Reappraising the findings of the global burden of mental and substance use disorders

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Commentary on: Baxter *et al.* (2014). The global burden of mental and substance use disorders: changes in estimating burden between GBD1990 and GBD2010. *Epidemiology and Psychiatric Sciences* 23, 239–249.

The publication of the first Global Burden of Disease report in 1996 (Murray & Lopez, 1996) was a landmark event in global health for many reasons, in particular its ability to present the relative contribution of a large number of health conditions by using a common metric, which combined the estimated impact of the condition on life expectancy and health loss. This effort threw up some unexpected findings, not the least of which was the high burden posed by neuropsychiatric disorders. There is little doubt that these findings, along with the influential World Mental Health report (Desjarlais *et al.* 1995) published around the same time, were instrumental in initiating the process of moving mental health closer to the heart of the global health agenda, a process that led to the publication of the first World Health Report devoted to mental health (World Health Organization, 2001) and the emergence of the discipline of global mental health (Patel & Prince, 2010).

More than a decade later Whiteford and colleagues led the team synthesising the burden estimates for the second full edition of the GBD (the 2010 edition, published in 2012), and this team has published a series of papers describing the methodology and findings of their efforts in recent years (e.g. Degenhardt *et al.* 2013; Whiteford *et al.* 2013). The paper by Whiteford *et al.* in this issue of EPS serves to explicitly address the issue of the comparison of the methods used to estimate the burden of mental disorders between the two editions of the GBD (Baxter *et al.* this issue). This is an extremely important topic as some commentators have assumed

that the changes reported reflect true changes in the actual burden. However, as Baxter *et al.* have pointed out, there have been very significant alterations in the methodology of assessment of the burden estimates (comprehensively summarised in Table 2 of their paper). The net effect of these changes, some of which may have led to an increase in the relative contribution of mental disorders while others may have led to the opposite effect (in both instances to extents that are inestimable) has rendered any comparison of the observations between the two editions meaningless. In effect, we can only interpret the GBD 2010 results as observations in a single point of time. Having anticipated this, the GBD team recalculated the 1990 estimates using the GBD 2010 methodology so that these can now be compared over time – but readers must look at the 1990 results in the GBD 2010 papers and not the 1996 report which provided the older results. Furthermore, given that the new estimates are, for reasons described by Baxter *et al.*, more reliable than the previous ones, they do provide a more robust baseline for longitudinal estimates in the future; of course, this observation assumes that no further dramatic changes occur in the methodology of those estimates. In my opinion, perhaps the most significant uncertainty, and one which is at the heart of estimation of the DALY, which can further upset this apple-cart, is the estimation of disability weights.

Notwithstanding the significant advances in the methodology of estimating disability weights (Salomon *et al.* 2013), the resulting findings have not been without controversy regarding their face validity. In GBD 1990, disability weights were derived from the views of health professionals on the basis that they would have knowledge of a diverse set of health states, and would be able to make comparative judgments. This was criticised as the views of health professionals were not representative of broader population. In GBD 2010, new disability weights were derived from surveys of the general population attempting to capture a societal view of the health loss associated with a disorder. However, this appears to have introduced its own biases. How can one explain, for example, that

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the disability weight for acute schizophrenia exceeds that of terminal cancer or is more than three times larger than total blindness, or that the disability weight for cannabis dependence is similar to that of the amputation of both upper limbs of the body (*without* treatment) and twice that of profound intellectual disability? Of course, as Baxter *et al.* suggest, the stigma attached to these conditions must play a key role in explaining these unusual health state valuations, and if this was the case (as it seems quite plausible), does this reflect a valid estimate of the disability weight? Would we expect that with changes in social norms and attitudes towards mental disorders (e.g., the move towards decriminalising cannabis use in some countries) the disability weight will therefore reduce with time and vary across cultures? If so, this would mean that our hopes for using GBD data longitudinally would be dashed again, unless each new version of GBD re-estimates the burden for previous versions using the revised methodology. While such refinements are likely to be welcomed from a methodological point of view, these readjustments of estimates with each refinement do lead one to worry about the validity of the observations when they were originally published.

Another major concern about the GBD estimates are the very large gaps in the raw data, with primary data available for about a third of the countries of the world (exacerbated by the fact that this overall figure hides much larger gaps for specific disorders and countries). Thus, most of the results are based on a complex set of statistical models (which this author is not competent enough to decipher!) which impute missing data and 'force consistency on the available data' (Baxter *et al.* this issue). As, one hopes, some of the imputations will be replaced by primary data in the years ahead, further influencing the longitudinal comparability of the estimates.

So, how should we use and interpret the GBD data? In my opinion, they should never be used as the solitary indicator of why mental health matters to global health. They provide one important piece of the argument (e.g., the demonstration that, as a group, mental disorders account for a greater proportion of the global burden than HIV/AIDS), but arguably less important than many other pieces, notably: the sheer numbers based on the prevalence estimates (such as those derived from the work of the GBD group and others); the influence of mental disorders on other health outcomes (a key contributor to the 'burden' of mental disorders which is *not* estimated by the GBD); the social and economic determinants and consequences of mental disorders; the human rights abuses and discrimination faced by people affected by these conditions; and the very large unmet needs for treatment and care. One should not compare the observations made

in the original GBD 1996 publications with the GBD 2010 and comparisons of GBD estimates of 2010 (and the forthcoming 2013 estimates) should use the 1990 estimates provided in GBD 2010.

What the GBD analyses also show us vividly, and not for the first time, is the massive inequity in the global distribution of research resources and evidence. This observation confronts us with a core challenge: should the scarce resources available for global mental health research be allocated to more observational epidemiology? Certainly, if we were to follow the priorities established by the Grand Challenges in Global Mental Health (Collins *et al.* 2011), which have been the basis for much of the funding in the field in the past few years, the focus lies mostly on implementation science. It may well be, then, that observational epidemiology may need to take a targeted approach, focusing on countries and conditions where the data gaps are the largest (e.g., countries in sub-Saharan Africa and childhood emotional and behavioural disorders, respectively). Ultimately, we should acknowledge both the very important contributions of the GBD findings to the field of global mental health, but also the limitations of its approach and, therefore, the need for more research to ensure that future estimates are increasingly based on primary data and generate data for calculating disease burden which have greater face validity.

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Conflict of Interest

None.

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