prevalence and effects of mental and substance disorders, as well as methodological improvements, meant that the analysis was able to account for considerably more disorders than the original Global Burden of Disease study in 1990, although data from some world regions (notably sub-Saharan Africa, parts of Asia, and central and eastern Europe) were scarce, resulting in greater statistical uncertainty over the estimates for these regions.

According to Professor Whiteford, "Mental and substance use disorders are major contributors to the global burden of disease and their contribution is rising, especially in developing countries. Cost-effective interventions are available for most disorders but adequate financial and human resources are needed to deliver these interventions."

"Despite the personal and economic costs, treatment rates for people with mental and substance use disorders are low, and even in developed countries, treatment is typically provided many years after the disorder begins. In all countries, stigma about mental and substance use disorders constrain the use of available resources as do inefficiencies in the distribution of funding and interventions. If the burden of mental and substance use disorders is to be reduced, mental health policy and services research will need to identify more effective ways to provide sustainable mental health services, especially in resource constrained environments."

First analysis of global drug dependence reveals opioids responsible for the greatest burden of death and illness

The first ever analysis of the global and regional prevalence of dependence upon the four major categories of illicit drugs – amphetamine, cannabis, cocaine, and opioids (such as heroin) – has revealed that opioid dependence causes the greatest health burden (overall death and illness) of all the illicit drugs. The results come from new analysis of the Global Burden of Disease Study 2010, and are published in *The Lancet*.

For all of the drugs studied, over two thirds of dependent individuals were male (64% each for cannabis and amphetamines, and 70% each for opioids and cocaine). All forms of drug dependence and disease burden were highest in men aged 20 – 29 years.

Led by Professor Louisa Degenhardt, a team of researchers in Australia and the US performed a comprehensive search of available data on the prevalence and effects of amphetamines, cannabis, cocaine, and opioids. Other drugs, including MDMA (ecstasy) and hallucinogens such as LSD, were not included separately in the analysis due to a lack of high quality data on their prevalence and health effects.

The results show that the burden in the worst affected countries (largely high-income nations such as USA, UK, and Australia) was 20 times greater than in the least affected countries. Regional breakdown of the results shows that the highest prevalence of cocaine dependence was in North America and Latin America, and among the highest levels of opioid dependence were in Australasia and Western Europe. The UK, USA, South Africa, and Australia all had notably high overall burdens of death and illness due to illicit drugs.

Although the results show that cannabis is by far the most commonly used illicit drug worldwide, the prevalence of cannabis dependence (13.0 million people worldwide) was somewhat lower than for amphetamines (17.2 million) and opioids (15.5 million), the two most common forms of illicit drug dependence.

The biggest source of burden of disease was opioid dependence, followed by amphetamine dependence, and injecting drug use as a risk factor for blood-borne viruses (hepatitis B, C, and HIV). Cannabis and cocaine dependence were more modest sources of disease burden, due to the smaller size of these populations and the lower levels of disability associated with these drugs.

By using the same methods to estimate burden in 1990 in this study, the researchers were also able to examine trends over time. They found that disability and illness caused by the four drugs studied has increased by over 50% between 1990 and 2010. Although some of this increase is due to increasing population size, over a fifth (22%) of the increase is thought to be due to increasing prevalence of drug use disorders, particularly for opioid dependence. Of around 78000 deaths in 2010 attributed to drug disorders, more than half (55%) were thought to be due to opioid dependence.

Despite the substantial preventable disease burden found to be attributable to the four drugs studied, their overall burden is still less than that of smoking and alcohol, which are together responsible for around 10% of the total death and illness burden worldwide. The new study estimates that illicit drug dependence contributes to just under 1% of the total global burden of death and illness. However, given the large differences in the prevalence of illicit drug dependence compared to alcohol dependence and tobacco use, it is clear that illicit drug use causes comparatively more burden per person.

According to Professor Degenhardt, "Although this study made use of advanced modelling to impute results when data were not available, a substantial amount of research is needed to document even the most basic epidemiological parameters for drug dependence in most countries. Until such work is done, much uncertainty will remain around the exact size of global disease burden attributable to illicit drug use."

"However, our results clearly show that illicit drug use is an important contributor to the global disease burden, and we now have the first global picture of this cause of health loss. Moreover, much can be done to reduce this burden. Although we have fewer means of responding to some causes of burden, such as cocaine and amphetamine dependence, well-evaluated and effective interventions can substantially reduce two major causes of burden— opioid dependence and injecting drug use. The challenge will be to deliver these efficiently and on a scale needed to have an effect on a population level."

In a linked Comment on both papers, Professors Michael Lynskey and John Strang, both of the National Addiction Centre at King's College London, UK, write that, "The importance of this project in guiding policy cannot be overestimated." However, they also point out that "Projects such as the GBD rely heavily on the capacity to make reliable and valid diagnoses that can be applied cross-culturally and the extent to which this is possible, in view of the present knowledge, is controversial," and that addressing the lack of evidence in some areas of this field will be critical for future research.

"[The] relative lack of information about the prevalence of mental and drug use disorders, and the harms associated with these disorders, emphasises the need not only for continued and ongoing efforts to refine the methods used in the current project but also for increased efforts to quantify both the prevalence of mental and drug use disorders and the risks posed by these conditions."

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