Mental Health, Migration and the Megacity

Des Fitzgerald[1], Nick Manning[2], and Hua Fu Nikolas Rose[2] and Hua Fu[3]

[1] School of Social Sciences, Cardiff University, UK

[2] Department of Global Health and Social Medicine, King's College London, UK

[3] School of Public Health, Fudan University, China

Corresponding author:

Des Fitzgerald

School of Social Sciences,

Cardiff University

CF10 3WT

UK

fitzgeraldp@cardiff.ac.uk

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Introduction

This International Health supplement reports results and perspectives from an in-progress international and interdisciplinary collaboration, investigating the mental health of rural-to-urban migrant communities in contemporary megacities. The majority of the authors are collaborators on one project, shared between a set of institutions and funders in the UK and China, which uses evidence and approaches from epidemiology, the psychological and psychiatric sciences, the qualitative social sciences, as well as novel digital tools, to produce an individually-textured yet clinically-relevant picture of mental illness among migrant communities in Shanghai. That endeavour, which is still underway, is now extending into new collaborations with researchers in comparator migrant megacities – in particular, São Paulo (Brazil) and Toronto (Canada). In this introduction to the supplement, we will set out the background for this research programme in terms of contemporary patterns of urbanisation and their relationship to mental health; we will then situate these issues in relation to migration, and especially to Shanghai as a new kind of migrant city. But we will also, in necessarily abbreviated form, make the case for a wider argument that underpins this ongoing endeavour; our argument is that making sense of what it is like to develop, experience, live with, and ameliorate a mental health problem, as a migrant, in a city like Shanghai, or São Paulo, or Toronto, requires perspective and methods from a set of disciplines that don't make obvious bedfellows – that it requires new forms of collaboration, and indeed new forms of thought, across the social sciences, epidemiological sciences, and psychological sciences.

A new urban age

Why focus on mental health in megacities? First, because any researcher today, focused on any complex problem in international health, almost certainly needs to consider how that problem plays out in cities. If human life, globally, was to be to reduced to just one social and economic phenomenon, that phenomenon might well be urbanization: for example, in the most recent revision to its report on World Urbanization Prospects, the United Nations has shown that the percentage of people around the world living in urban areas, having been around 30% in 1950, has reached 55% today, and is projected to be about 68% by 2050.[1] Indeed the recitation of such numbers has now become something of a cliché – at any contemporary scholarly or policy event on global health or healthy cities, almost all speakers

will likely find themselves at some stage reminding the audience that the world will be two-thirds urban by the middle of this century. But what lies under the skin of this much-repeated statistic – and how do the health consequences of this phenomenon, especially the *mental* health consequences, differ from patterns of urbanization in earlier eras?[2]

Among the many factors that stand out, three are especially relevant for our research:
(1) whereas, in previous centuries, Europe and North America accounted for much of the global pattern of urbanization, today the centre of gravity has shifted to Asia, Latin America, and Africa. The region of Eastern Asia alone, which has been our own focus, has moved from having less than 18% of its population residing in urban areas in 1950, to a projection of more than 80% by 2050. To take only the case of China, which now has more than 100 cities with a population higher than one million, that country has moved from having just slightly over 11% of its population living in cities in 1950, to more than 60% today.[3]
(2) At the same time, in these same regions, a kind of massification is taking place, in which a general pattern of urbanization is *also* visible in the specific phenomenon of the megacity, which is in turn a complex, often poorly defined agglomeration, often made up of an extensive network of metropolitan areas, satellite towns, and newly-connected hinterlands. In São Paulo, Brazil, for example, the population has grown from less than a quarter of a million in 1900 to more than twenty million today – representing 10% of the entire Brazilian population – but with much of that growth in the peripheral areas radiating away from the centre.[4] [5] Shanghai, which according to one figure had a population of about 5 million in 1950, today has a population of more than 26 million, making it the world's third largest city.[6] [7] The megacity, as a very specific kind of social and economic space, thus needs to be considered in its own terms, not least in relation to literatures and the relationship between density, over-crowding and mental health.[8]
(3) If much of the growth in the urban population in previous eras came from 'natural' population increase (i.e. higher birth rates and lower death rates), for much of the process of urbanization today, and especially so in the megacities of Asia and Latin America, it is inward migration to the cities, from the countryside and smaller towns, that is the key factor. Indeed, there are 140 million rural-to-urban migrants in China alone today – a number that is expected to increase, even as the Chinese government moves to the limit the populations of its largest cities.[9] In Brazil, the distinctive pattern of *favelas* surrounding many major cities equally reflect informal settlements largely erected by rural-to-urban migrants.[10]

The papers in this supplement are all concerned with the health consequences of these features of contemporary urbanization, which have thus far been little researched in their own terms – i.e. there has relatively been little attention to how health problems play out in the growing megacities of Asia and Latin America, and even less attention to how they play out in the lives of rural migrants in those cities. Moreover, whereas previous work has looked at for example, environmental health, food security and related topics in megacities, these papers focus only on one emergent, vital and yet understudied feature of these metropolises – and that is the relationship of their growth to the *mental* health of their inhabitants.[11]

Mental health and the city

There is good reason to think there may be particular issues of mental health in these new urban formations. Certainly, it has been known, since the birth of the industrial cities of the eighteenth and nineteenth centuries, that there is a relationship between ordinary life in those cities and the mental health of the cities' inhabitants – and especially those inhabitants who happen to have been born elsewhere. Research in this vein has progressed from studies of what precisely is wrong with foreign born inmates in the hastily established asylums in mid-nineteenth-century New York, to accounts of over-excited and over-stressed psychiatric patients in turn-of-the century London, to more sophisticated attempts to separate congenital from environmental factors in urban migrants experiencing psychosis in the half-urban/half-rural spaces of the American Midwest. [12] [13] [14] And yet, despite the long time-period over which the relationship between mental health and the city has been observed, questions of its precise character and specificity remain unresolved, at both biological and social levels.

Indeed, for many decades, scholars debated whether the city was inherently productive of mental illness or whether more people with mental illnesses ended up living in cities through a form of 'geographical drift.'[15] Today, by contrast, much research effort within the life sciences has focused on *interactions* between the individual and the city, and on specific biological pathways that may mediate or exacerbate the relationship between poor mental health and urban life – with some potentially promising proposals at both the neurobiological and epigenetic levels.[16] [17] Other strands of research – often situated within the psychological or epidemiological sciences – have explored the range of risk factors, and/or the range and weigh of different stressors, that might account for portions of the differences between rates of mental illness in rural and urban areas: there is now broad consensus, as a recent synthesis

of meta-analyses and quantitative studies has shown, that urbanization is a significant risk factor for several major mental illness, including psychotic disorders and some mood disorders, and that specific features of the urban social environment associate with poor mental health – including low socioeconomic status, low social capital, and social segregation, as well as a series factors in the physical environment, such as physical threat, noise and pollution, and some forms of urban design (large, looming towers, for example).[18] Within these kinds of studies, among the factors most consistently identified with the risk of developing a mental health problem as an urban dweller, are migration and stress. [19] Thus, and given the relationship of the megacity to inward migration, as well to the often stressful situations in which migrants find themselves, our study has proceeded on the basis that the migrant megacity likely represents a significantly under-researched issue in global mental health.

The relationship between migration status and the chance of experiencing significant mental distress is a longstanding theme in psychological research, and there has been much attention over the decades to the role of factors in the place of origin, factors specific to whatever city the migrant has moved to, the actual stress of the journey itself, and so on.[20] More recent work has shown how migration itself is a manifold experience with distinctive stages, and different potential stressors at each stage; that it has different effects across the suite of mental health symptoms and diagnoses; that there are effects through generations and also that many migrants have strategies for resilience and coping.[21] Yet two important factors have not been as central to this debate as they might be: first is the distinction between international migration, on the one hand, and internal rural-to-urban migration, on the other; while the latter was largely characteristic of patterns of migration that make up the 'classic' epidemiological literature on urban mental health, it is not clear that its conclusions will carry with any great fidelity into contemporary *internal* migration trends, especially in the major cities of the global south. Second is the role of the megacity itself, which as we note above is a very specific form of settlement, with again very particular spatial patterns of work, settlement and community – thus presenting potentially different kinds of stress as well as different affordances for coping, to the internal migrant.[22] This changes things for how we think about the relationship between the city and mental health: indeed, research among rural-to-urban migrants in China has shown that migrants have both worse and better mental health than their urban counterparts.[23] [24] What is it that is so distinctive about migrant life in a city like Shanghai, then, that makes this relationship so complex? What makes Shanghai such a

potent site for thinking through the mental distress of the twenty-first century migrant experience?

Shanghai, migrant city

Since 2011, China has been, for the first time in its history, a majority urban nation. And it is migration that is the driving factor.[25] We are no longer, then, simply thinking about the city and its relationship to mental health, but to the specific effects on mental life of living in the *migrant* city – i.e. the mental health consequence of having migrated, from a village or town, to some major global metropolis. As we noted above, whereas in nineteenth-century Europe it was population growth that broadly drove urbanization processes, in twenty-first century China the situation is quite different, with rural-to-urban migration three times more important for urbanisation than population growth in cities.[26] It would be an error, of course, to think of such a movement only in terms of stress and upheaval: moving to a city such as Shanghai, or Guangzhou, or Shenzhen, presents many opportunities for those who chance it – in terms of material and economic gains, personal and cultural freedoms, and simply the opportunity to build one's own complex, dexterous life, even if on the margins of a major and still-growing megacity.[27] Indeed, our own, early quasi-ethnographic forays into the migrant districts and markets of Shanghai, during the pilot phase of this project, quickly led us into interactions that, while brief, were far from the clichés of migrant hardship – these encounters with rural-to-urban migrants gave us an image of people who worked long hours and faced difficulties certainly, but who nonetheless were often in good work, were doing well, who had a sense that they were getting on in life, who were even frequently in the process of putting away money for whatever represented their own vision of the good life, whether in Shanghai or back in their home village.[28]

This is an important aspect of migrant experience in contemporary Shanghai, and it will be reflected in the papers that follow. Nonetheless, it is also the case that, for many, urbanisation can come at a high price, producing feelings of stress, dislocation, cultural alienation, social defeat, and family dispersion, often resulting in elevated rates of illness, and especially mental illness.[29] Certainly, this is not a story that is unique to China. But there are some features of Chinese urbanisation that exacerbates these ills. The most prominent of these is the *hukou* system – a legacy of the socialist era, now within a (long) process of reform, in which an individual is registered in their place of birth, and thereby marked as either urban or

rural, with that mark structuring their access to services, especially to *where* services might be accessed. [30] Thus a migrant lacking Shanghai *hukou* may find her ability to access schooling, health services, good quality housing, and so on, significantly curtailed in her actual place of residence. Transferring *hukou* registration remains very difficult, despite ongoing reforms, and, while some migrants do strategically wish to retain their rural *hukou* (to pass onto their children, or because they intend to return to the village in later life) these bureaucratic complexities remain a source of significant stress for many rural migrants – as well as a barrier to seeking help for stress.[31] And there are other governance issues that may interact with migrant mental health in a city like Shanghai: for example, China relatively recently introduced its first national mental health law, with local codes still underway.[32] The local shape of those rules, and especially the development of community services from a small base, remains uncertain. So it is currently unclear how such codes will interact with migrants' experiences – and it is especially unclear whether local developments will be sensitive to the often informal spaces and practices that are used by migrants to cope with the vagaries of megacity life.

Either way, Shanghai remains a distinctively migrant city. Between 2000 and 2010, the population increased from about sixteen million to roughly 23 million; in the same period, the 'floating population' (i.e. residents without Shanghai *hukou*) increased from three million to nine million – which is to say: 90% of the population increase in this ten-year period was attributable solely to migration from the countryside.[33] In São Paulo, the dynamics are very similar, but the patterns of temporality and spatiality are somewhat different – the metropolitan region of São Paulo has also seen enormous growth; today its population is about twenty million, and this is also driven by migration form the countryside. But the largest period of growth came in the 1970s and 1980s (from a population of about eight million in 1970 to more than 15 million by 1991) but with the rate of growth slowing significantly thereafter – and almost all of that growth taking place away from the centre of the city, in the previously rural hinterlands of the urban core.[34] As we have noted: it is important not to reduce such movements of population to bare psychological crises; nonetheless, given what is known about the city and mental health, and especially given what we know about how that relationship is mediated by density, on the one hand, and migration, on the other, there these seems a *prima facie* case for getting some grip on what is actually happening, in terms of the unfolding of mental life, in cities like Shanghai and São Paulo. It cannot be stressed enough that we are *not* here dealing with early twentieth century Chicago,

or early nineteenth century London – cities in which the first suggestions of a connection between city life and mental health became known to researchers. Rather, we are here confronted with very different social and epidemiological territories. Getting some hold of their territorial specificity – from a simultaneously sociological and biological point of view – has been the central goal of the present project.

A collaborative approach

We began our investigations with the following premise: that making sense of what it was like to be a rural migrant in twenty-first century Shanghai; understanding the specific stresses and strains faced by people in this situation; producing high-quality, reliable data on the actual, on-the-ground reality of what kinds of mental health problems people were facing in their day-to-day lives; but also then understanding the subtleties through which migrants in Shanghai had learned to cope, to make a good life for themselves, and overcame their tribulations; seeing how they drew on the complex resources of the city, the factory, and the neighbourhood, as sources of comfort as well as producers of stress; hearing about how and where they sought official help, from whom they sought it, if they actually got that help, and whether it was effective when they did – that none of this could ever be fully resolved using the resources of the epidemiological, psychological, or qualitative social sciences alone. Rather we set out on the basis that understanding the relationship between urban life and mental health requires a new kind of relationship between these approaches. There is no great originality in such a claim – indeed, questions of 'madness and the metropolis' are distinguished by having been, for about a century now, of central interest to scholars in disciplines that otherwise seem to have very little in common: from classical social theory, to foundational studies in urban sociology, to some of the very earliest papers in psychiatric epidemiology, as well as in some of the most well-known theoretical claims in the psychological sciences– questions of whether, how and why urban life and poor mental health seem to go together has formed a rare object of shared attention in the twentieth-century university. [35] [36] [37] [38]

But while there has been much joint *attention* to urban mental health and mental life across these disciplines, there has been strikingly little joint *action* between them. Nor, at least for some decades, has there been a serious attempt, not only to share insights, but to actually pursue a new kind of research, which would insist on holding onto commitment *both* to

understanding the rich texture of everyday life in the city, as well as to developing survey tools that would produce a reliable epidemiological and clinical picture of urban mental health.[39] Thus the foundational interest of this project is not in producing, simultaneously, high-quality ethnographic and epidemiological accounts of migrant life – rather it is in using, for example, long-term ethnographic data, detailed interviewing and survey work, as well as newer digital social science tools, all of which help us to get some firm purchase on migrant experience as it is experienced in the everyday, thereby to *re-make* the epidemiological and other clinical surveillance tools though which we actually gather data on migrant mental health. What would a new kind of deep surveying instrument look like, that could combine the richness and texture of qualitative social science, with the rigorous quantitative approaches, as well as the clinical and policy relevance of epidemiological tools?

Aims, methods, questions – and some interim conclusions

The central aim of this project has been to produce better tools for understanding the relationship between urban life and mental health, and to do so by fostering a new kind of collaborative relationship between the social, epidemiological and life sciences. The project additionally committed itself to pursuing this goal by thinking through new kinds of relationships between urban citizens and researchers – which, in turn, was to be pursued via a long-term commitment to making sense of the daily stresses, tribulations and joys of migrant life, i.e. forms of practice and experience which might otherwise fly beneath the epidemiological radar. This overarching vision was to be realized in five core research aims, which we have not pursued in a highly linear fashion, but that rather filter through the papers that follow:

(1) to produce new insights on the patterning of mental health problems in a city like Shanghai, especially as those patterns are affected by migration;
(2) to focus on daily migrant life in Shanghai, with special attention to the absorption of migrants in the city, and the production of new kinds of community and new spaces for living;
(3) to look at governance mechanisms, and policy interventions, that have effects – even if significantly downstream effects – on the mental health of migrants and other residents;
(4) to consider the impact of new mental health laws and other relevant legislation in China, especially as these filter through to municipal policy and action;

(5) to analyze how answering these kinds of question about Shanghai, specifically, may inform mental health research in similar spaces, especially in other megacities of the global South, where population growth is either currently or historically the product of significant inward flows from the countryside.

These aims were in turn embedded in four methods: (1) a review and synthesis of the existing literature on migrant mental health in Shanghai, with particular attention to the specificities of the social and political economy of urbanisation processes in China; (2) an ethnographic study on the lived experiences of migrants, migrant households, and migrant neighbourhoods in Shanghai, structured by an attention to different kinds of neighbourhood and work experience, co-located in migrant communities in the urban centre and in the 'new towns' of the periphery; (3) a digital study of the relationship between place, mood and daily life – using data from migrant participants using the Urban Mind app, develop by researchers at King's College London;[40] (4) the early-stage development of new kind of deep surveying instrument for mapping migrant mental health in Shanghai – but not only in Shanghai – that would capture the expression of psychiatric symptomatic *and* the experience of social life; this would be the first surveying instrument for mental health research in Shanghai that not only matched epidemiological categories used in national and international comparisons, but that is specific to migrant experience in, and migrant geography of, that city; and it would focus not only on clinical outcomes, but on social and governmental structures that undergird this experience.

This supplement, which reports interim analyses of data gathered during this project, does not report results relating to all four methods. Rather our aim in what follows is to report on emergent data from our epidemiological ethnographic and digital research (1 to 3 above) with a report of the survey instrument to come in future publications. One complex aspect of producing that instrument will quickly become apparent to readers of the papers that follow: while survey work consistently shows at least moderate mental distress among migrant communities in Shanghai (half of the participants in our survey were experiencing at least moderate mental distress), our ethnographic work shows, by contrast, that such distress is often at least reasonably well ameliorated by the mundane coping strategies that migrants find and make use of in their neighbourhoods, workplaces and daily lives.[41 42] Making sense of this contradiction – indeed, whether it even constitutes a contradiction in the first place (one may of course experience significant mental distress *and* have good coping mechanisms)

– is the topic of ongoing discussion. But finding a way to capture such complexity, and to design an instrument that is able to live with these ambiguous, even contradictory findings, remains the central horizon of this project, and of the data that we report here for the first time.

The papers in this supplement

The supplement opens with an ethnography of the lived experience of migration by Lisa Richaud and Ash Amin; focusing on how migrants engage with the urban environment in everyday life, and with special attention the precarious nature of migrant experience, Richaud and Amin argues for an account of mental ill-health rooted in the inhabitation of 'urban lifeworlds' – an epidemiological gaze that is as attentive to how people positively intervene in their own lives, as it is sensitive to their experience of external stress. In the following paper, Jie Li, Nick Manning and Andrea Mechelli describe two pilot studies that attempt to re-orient epidemiological analyses of migrant mental health with just such an injunction in mind: first a 'deep surveying instrument' that would be sensitive to precisely the kinds of lifeworlds described in the ethnographic work; and (2) a smartphone app that uses 'ecological momentary assessment' to produce data on participants' experiences in real-world urban environments. Together, the authors argue, these pilot studies point the way to a new connection between sociological analysis and biological data, potentially leading to a more 'mechanism-rich' epidemiology. The following five papers then make up a deep-dive into contemporary work on migrant mental health in Shanghai, across a range of indices. First, Jian Wang and her colleagues report on a survey of mental health among migrant children in China, showing significant susceptibility to mental health among migrant children across a range of relevant scales. Next Fan Wang et al report on the potentially deleterious effects of a ubiquitous device for the urban migrant – the smartphone. Based on a new survey, their research shows an interaction between smartphone use, smartphone addiction, and a range of demographic and psychological factors, including depression and the experience of job stress. In the following paper, Lei Wang and colleagues use a cross-sectional survey to establish relationship between mental health status and a range of self-rated factors among migrants in Shanghai; they show that factors such as isolation, youth, alcohol use, and income problems are related to the risk of depression; while high subjective wellbeing is associated with marital status, education, higher self-reported income, and living with family. Then Zan Li and colleagues report on a cross-sectional comparison between migrant and non-migrant workers in Shanghai, showing that migrant works have only a slightly higher prevalence of

depression, although there is a larger difference in those aged over 45, and particular problems for those in poor work conditions and with low job satisfaction. The collection closes with a report on the relationship between social capital, subjective wellbeing and mental health among Shanghai migrants: Yonkai Zhu and colleagues use a series of healthy cities surveys to show that social participation and social cohesion are significant factors both in migrants reported sense of wellbeing and their mental health outcomes.

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References

[1] United Nations. World urbanisation prospects, the 2018 revision: key facts. New York: United Nations; 2018
[2] De vries J. European urbanisation, 1500-1800. London: Routledge; 1984
[3] United Nations. World urbanisation prospects, 2018: country profiles. New York: United Nations; 2018
[4] Andrade LH, Wang Y-P, Andreoni S et al. Mental Disorders in Megacities: Findings from the São Paulo Megacity Mental Health Survey, Brazil. Plos One 2012;7:e31879.
[5] Cow, W. Evolving urban form: São Paulo. New Geography; 2012
[6] Orleans LA. The Recent growth of china's urban population. American Geographical Society 1959;49:43-57
[7] United Nations. World urbanisation prospects, the 2018 revision: key facts. New York: United Nations; 2018
[8] Guide HF, Clark C, Ackrill G. The impact of the physical and urban environment on mental well-being. Public Health 2006:120;1117-1126.
[9] Hu X, Cook S, Salazar MA. Internal migration and health in China. Lancet 2008;372:1717-1719
[10] Tacoli C, McGranahan G, Satterthwaite D. Urbanisation, rural-urban migration and poverty. International Institute for Environment and Development Working Paper 2015.
[11] Krämer A, Khan MMH, Kraas F. Eds. Health in megacities and urban areas. Berlin, Heidelberg: Springer Verlag; 2011
[12] Ranney M. On insane foreigners. American Journal of Psychiatry 1850:7;53-63.
[13] White EW. The Presidential Address, delivered at the Sixty-second Annual Meeting of the Medico-Psychological Association, held in London on July 16th, 1903. The Journal of Mental Science 1903:9;587–605.
[14] Ødegård Ø. Emigration and insanity; a study of mental disease among the Norwegian born population of Minnesota. Copenhagen: Levin and Munksgaard; 1932
[15] Lewis G, David A. Andréasson MD. Schizophrenia and city life. Lancet 1992:34-;137-140
[16] Lederbogen F, Kirsch P, Haddad L. City living and urban upbringing affect neural social stress processing in humans. Nature 2011:474;498-501
[17] Galea S, Uddin M, Koenen K. The urban environment and mental disorders: Epigenetic Links. Epigenetics 2011:6;400-404
[18] Gruebner P, Rapp MA, Adli M. Cities and mental health. Deutsches Ärzteblatt International 2017;114:121–7
[19] Li X, Stanton B, Dang X et al. Social Stigma and Mental Health among Rural-to-Urban Migrants in China: A Conceptual Framework and Future Research Needs. World Health and Population 2006:8;14-31
[20] Murphy, HBM. Migration, culture and mental health. Psychological Medicine 1977:7;677-684.
[21] Bhugra, D. Migration and mental health. Acta Psychiatrica Scandinavica 2009:104;243-258
[22] Simone A. City life form Jakarta to Dakar: Movement at the crossroads. London: Routledge; 2011
[23] Lu, L, Wang H-M, Ye, J-X et al. The mental health status of Chinese rural–urban migrant workers. Social Psychiatry and Psychiatric Epidemiology 2007:9;716-722
[24] See Li, Mamning and Mechelli, this volume.

[25] Keith M, Lash S, Arnoldi J et al. China constructing capitalism: economic life and urban change. London: Routledge; 1984
[26] Wing Chan K. China: internal migration. In: Ness I, Bellow P, Eds. The encyclopaedia of global human migration. London: WileyBlackwell;2013
[27] De Boeck F, Plissart M-F. Kinshasa: tales of the invisible city. Leuven: Leuven University Press; 2013,
[28] Richaud L and Amin A. Life Amidst Rubble: Migrant Mental Health and the Management of Subjectivity in Urban China. Public Culture; in press.
[29] Wong DFK, He X, Leung G et al. Mental health of migrant workers in China: prevalence and correlates. Social Psychiatry and Psychiatric Epidemiology 2008:43;483-489.
[30] Li J, Rose N. Urban social exclusion and mental health of China's rural-urban migrants – A review and call for research. Health and Place 2017:48:20-30
[31] Afridi F, Li SX, Ren Y. Social identity and inequality: The impact of China's *hukou* system, Journal of Public Economics 2015:123;17-29
[32] Xiang Y, Li L, Ungvari GS et al. The proposed national mental health law in China: a landmark document for the protection of psychiatric patients' civil rights. Shanghai Archives of Psychiatry 2012:24;49-49
[33] Liao B and Wong DW. Changing urban residential patterns of Chinese migrants: Shanghai, 2000–2010. Urban Geography 2015:36;109-126
[34] Baeninger R. Migration and Urbanisation in São Paulo: The New Scenario. XXIV IUSSP general population conference 2001.
[35] Simmel G. The Metropolis and Mental Life. In: Bridge G, Watson S, Eds. The Blackwell City Reader. Oxford: Wiley-Blackwell; 2002[1903].
[36] Faris REL, and Dunham, HW. Mental disorders in urban areas: an ecological study of schizophrenia and other psychoses, Chicago: University of Chicago Press; 1939
[37] Malzberg B. Mental disease among native and foreign-born whites in New York state. American Journal of Psychiatry 1936:83;127-137.
[38] Milgram S. The Experience of Living in Cities. Science 1970:167;1461-1468,
[39] Ramsden E. Stress in the city: mental health, urban planning, and the social sciences in the post-war United States. In: Ramsden E, Cantor, D, Eds. Stress, Shock and Adaptation in the Twentieth Century. Rochester NY: University of Rochester Press; 2014.
[40] Bakolis I, Hammoud R, Smythe M et al. Urban mind: using smartphone technologies to investigate the impact of nature n mental wellbeing in real time. BioScience 2018:68;134-145
[41] See Li, Mamning and Mechelli, this volume.
[42] See Richaud and Amin, this volume.