What Can Human Development Do for Global Mental Health?

A critical analysis of the Inequality-adjusted Human Development Index (IHDI)

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1. **Introduction**

Mental health problems account for an increasingly large proportion of the global burden of disease. In 2017, mental health problems made up approximately 32.4% of years lived with disability (YLD) (Vigo, Thornicroft and Atun, 2016) and World Health Organization (WHO) warns of a global 'depression crisis', with it likely to become the leading cause of disease burden by the year 2030 (World Federation For Mental Health, 2012). 800,000 people a year die from suicide, with the figure rising (World Health Organization [WHO], 2017). It is also known that mental health problems are known to be a great cause of human misery. They are the most influential factor in life dissatisfaction across the world (Fleche and Layard, 2015). In addition, there are stark inequalities in mental health within and among countries (Friedli, 2009). Over 75% of those with mental health problems in low and middle income countries (LMIC) do not receive the treatment they need (Demyttenaere *et al.*, 2004), despite mental health problems accounting for over 11.1% of the total disease burden in these countries (Patel, 2007), and 78% of suicides occurring in them (WHO, 2018). Most LMICs allocate less than 1% of their health budgets to addressing mental health problems (WHO, 2014) and mental health receives just 0·4% of the development assistance for health (Institute for Heath Metrics and Evaluation [IHME], 2014). We are also learning that inequalities are powerful predictors of mental health outcomes (Wilkinson and Pickett, 2017) and seeing, at the same time, increasing relative inequality within many countries across the world (Atkinson, Piketty and Saez, 2011).

At the same time, new development approaches are moving away from 'economic' development and towards the more people-centred approaches of 'human' development (United Nations Development Programme [UNDP], 1998). As such, mental health is coming to be seen to be a key part of international development, and central to the overarching goal of improving human well-being. This was highlighted when mental health was made a key part of the recent 2030 Agenda through its role in the Sustainable Development Goals (SDG) (United Nations [UN], 2017a).

One of the most prominent operationalisations of this new approach to development has been the Human Development Index (HDI). Since, 1990, this index has been used by the UNDP as its foremost measure of progress in development. The HDI stemmed from work by the Pakistani economist Mahbub ul Haq, largely influenced by the work of Indian economist and philosopher Amartya Sen and his capability approach in which the emphasis is on people's ability to 'be' and to 'do', for which he won the Nobel Prize for Economics in 1998 (Sen, 1999; UNDP, 2015). In its most recent form, the HDI measures the three basic aspects of human development in countries through its indices of life expectancy, education and income, combining to give a mean 'HDI value' for a country (UNDP, 2016b). Since the formation of the HDI, alternative indices have also been introduced. In light of increasing absolute inequality among countries (Niño-Zarazúa, Roope and Tarp, 2017) and increasing relative inequality within many countries (Atkinson, Piketty and Saez, 2011) the Inequality-adjusted Human Development Index (IHDI) was produced in 2010. The IHDI uses the same dimensions as the HDI, but takes into account distribution to provide a reflection of the HDI score for the average person in that country rather than the aggregate, and is thus considered the 'actual' rather than the 'potential' level of human development (Alkire and Foster, 2010).

The dimensions measured by these indices are known to be key determinants of mental health (WHO, 2012; Lund *et al.*, 2018). At the same time, there is a growing consensus that it is prudent from an economical and health perspective to focus on primary prevention of mental health problems by addressing these determinants (Saxena, 2001).

Since the HDI's conception, there have been various studies that have analysed the correlation, impact and validity of the HDI on physical health (Antony, Rao and Balakrishna, 2001; Pervaiz and Faisal, 2017) and the mechanisms by which this occurs (Wang and Arah, 2017). There have also been studies around correlation between HDI and mental health problems (Khazaei *et al.*, 2017; Lim *et al.*, 2018), with one arguing that 'reducing the inequality of socioeconomic determinants' is a necessary step to reducing the burden of global mental health. These studies generally found complex and non-linear correlations between mental and physical health and HDI. There has also been some research on how inequalities in mental health determinants manifest as mental health problems (Patel *et al.*,

2018) and there has also been discussed a need to view global mental health research, especially those that take on the social model of health (Lewis, 2012) and measure outcomes (Macleod, 2014), through development frameworks such as the capability approach (White, Imperiale and Perera, 2016).

Despite the combination of deepening inequality and growing knowledge of links between inequality in the determinants measured in the indices and mental health, as well as the urgent challenge facing global mental health, there has been little research to date that assesses how it may be affected by human development, to which it is key. Further, there has been no research on how the use of the IHDI specifically could impact global mental health. If we are to make sure the world's mental health is taken seriously in this new era of development, we need to make sure that we understand how the tools we use to measure progress take it into account.

With this in mind, I propose to critically analyse how use of the most recent form of the IHDI may affect global mental health. I will discuss why mental health matters to development and the influence of the IHDI in the development field. I will then assess the relationship between the IHDI dimensions and mental health, suggesting what the impact of improving the measures at the national level may be on mental health, and analysing the impact of inequalities and addressing them throughout. I will discuss the issues with the IHDI and propose what can be done to improve how the IHDI addresses global mental health issues. I will, within this, focus on vulnerable groups, perform my analysis at international, national, local and individual levels as well as addressing the much discussed need to 'unpack' the mechanisms by which the inequalities in the determinants of mental health manifests as mental health problems (Patel *et al.*, 2018).

Overall, I will argue that the IHDI, with its neo-material perspective of mental health inequalities (Patel *et al.*, 2018), is a valuable tool for reducing the global burden of mental health problems. I argue that the IHDI provides a pathway for new development approaches to address the root causes of global mental health issues through primary prevention, breaking cycles of disadvantage through proportionate and universal interventions in the process, and argue for the upscaling of its use over the HDI. However, I also suggest that

improvements to the indices can be made for mental health, including gender weightings and the introduction of a quality of life measure such as Lost Healthy Years Expected (LHE). My findings also show that the capability approach has the potential to address global mental health inequities and promote better mental health across the globe when incorporated into human development as an evaluative measure. Additionally, my findings offer a possible explanation for why inequalities in life expectancy, education and income affect mental health at the international, national, local and individual levels.

My research will be performed through a critical analysis of scientific publications and the grey literature, and employ a range of quantitative and qualitative studies, attempting to analyse systematic reviews and meta-analyses wherever possible. I will use, as much as possible, literature pertaining to and from low, middle and high income countries. Given the heterogeneity of the lexicon in the field of development, I will provide definitions of my terminology throughout. It is beyond the scope of this report to perform statistical analyses of the relationship between the indices' components and mental health, or to discuss in depth the debate surrounding cross-cultural psychiatry, although this is recognised as a caveat to my findings.

2. **Why mental health matters to development**

In the international movement towards the 'human' kind of development that prioritises improving people's well-being over people's income as its primary goal (UNDP, 1998), mental health is central,with poor public mental health seen as a crucial limitation to achieving freedom in the Senian sense. Global mental health, the area of 'research and practice that places a priority on improving mental health and achieving equity in mental health for all people worldwide' (Patel and Prince, 2010), is 'fundamental' to human development (Lengfelder, 2017).

In addition, WHO describes mental health and well-being as pivotal to good overall health (WHO, 2006) and mental health problems pose an increasingly large burden in High-

income countries (HIC), middle-income countries (MIC) and low-income countries (LIC), causing much human suffering (Fleche and Layard, 2015). More pressingly, inequalities in mental health are stark. Treatment and service provision, especially in LMICs, is poorly resourced and not adequate for the demand. Investment in mental health is usually less than 1% of the national health budget in LMICs, with some countries having less than 1 psychiatrist per 3 million people. Even in HICs the budgets for mental health are not enough to cope with the burden. (WHO, 2016b)

Mental health and international development are also intertwined in what is a symbiotic relationship. Development affects mental health, and mental health affects development. The impact of development on mental health primarily occurs through its impacts on the determinants of mental health. These determinants are social, economic, environmental and biological in nature (WHO, 2012). More recently, following on from the findings of the relationship with physical health, the discourse on addressing global mental health inequalities has moved towards socioeconomic determinants of mental health, the understanding of which has grown rapidly in recent years. It is here where the relationship between development and mental health is at its closest, and the WHO has recently said that action to address global mental health inequalities will come in the form of addressing these determinants (World Health Organization, 2014a). Aside from the determinants, we have also seen mental health appear more prominently on the global stage as a valued aim in its own right. Although it was barely considered in the Millennium Development Goals (MDG), after much campaigning mental health took on a key role within the SDGs with its own specific targets (UN, 2017b). However, this was limited to 'promote mental health and wellbeing' and 'strengthen the prevention and treatment of substance abuse' and many still say this is not enough, asking that mental health have its own goal in and of itself (Thornicroft and Patel, 2014).

Not only, however, can development do a lot for mental health, but improving mental health can do much for development. The impact of mental health problems comes in both economic and social terms. Economically, mental health problems lead to 12 billion days of work lost per year and cost the global economy US$2.5 trillion per year which excludes the additional lost economic growth (Trautmann, Rehm and Wittchen, 2016). Socially, poor

mental health is a key risk factor for low educational achievement (Brännlund, Strandh and Nilsson, 2017) and poor physical health (Robson and Gray, 2007). A failure to tackle mental health problems is therefore not only a failure of those it affects, but it also severely impacts the pursuit of other development goals, too. This only affirms the case for making mental health a key part of development.

3. The influence of the IHDI in international development

The HDIs are key influencers in international development (Dervis and Klugman, 2011). Although other evaluative measures of development, such as the SDGs, are seen as the more visionary measure of development (Drexhage and Murphy, 2010), the indices' simplicity, transparency and resonance make it, despite criticisms (Kovacevic, 2011), our best alternative to gross domestic product (GDP) as measure of human well-being according to Anand and Sen (2000). The IHDI is now seen as a key alternative measure to the HDI for human development given that it considers the importance of distribution in an era of deepening within-country inequality. The IHDI influence tends to manifest through the UNDP's release of human development reports (HDR) that aim to hold countries to account on their human development scores. These reports include updates on national performances based on the indices. Since 1990, over 9,000 English language news articles were published on the HDR and, in 2009 alone, there were over 3 million searches for it (Dervis and Klugman, 2011). The HDI has contributed to significant progress in its indicators worldwide, leading to changes in how countries assess national progress and resulting in national policy revisions and changes in resource allocation and the law (UNDP, 2004).

4. The IHDI and mental health

The IHDI methodology

The IHDI assesses how a country distributes its achievements on the three basic aspects of human development of health, education and income. The formula was devised by Foster, Lopez-Calva, and Szekely (2005) and uses the Atkinson (1970) methodology of inequality measurement. It, in essence, takes the HDI score and 'discounts' points in component indices dependent on the value of inequality in them. The information on the dimensions come from national and international databases of these measures, with missing values estimated by models, and distribution measurements coming from more localised surveys. Data from these are applied to the formula to give inequality-adjusted dimension scores respectively and then combined to give the mean as the composite IHDI score. The 'maximum' level of potential human development is 1, whilst the 'lowest' is 0 (UNDP, 2016a). 188 countries were assessed in the latest HDR, with only 7 UN member states missing (UNDP, 2016d).

Recent literature

Although there has been no literature specific to the IHDI and mental health, there have been some studies that have assessed the relationship between HDI and health, as well as a small number on mental health.

By way of mental health, a study from 2018 found that point prevalence of depression was highest in medium HDI scoring countries (Lim *et al.*, 2018). However, a 2017 study on suicide and its correlation with HDI found that suicide rates were lowest in medium HDI countries and highest in low HDI countries (Khazeai et al., 2017), where it was argued that 'reducing the inequality of socioeconomic determinants are necessary to prevent this disorder around the world', however, an Australian found that suicide was highest in high HDI societies (Lee and Pridmore, 2014), although evidence from LMICs is sparse (Thornicroft, 2013). In addition to these contradictory studies, the heterogeneity and ecological fallacy of results within them was high and explanatory factors for this were largely speculative, including that 'higher expectations' in medium HDI countries led to more psychosocial stress, and this has been supported by other studies (Ho *et al.*, 2013). One study also found that higher HDI was associated with greater numbers of Child and adolescent mental health services (CAMHS) workers in high HDI countries, but less so in

low HDI countries, although the study only looked at European and Asian countries (Sourander *et al.*, 2018) and could not explain the direction of the relationship. Based on 2015's HDR report (UNDP, 2016c), as shown in *figure 4.1* (Ruiz *et al.*, 2015), higher scoring HDI countries tend to group towards the top-end of mental health burdens, of which affective disorders make up the vast majority, (Institute for Health Metrics and Evaluation, 2016), which are shown in *figure 4.3* (Roser and Ritchie, 2018). When looking at the IHDI scores, as shown *in figure 4.2* (Ruiz *et al.*, 2015), we see the same result. However, in both, the relationship is complex, heterogenous and non-linear, and there are multiple issues with regards to it, largely around inaccurate estimates of burden in many lower IHDI countries, an issue whose reasons, including poor access to mental health services, variable case definitions and limited or missing data (Atun, Vigo and Thornicroft, 2016; Vigo, Thornicroft and Atun, 2016; Bonadiman *et al.*, 2017) will be discussed in more detail later.

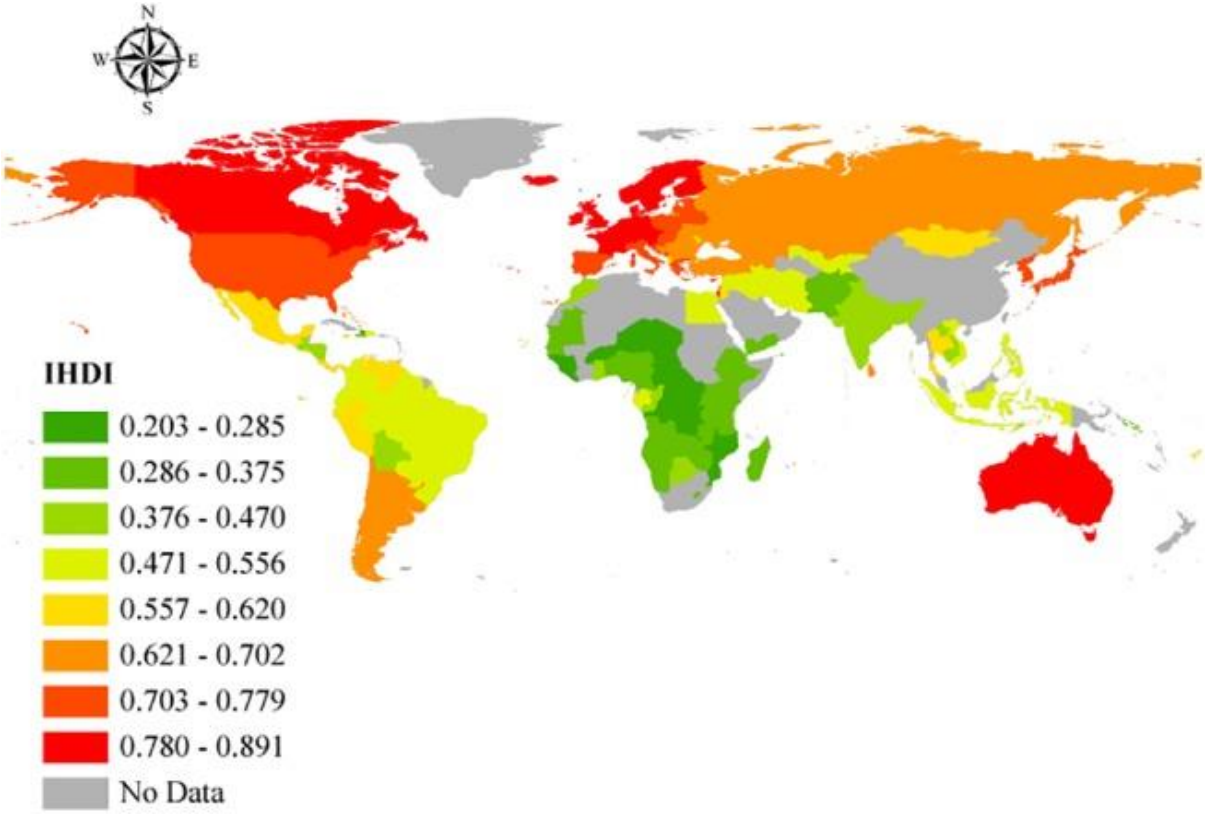

Figure 4.1: Global IHDI scores based on UNDP HDR 2014 (UNDP, 2014). Source: (Ruiz *et al.*, 2015), CC

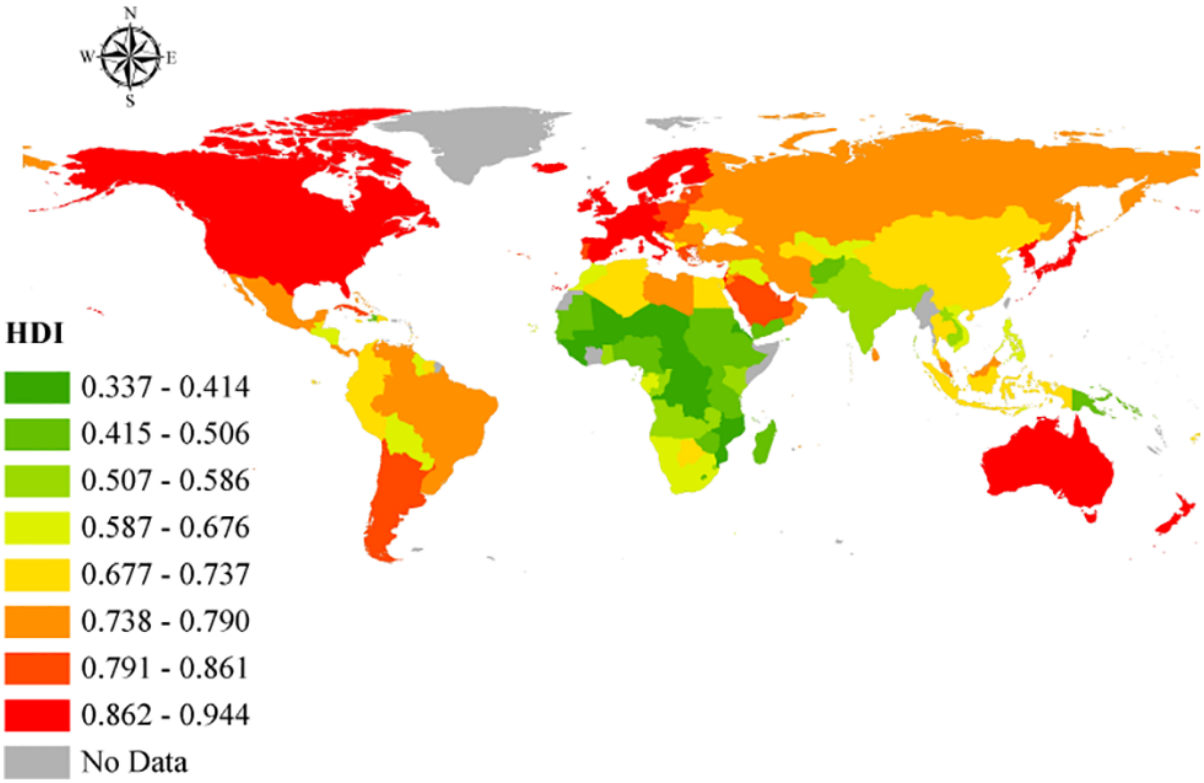

Figure 4.2: Global HDI scores based on UNDP HDR 2014 (UNDP, 2014). Source: (Ruiz *et al.*, 2015), CC

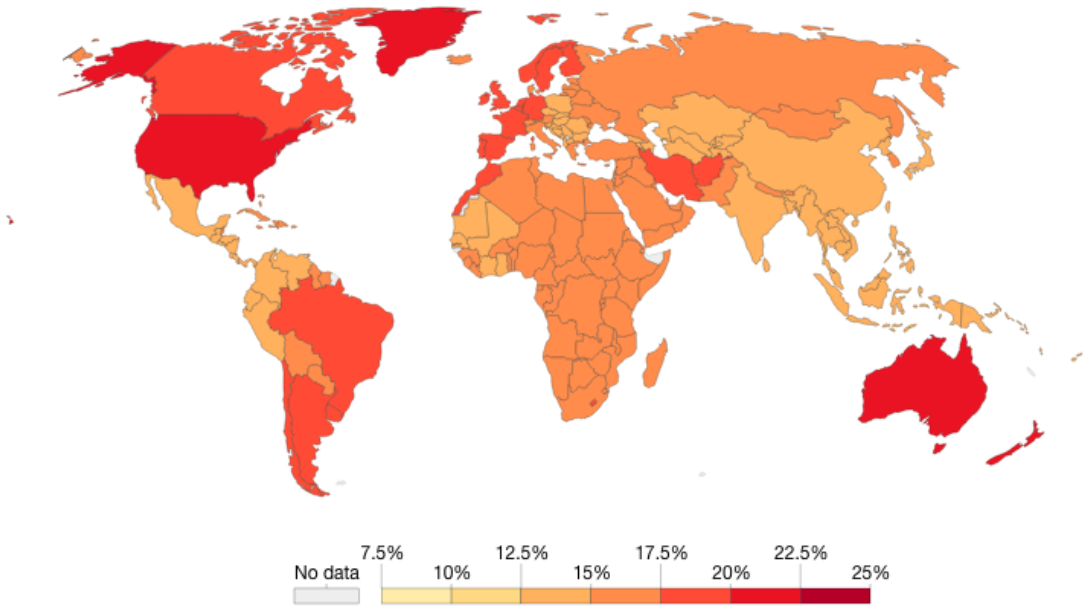

Figure 4.3: National shares of mental health and substance use disorders, based on Global Burden of Disease (GBD) data 2016 (IHME, 2016). Source: (Roser and Ritchie, 2018), CC

There were many significant findings from all of these studies, particularly that HDI tends to correlate, in a complex manner, with both physical and mental health. However, many of the findings were contradictory, and the mechanisms by which the relationships between the dimensions and mental health occur are still unclear. In light of this, I will show how there are relationships between the IHDI dimensions and mental health, looking more specifically at the associations and their mechanisms, and suggest what the impact of improving the dimensions on mental health at the national level may be, analysing the impact of inequalities throughout.

‘A long and healthy life'

The ‘long and healthy life’ dimension of the IHDI is composed of its inequality-adjusted 'life expectancy’ component measure. The dimension is measured by the life expectancy at birth (LAB) for the country. The life expectancy score is 1 when LAB is 85 and 0 when it is at 20. Inequality is judged by assessing mortality rates and average age of death in 5 year age ranges up to 85 and a single range over 85 (UNDP, 2016a).

Firstly, does national LAB progress positively impact mental health? The answer is that it depends how it is achieved. As stated by Lawrence (2013), treating physical health problems and their risk factors 'would result in improvements to both physical and mental health', and there is evidence to say that primary prevention through targeting risk factors such as smoking, an intervention well-known to improve LAB, is key in this (Ilyas, Chesney and Patel, 2017). However, at the national level, Hayes et al. (2015) showed that national LAB improvements are not equally shared, with the health of the general population improving faster than of the sub-group with mental health problems. A Nordic study from 2011 showed that national health improvements to improve LAB of those with mental health problems must be done in an equitable manner, with the Nordic welfare state model of tax-funded community-based public services and social protection being shown to reduce

the mortality rates of those with mental health problems proportionately (Wahlbeck *et al.*, 2011).

Secondly, does the LAB reflect the mental health burden in any way? At the individual level, life expectancy and mental health are closely related. Those with severe mental health problems face a huge mortality gap compared to those without mental health problems. Life expectancy in those with serious mental health problems is 10 to 25 years shorter than in the general population (Chesney, Goodwin and Fazel, 2014; World Health Organization, 2018) and this gap has been widening since 1985, particularly amongst males (Lawrence, 2013). In its bilateral relationship, improved physical health is also biologically linked with the prevention and remission of mental health problems (Penedo and Dahn, 2005; de Ridder *et al.*, 2008), backed up by a study of American students that showed that those with mental health problems were four times more likely to have worse physical health than those without mental health problems (Bontrager *et al.*, 2017). Given this, we could argue that a higher rate of severe mental health problems could negatively impact national LAB, and particularly result in higher LAB inequalities. However, although there is no true correlation, the mental health burden appears to be higher in higher IHDI scoring countries, and these are also countries with lower inequality in the LAB of the IHDI (UNDP, 2016c), which would contradict a theory that suggests higher LAB is associated with better mental health. To explain this, we must remember that good public physical health is key to higher LAB scores (Rogers and Wofford, 1989) and, although we have seen that severe mental health negatively impacts physical health, the prevalence of severe mental health problems in most countries is still only between 0.8 and 6.8% (Kessler *et al.*, 2009). Knowing this, although it may be affected by the mental health burden, LAB is unlikely to be affected significantly, and we can thus suggest the use of quality of life measures such as quality-adjusted life years (QALY) or LHEs in the health dimension of the IHDI, or even the mental health burden as its own index, in order to truly capture the WHO definition of health.

Despite the fact that it may not accurately reflect the burden, we could argue it is possible that the prevalence of severe mental health problems is large enough that decreasing the mental health burden will improve national LAB. In addition, better mental health is known to lead to better physical health, a key population level factor for improved

LAB (Rogers and Wofford, 1989) through improved lifestyle (Scott and Happell, 2011), less medication side effects and improved access to healthcare (Lawrence and Kisely, 2010). We may therefore suggest that using LAB as an indicator could inspire policies that aim to reduce the burden of severe mental health problems on this front, especially in light of the economic benefits (Layard, 2016). However, it is likely that the prioritisation of socio-economic determinants and other country-specify health challenges will lead to better improvements in life expectancy index scores than attempting to reduce the severe mental health problem burden, although these goals of course are not exclusive of each other (Rogers and Wofford, 1989; American Association for the Advancement of Science, 2008; IHME, 2015; Li *et al.*, 2018).

'Knowledge'

The IHDI dimension of 'knowledge' is composed of the education component. This index is measured by a combination of mean years of schooling for those aged over 25, for which minimum is 0 and maximum is 15, and expected years of schooling for children about to enter enrolment given their age and gender if current trends persist, for which minimum is 0 and maximum is 18. These are then divided by 2 to give the index score. The score is then discounted when any inequalities in distribution are taken into account (UNDP, 2016a).

The links between education and mental health have been well studied and shown to be closely linked, again in what is a bilateral relationship. Further, the relationship is mediated through both direct and indirect mechanisms. In terms of the impact of improvements in this index on mental health, the evidence from the literature is clear. Less education is significantly associated with higher rates of mental health problems and found to be one of the most influential socioeconomic determinants of mental health across the life-course (Araya *et al.*, 2003). This dose-response relationship was confirmed by a meta-analysis of the relationship between education and depression in 2003 (Lorant *et al.*, 2003) and is supported by a recent European study that measured education level against levels of psychological well-being, showing the effect is present independent of age and that those with lower levels of education were also less likely to seek treatment (Navarrete, Woldetsadik and Flahault, 2008). In all, education has been seen as a 'fundamental cause' of

inequalities in mental health within and among countries (Pampel, Krueger and Denney, 2010). The mechanisms of this relationship are economic, social (Mirowsky and Ross, 1998) and cultural (ten Kate, de Koster and van der Waal, 2017) in nature. Economically, the increased job security (Johnson *et al.*, 1999) and income (Pampel, Krueger and Denney, 2010) as a result of longer time spent in education appears key, meaning that investments in education are likely to reap double benefits by way of their impact on the income dimension of the IHDI. Further to this, improvements in the education index scores are likely to have a positive feedback effect, by way of their positive impact on mental health leading to longer stays in the education system, and these benefits extend to better participation in the labour market and increased economic productivity (Bracke, Van De Straat and Missinne, 2014). This hypothesis is supported by the evidence that mental health problems are linked to worse academic performance (Keyes *et al.*, 2012; McLeod, Uemura and Rohrman, 2012) and are key predictors in educational drop-out across all levels, confirmed in both quantitative (Hjorth *et al.*, 2016; Butterworth and Leach, 2017) and qualitative (Ramsdal, Bergvik and Wynn, 2018) studies.

What about the effect of educational inequalities? Given the associations of mental health with education, it is also again logical to suggest that higher inequalities in mean years of schooling would result in higher burdens of mental health and, as such, the IHDI would be a better measure in this sense. This is especially true given that the first incidence of persistent mental health problems tend to have occur in the earlier educational years (Kessler *et al.*, 2007), and those who drop out of education early tend to have the worst mental health outcomes, confirmed in long-term follow-up studies (Hjorth *et al.*, 2016). It is also logical to suggest that higher inequalities in mean years of schooling would result in higher burdens of mental health in the face of the economic mechanisms by which education impacts mental health, as educational inequalities will lead to the knock-on effect of greater income disparities, which entrench poor mental health. We also have a social theory that describes the pathway by which educational inequalities impact health. This suggests that social capital and cohesion are key, with education allowing for more social connections and support, and more embeddedness in a community to protect against mental health problems (Mirowsky and Ross, 1998). It is, as such, possibly through a sense of psychological inferiority due to social capital differences by which these inequalities in

education manifest (De Silva *et al.*, 2005). Also supporting the hypothesis that educational inequality negatively impacts mental health would be the cultural theory of the education and mental health relationship. Here, it is suggested that less educated individuals tend to feel a less valued, appreciated and legitimate part of their cultural environment. This inequality in entitlement (ten Kate, de Koster and van der Waal, 2017) is another potential driving force behind the impacts of education on mental health.

Despite the associations shown and mechanisms described, the data shows that there is a non-linear correlation between higher HDI education scores (UNDP, 2016c) and the burden of mental health (IHME, 2016), with the relationship the same even when accounting for changes in inequality in with the IHDI, in the same way as with LAB. Further challenging the associations in the literature, a study of educational reforms that increased compulsory schooling by a year for British students in the 1970s found that 'forcing' low-achieving students to stay in education in fact led to higher rates of depression, although the variety of potential confounders in this study were noted (Avendano, De Coulon and Nafilyan, 2017). Potential reasons for the contradiction at the IHDI level, however, are many, and make assessment of the impact of improvements in the dimensions complex. These reasons include the fact that there are potentially higher proportions of mental health problems in children and adolescents, who make up the majority of those in education, in lower IHDI scoring countries (Vostanis, 2017), although limited data gathering capacity (Belfer, 2008) means this is largely model-based. In addition, there is a recent body of evidence to suggest that academic pressures in schools are particularly damaging for mental health (Shankar and Park, 2016) and this would confirm a similar hypothesis as suggested by Lim et al. (2018) that higher expectations in more developed societies can lead to more mental health problems. Further, it is possible that measuring of school performance perpetuates this (Hutchings, Merryn; Kazmi, 2016) and it may even be down to an underestimation of the studies that have found that 'over' education resulted in a higher frequency of depressive symptoms (Bracke, Pattyn and von dem Knesebeck, 2013). As we will see, there is also the potential that the determinant of education is overpowered by the influence of other determinants, although this appears unlikely given that higher HDI scoring countries tend to perform well in these too. In all, although the micro-level

associations appear clear, the impact of increasing time in education is complex and contradictory.

'A decent standard of living'

Marmot, in his 2010 report *Fair Society, Healthy Lives* (Marmot, 2010) suggested that 'if you want to reduce inequalities in early child development and education, you have to reduce inequalities in society'. As becomes clear in that report, those societal inequalities largely come down to income. The dimension of 'a decent standard of living' is composed of the income index measured by GNI per capita, and again has its value discounted for inequality for inclusion in the IHDI. Given how closely intertwined they are, the relationship between income and mental health is perhaps the most widely studied and most interesting of all the three dimensions. It is again a bilateral relationship and has its effects through both direct and indirect mechanisms.

The impact of income on mental health is, overall, very well researched. A systematic review in 2010 found that there was an inverse association relationship between level of income and the prevalence of mental health problems in LMICs (Lund *et al.*, 2010). This has strong evidence in HICs too, where there is a dose-response relationship in income and the prevalence of mental health problems until the 1st quintile, which has a slightly higher prevalence than the 2nd (Mcmanus *et al.*, 2007). Much of the relationship can be put down to the level of debt, which is positively correlated with the prevalence of mental health problems (Jenkins *et al.*, 2008), and this is more marked in women (Mcmanus *et al.*, 2007). In addition, recent decreases in income are linked with higher incidence of mental health problems, and the duration and depth of poverty is key (Sareen *et al.*, 2011). These studies, as with almost all on determinants and mental health, also adjusted for the presence of confounders, especially given that those with lower income tend to be exposed to a combination of risk factors that makes them particularly vulnerable (Patel and Kleinman, 2003) as well as taking into account the possibility of social selection.

Mechanisms for which low income affects health have been described as material, psychosocial and behavioural. In terms of material mechanisms, it is posited that those on

low income are unable to access the basic material needs for living, including healthcare in many countries. The behavioural reason is linked, and suggests that those on low incomes are less able to adopt healthy lifestyles. (Elliott, 2016) However, these mechanisms are challenged by the fact that the burden of mental health is lower in LICs (IHME, 2016), and the well-known 'Easterlin' paradox states that average life satisfaction, of which mental health is a large determinant, has remained stable over time despite absolute rises in GNI per capita (Easterlin, 2004). The psychosocial element, which has a key role with regards to inequality, helps to explain this phenomenon. This theory states that those on low incomes have higher levels of psychological stress that results in poor mental health as a result of social comparisons, and is well supported by the evidence as a key mediator between income inequality and mental health, with inequality negatively impacting mental health across social strata but particularly affecting those on low incomes already (Rowlingson, 2011). As said by Sen, 'relative deprivation in the space of incomes can yield absolute deprivation in the space of capabilities' (Sen, 1992). With regards to the impacts of losses due to inequality in income (Friedli, 2009), we would therefore expect to see higher burdens of mental health in countries that have lower income index scores due to inequality, compared to those of a similar HDI. Taking the example of Chile, who 'lose' 35% on income due to large inequality (UNDP, 2016c), we can see that they have a higher burden of mental health at 19.09% compared to 16.85% in Lithuania, a country with a very similar GNI per capita. This is further supported by the higher burden of mental health in the United States, 21.56%, compared to the 18.97% in Canada, both of which have similar GNI per capita but the United States losing 27% due to inequality compared to Canada's 17.4%. Of course, these are only anecdotal selections, but they do point towards the significance of income inequality for mental health and support the micro-level relationship discussed. This theory is also further supported by other literature based in high-income countries, where the disparities in inequality between countries are greatest. As shown in a graph by The Equality Trust (2009) in *figure 4.4*, based on Wilkinson and Pickett's 2009 work *The Spirit Level* (Wilkinson and Pickett, 2009), more unequal societies with regards to income have higher burdens of mental health problems, a finding replicated in a prospective Finnish study (Hiilamo, 2014) with regards to antidepressant use. On the contrary, however, the more unequal societies in the lower IHDI groups tend to have lower mental health burdens. It is of course possible that other factors can compensate in economically unequal societies (Kelly

et al., 2011) or that inequality is only relevant at a certain per capita income, as suggested by Payne (Payne, 2017). In addition, a European epidemiological survey found vast between-country differences in the relationship between income and mental health that was difficult to explain due to non-standardisation of methodologies and definitions in studies, posing the possibility of the influence of cultural bias (Lehtinen, Sohlman and Kovess-Masfety, 2005). This is particularly true for the study of poverty and mental health in LMICs (Cooper, Lund and Kakuma, 2012). In all, a proper statistical analysis is required to determine what the relationship between the IHDI dimension of income and mental health really is. Nevertheless, the literature suggests that there is a strong argument for the use of the IHDI over the HDI for mental health given the impact of inequality.

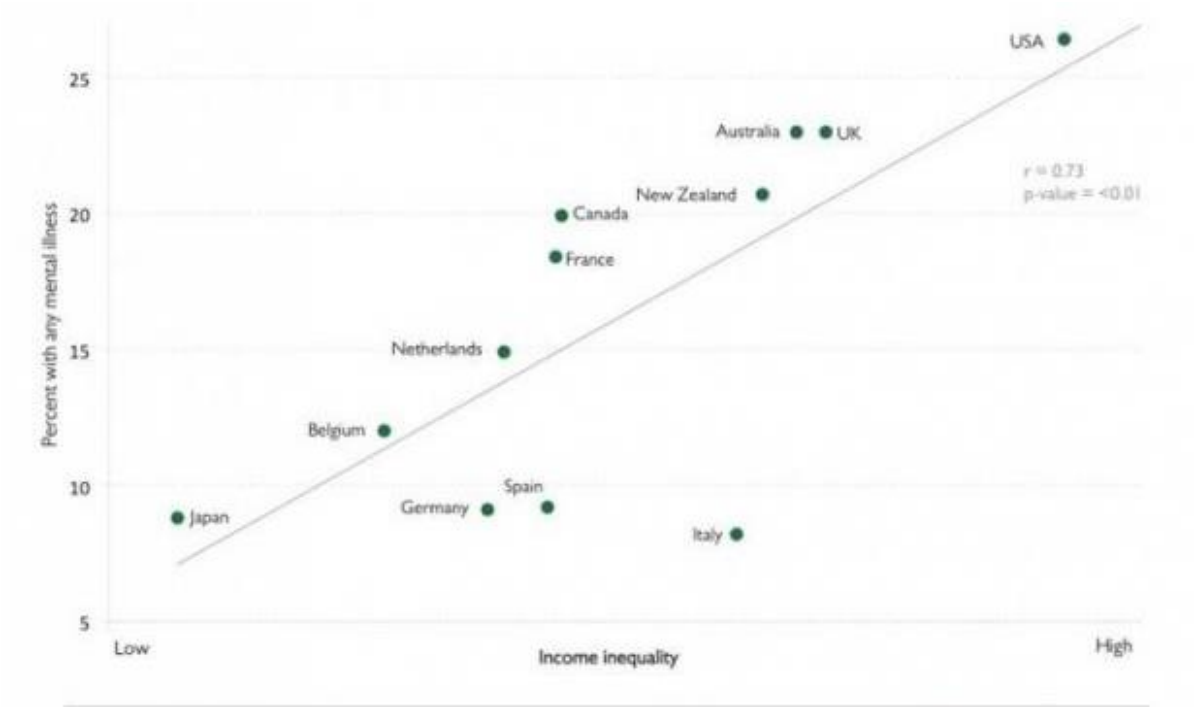

Figure 4.4: The relationship between prevalence of mental illness and income inequality as measured by Gini coefficient, based on *Wilkinson and Pickett* (Wilkinson and Pickett, 2009). Source: (The Equality Trust, 2009), CC

Despite these associations, what is the actual effect of improving income? We know from one national study that worsening inequality by the reduction of social security 'safety nets' has a negative impact on the mental health of women (Golberstein, 2015). However,

the true answer appears to be, again, that it depends on how it is achieved. National increases in income do not generally appear to be spread evenly, with the poorest and most marginalised being left behind by national growth, not seeing their income rise as fast as the richest and relative inequality rising within countries as a result (Roser and Ortiz-Ospina, 2018). However, we have seen evidence from economic studies that it is possible to distribute these benefits in order to improve mental health for the most vulnerable, for example through social security 'safety nets' (Organisation for Economic Co-operation and Development [OECD], 2012). (WHO, 2014a), and evidence that the HDI has had a key role in leading to these redistributions (UNDP, 2004). This also forms part of what WHO calls the need for 'proportionate universalism' with regards to addressing the determinants of mental health inequalities (WHO, 2014a).

Further to the impacts of increasing income and reducing inequality on mental health, what would the consequential effects of this be? The evidence shows us what is a vicious cycle of material poverty and mental health. More poverty leads to more mental health problems which entrenches poverty further, and so on (Blas and Kurup, 2010), with this impact being transferred across generations (Cooper and Stewart, 2013). At the same time, less poverty has the opposite effects (Wellander, Wells and Feldman, 2016). The key to breaking this cycle, WHO says, is to raise the socioeconomic status of the individuals most disproportionately affected (Blas and Kurup, 2010). We also know that increasing income and reducing inequality is key to improving physical health for much the same reasons as mental health (Pickett and Wilkinson, 2015), and that improved income is also linked to increased time spent in education (Blanden and Gregg, 2004). Therefore, not only would increasing the incomes of the poorest and reducing relative income inequality lead to a reduced mental health burden, it would also result, via a positive feedback mechanism much like the other determinants, in further benefits for income and thus education and physical health.

Issues with the IHDI for global mental health

The IHDI is simple, transparent and resonant. Its simplicity allows for complex indicators to be compared across time and space, and while development approaches such as the SDGs have been criticised for being too complex (Selin, 2015), the simplicity of the IHDI allows it to focus governments and development agencies. Its transparency also allows those responsible to understand where the issues lie and thus how to address them. Finally, its resonance at all levels, as discussed earlier, is key. However, with regards to its use for global mental health, it does have issues. These are related to its methodology, its impact and its concept. Methodologically, the IHDI is unable to assess overlapping inequalities (UNDP 2016d). This is a major flaw with regards to addressing mental health issues given that extra-vulnerable populations with a combination of risk factors who need to be prioritised (WHO, 2014b) are not able to be detected. In addition, given that it uses the Atkinson formula, it is only an approximation of the size of inequality to the extent that it can quite often underestimate it (UNDP 2016d). Despite in some ways being a benefit, another methodological flaw is its simplicity, meaning is unable to account for the variety of other determinants that affect mental health (Mrazek and Haggerty, 1994)). As a result, we have had the incorporation of indices such as the Multi-Dimensional Poverty Development Index (MPI) into the HDR, which is able to assess the mechanisms by which many mental health outcomes manifest. In addition, as a result of increasing understanding of the importance of gender inequalities and criticism of the HDI from feminist points of view (Nussbaum, 2000), the Gender Inequality Index (GII)was also developed. This is especially important for mental health given the vast inequalities between genders that we see (World Health Organization, 2000) and the recent calls for studies on mental health to include more gender weightage (Hill and Needham, 2013). Further, the IHDI assigns an equal weight to each determinant arbitrarily, without accounting for the differing importance of them. I have also described the importance of more difficult to measure factors that mediate the relationships between the determinants and mental health, such as social capital, which indices like IHDI will not be able to capture.

In terms of impact, we have discussed the importance of the indices in detail. However, unlike many development targets, the only accountability countries must face from the indices are that of public attention and we must ask: do governments really care? Much of the argument for the HDIs' impact on global mental health is around their power to

influence and motivate and one would hope that these are desirable, even prioritised, targets for any country, but the indices are non-binding and other priorities can take over, with this being a large weakness. In addition, although the HDI and IHDI provide data for most countries, 11 were missing from the last report, although this number is decreasing (UNDP 2014).

Conceptually, unrelated to the IHDI itself is an issue at the heart of global mental health, of cross-cultural psychiatry. Despite LMICs accounting for the vast majority of the global mental health burden in total, just 5% (Saxena *et al.*, 2006) of the research is conducted in these countries. There are passionately argued hypotheses that mental health is a Western concept that cannot be applied to LMICs on this basis (Summerfield, 2008), however this is strongly refuted by most in the global mental health field in the face of increasingly robust evidence that mental health problems are biologically similar in LMICs, acknowledging that there are varying phenotypic expressions (Canino and Alegría, 2008; Patel *et al.*, 2014) . However, the issue of unrepresentative mental health data from LMICs (Yasamy *et al.*, 2011) remains an issue for the use of the IHDI for global mental health, and makes interpretation of the contraindications and complexities in my findings from my research and the relationship between the indices scores and mental health more difficult to interpret. Much of the data is based on models (Yasamy *et al.*, 2011), and there are theories that suggest mental health problems in LMICs are covered by the combination of conflict and poverty that many individuals in these countries face . There is also the possibility of cultural biases that was posited as the case for heterogeneity in mental health burdens between European countries. Stigma around mental health in many countries, as well as low levels of access, can often lead to an underestimation of the true burden (WHO, 2014).

5. **Discussion**

Findings

This essay attempted to understand the impact of human development on mental health through the analysis of the IHDI. Firstly, I found that mental health is beginning to

take a central role within development, although many say that it still does not have the place it deserves. I also found that primary prevention of mental health problems through addressing determinants is key to reducing its burden. Further, I found that the HDI and IHDI are highly influential in the international development arena, and are at the forefront of human development efforts. The HDRs are highly influential in policy-making, and their influence means that many countries may be motivated to reduce the burden of mental health on the basis of the rewards it would reap for health, education and income.

In terms of attempting to delineate the relationship between the IHDI dimensions and mental health, and hypothesising the impact of changes in dimension scores on mental health, the relationship is complex. At the micro-level, in controlled studies, the associations appear generally clear. Despite this, the actual outcomes on the national and international stage are complex and largely contradictory. However, in summary, we can see that the IHDI has the potential to positively impact global mental health. Through its influence on the discourse and direction of human development, what it measures matters and clearly the dimensions of the IHDI have close relationships with mental health. In terms of the health dimension, I found there to be a bilateral relationship in which better physical health, the key determinant of LAB, and improved mental health and vice versa. LAB progress appears to positively impact mental health if it is done with a focus on vulnerable groups. This means that health policies should be proportionate to need and focus on the socially disadvantaged and those with mental health problems. The economic and social rewards of this would be huge, given the huge mortality gap faced by many with mental health problems. It appeared evident, however, that mental health was not reflected in the way that the health dimension is measured, and it was unlikely that countries would be motivated to reduce the burden of mental health as a means to improving their LAB. Education was shown to be fundamental to mental health. Through analysis of key studies, I found that mean years of schooling was positively associated with better mental health at various ecological levels. Education appeared to be the key determinant to break the intergenerational cycles of socioeconomic disadvantage and mental health problems, if done with a focus on equality. Equality in education had its ripple effects on mental health through both direct, such as sociocultural and psychological mechanisms, and indirect, such as improved income and job security, pathways. Despite this association, it did not appear

to reflect in the correlation between lower HDI and IHDI education scores and lower mental health burdens. Further, studies of national policy changes found that increasing education time negatively impacted mental health. Explanatory factors for this included an underestimation of the effect of 'overeducation', the effect of 'higher expectations' in more highly developed societies as found in a 2013 study on depression and HDI scores, (Lim *et al.*, 2018) as well as issues of confounders, unrepresentative data, lower access and cultural bias. Finally, in terms of income we saw how lower income was closely associated with higher rates of mental health problems across all stages of the life course and in countries across the world. Again, the ripple effects of improved income for mental health came through direct, such as psychosocial mechanisms and having more material means to live, as well as indirect, such as the knock-on effects on more time in education and better physical health, pathways. There was also strong evidence for an independent effect of income inequality, which disproportionately affected women and those in the lowest income brackets. Improvements in income at the national level, we saw as in the same way with physical health, were only beneficial for mental health if they were spread proportionately so as to break the intergenerational cycle of disadvantage where, which they are often not. Improvements to mental health appear likely to lead to huge socioeconomic rewards at the national level that will lead to improved mental health further. The dimension relationship appeared to contradict the literature again, however, showing that higher GNI and lower inequality was associated with a lower mental health burden. Despite this, we did see some small evidence of an association between higher levels of income inequality and higher levels of mental health problems in some highly developed countries.

All of the dimensions were shown to be key determinants of mental health that clearly interrelated, with education and income being the most influential. There was also a clear independent effect of inequality, particularly with regards to income, which appeared to have huge benefits when addressed. I also note that there appeared a reciprocal relationship in the determinants and mental health, straddling the theories of social causation and social drift, although social causation appeared the more influential, as supported by the literature (Mossakowski, 2014). Despite my findings, however, better IHDI total scores appear to correlate with higher mental health burdens. In addition, national

level improvements had mixed outcomes. This general trend is in line with my review of the literature that found vast heterogeneity in correlations between HDI and mental health, alongside the finding of some exceptions that fit with the micro-level associations that previous studies also pointed at. I attempted to explain, using the literature, why there appeared to be poor correlation between the associations in the literature and the apparent trends in the data. In summary, explanatory factors around this common phenomenon of the individualistic fallacy, in which general trends at the aggregate level contraindicate the literature of individual studies (Subramanian *et al.*, 2009), included those from the previous literature on HDI correlations with mental health, particularly methodological issues around comparison and unrepresentative data, the theory that higher HDI societies have higher levels psychosocial stressors, a cut-off level at which inequality becomes important, compensation by other unmeasured protective factors in low HDI societies, low access to healthcare as well as cultural biases such as differences in health-seeking behaviour and stigma, and various other determinant-specific factors. In all, it is likely that, when transported into vastly different social arenas, controlled and adjusted studies on the ground are mixed with an innumerable amount of complex factors that result in unexpected outcomes.

Issues with the IHDI in trying to reduce the global mental health burden were also analysed. These included limitations related to methodology, impact and concepts. Methodologically, its inability to assess overlapping inequalities and thus extra vulnerable groups is considered a major flaw. It also fails to take into differing importance of determinants or account for factors such as access to water, food and shelter, as well as weightage by gender. While being beneficial for communication, this means it does not often accurately reflect the level of development, and are also key predictors of mental health. Questions around its impact and ability to inspire policy direction were also raised. A key issue was around the lack of data from LMICs around mental health that could make attempts at evaluation of global mental health improvements difficult. Related to this, the opinion that psychiatry is a Western concept that cannot be applied across cultures is also noted.

Interpretation and implications

Through measuring and thus addressing these key determinants, the IHDI embodies the new way of thinking that has come to dominate global mental health. That is of prevention. Although mental health conditions are curable, once developed, mental health conditions are notoriously persistent (Richards, 2011). This is particularly true in LMICs where over 75% of those with mental health problems are not treated (World Health Organization, 2016a). This treatment gap is an issue in itself. However, if we are to truly address the burden of mental health, we must address the root causes. Given this, the WHO and others have sought to move towards primary prevention of mental health conditions through addressing the determinants (WHO, 2004), and addressing distribution within them (Herrman, 2001), of which the IHDI measures three. The mental health benefits of this primary prevention will save lives and save costs, leading to better physical health, a more productive population and improved economic growth, helping to holistically contribute to human development. By addressing these root causes, the IHDI is therefore likely to lead to reduced inequities in mental health over the long term. Further, resultant policies and programmes to address these issues have the potential for considerable impact (WHO, 2008).

Overall, from my research, I have shown that, although flawed, the IHDI is a superior method to the HDI and make the case for its upscaling within human development in order to reduce the global mental health burden through primary prevention via measuring inequalities in determinants. The rewards of this would be economic and social in nature. However, based on my evidence, I propose ways of moving forward with human development for global mental health in terms of potential additions, reforms and alternatives to the IHDI. The case for the introduction for a mental health measure under the health dimension of the IHDI is there. However, the introduction of mental health prevalence as a measure appears unfeasible in light of low levels of data in many parts of the world, the issues around cross-cultural psychiatry and in any case, would quite possibly have negative consequences for its measurement. Instead of this, I suggest that the methodology changes to measure LHE instead of LAB. I propose this in light of the evidence of the vast contribution to 'expected lost healthy years' that mental health contributes (IHME, 2016) which is not considered under LAB and, moreover, this would provide a true measure of quality, and not just quantity, of life (Fink, 2006) and would mean that mental

health was considered too although, again, methodological barriers are noted. However, given the wide gender disparities that were noted in mental health, I also argue for either the of use of the GII for mental health, or otherwise providing gender weightage in all indices. The MPI has particular uses with regards to global mental health given that it measures the mechanisms by which the determinants discussed affect mental health. These include quality of housing (Araya *et al.*, 2003) and school attendance (Ramsdal, Bergvik and Wynn, 2018). However, important factors such as the level of skilled occupation and type of housing (Araya *et al.*, 2003), as well as environmental determinants (Padhy *et al.*, 2015) are ignored, and I can suggest that these are included in a new index. Issues with this are clear though, and an already difficult job with regards to data collection and comparison could become even more difficult. Further, the simplicity with which it has its influence would be lost. On this basis, we can argue for the incorporation of a separate mental health index in the HDRs. Other options include the disaggregation of data to provide information on vulnerable groups such as children, although this is difficult with its current methodology (Alkire and Foster, 2010). However, in all, the issues around mental health data comparison won't be solved by a new dimension, measure or index and, until then, the IHDI will be useful for reducing the global mental health burden.

Limitations

There were various limitations to my dissertation. Firstly, I did not have the resources to perform statistical analyses of the association between IHDI dimension score changes and mental health prevalence changes. Despite attempts to draw trends and perform analysis, I was limited in how well I could triangulate my findings. This is why I may have encountered the individualistic fallacy and contradictory findings that made drawing conclusions complicated. Further, the literature around mental health in low and middle income countries, although rising, is limited. Between 1992 and 2001, just 5% of the literature on mental health came from LMICs (Saxena *et al.*, 2006). Although I endeavoured to use literature pertaining to and from LMICs, the lack of literature clearly has ethical and practical consequences for the validity of implications from Western-focussed research across cultures. In addition, the diversity of measurements used limited my ability to make

comparisons, as was the case with previous studies. In addition, this becomes even more difficult at the global level. As well as this, there was the well-noted issue of the publication bias of the research, with findings largely tending to be published only when they're significant, leading to potential overestimation of effects. Finally, we must note the debate around mental illness and socioeconomic status with regards to social causation and social drift, although the literature tends to say that both occur although social causation is stronger (Mossakowski, 2014).

6. **Conclusion**

In conclusion, I have assessed what human development can do for global mental health. I have found that the IHDI has the potential to be a valuable tool for reducing the global burden of mental health problems, and make the case for upscaling of its use, although potential improvements are suggested. Further research is need in order to validate my findings, in which a statistical regression analysis of the complicated association between mental health burdens and changes in IHDI dimension scores would be useful in order to understand which dimensions are most important. Although I did not analyse associations between GII and MPI dimensions and mental health due to my hypothesis around the importance of socioeconomic inequalities, these are fruitful areas for research. At a broader level, we are also in desperate need of more information on the distribution of mental disorders in LMICs, particularly locally, and need understand better the mechanisms by which these occur and are prevented through engagement with community members, which are often overlooked by policymakers (Lund *et al.*, 2011). It would also be beneficial to assess local development initiatives and other development approaches with regards to how they will affect mental health.

Global mental health is facing huge challenges. With over 75% of those with mental health problems in LMICs not receiving the treatment they need, less than 1% of national health budgets in many countries and just 0.4% of development assistance going towards mental health, as well as a rising burden across the world, the time has never been more urgent to prioritise mental health. Mental health, as I argued, is central to human

development. Although we have seen programmes like MHGap (World Health Organization, 2016a) try to address the issues, the problem lies deeper. It is now a matter of priorities, a matter of how much we care. Given the association between inequalities in determinants and inequalities in mental health, new approaches to development that sit right at the heart of this complex relationship have a key role to play. The determinants measured by the IHDI are key to the expansion of human capabilities and to increasing the human agency that is key to good mental health. By measuring those determinants, we are making a big step towards understanding their relationship with mental health, a big step towards ensuring that they reduce the burden of mental health for the most vulnerable, and a big step towards truly achieving global mental health equity.

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