The Social Determinants of Schizophrenia: An African Journey in Social Epidemiology

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ABSTRACT

The epidemiology of schizophrenia in developing countries, and especially in Africa, is controversial. One of the major findings of the World Health Organization multisite studies of schizophrenia conducted during the 1970s-1990s was that outcome of schizophrenia was better in developing countries. More recent research suggests this may not be the case in contemporary Africa. Rapid urbanization, industrialization, migration, conflict and ongoing poverty and deprivation characterize most of sub-Saharan Africa in recent decades; and it is likely that these potent risk factors for psychosis have contributed to shifts in the social epidemiology of psychosis and schizophrenia in that continent. In studying the epidemiology of schizophrenia, it is also necessary to examine evidence on first-episode psychosis (FEP) since it is often difficult to confirm a diagnosis of schizophrenia at onset. The author reviews nearly 50 years of epidemiological research on psychosis and schizophrenia in Africa; and argues that novel and flexible methods are required in contemporary efforts to study schizophrenia in the region. Specific contexts require specific approaches that are relevant and sensitive to local political, socio-economic and cultural conditions and dynamics. The future role of social epidemiology in helping clarify the burden, risk factors and natural history of schizophrenia within Africa depends largely on its success in integrating classic approaches with novel methods that are relevant to the specific socio-economic, political and cultural transformations taking place on that continent.

Key Words: Psychosis, schizophrenia, Africa, epidemiology, urbanization, migration

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EARLY OBSERVATIONS

As early as 1960, researchers in Africa have observed that political, socio-economic and cultural features of the environment impact to a considerable degree on the epidemiology and natural history of psychotic illness and schizophrenia. Following on the famous microbiologist René Dubos' argument[1] that rapid socio-cultural change increased the susceptibility of human populations to disease by introducing stress and weakening social structures, the Nigerian psychiatrist Adeoye Lambo made several definitive observations regarding psychosis.[2] Lambo maintained that the transient psychotic illnesses so common to his context had no organic cause, but were rather caused by socio-cultural factors, specifically the stress associated with acculturation and marginalization due to the rapid socio-cultural changes occurring in Africa. This was echoed by Guinness during the early 1990s, based on his work in Swaziland.[3] Lambo also observed that the environment plays a key role in shaping the natural history and outcome of psychosis. He wrote:

> *"Our present clinical observations in Africa have shown that, although in mental illness there may be some essentially basic factor in the onset of the illness … yet the interplay between man and his physical and social environment would seem to influence considerably the evolution of the disorder — that is, its property of remaining latent or manifest, its later course, and its final outcome."*[2]

While the socio-economic environment is of course a feature of every society and undoubtedly impacts on the genesis and natural history of psychosis in every context, the African case is of particular interest in respect of the epidemiology of schizophrenia. This is because it is a continent that has, in a matter of less than a century, undergone (and continues to undergo) massive socio-economic, political and cultural transition from a predominantly rural, traditional, subsistence environment to an increasingly urbanized, industrialized and globalised region of the world. In relation to infectious diseases, René Dubos attributed the problem of rapidly emergent communicable diseases within developing countries during the first half of the 20th Century almost entirely to the inability of human populations to adapt to the fast changing environment.[1] His words could equally apply to schizophrenia. In *Man Adapting*, he states:

> *"Demographic changes have been so large and so rapid during recent decades that they have come to play an increasingly important role in determining the social patterns of disease … In particular, a host of difficult medical problems have been created by the mass population*

movements so characteristic of our times — whether involuntary, as in the case of refugees, or voluntary."[1]

Lambo also pre-empted the World Health Organization by two decades in drawing attention to the fact that people with chronic psychotic illness (schizophrenia) appeared to have a better course and outcome and increased rates of 'recovery' within an African context where traditional social and cultural structures were still largely intact. He wrote:

"Permanent recovery, however, seems to occur much more readily in African patients … We feel that, other things being equal, the favourable social and environment factors inherent in the community to which the mentally ill are exposed in Africa influence the threshold of incapacity."[2]

THE WHO STUDIES OF SCHIZOPHRENIA

Over the next 25 years, the WHO undertook three large, multi-country epidemiological studies of schizophrenia. The major objectives of these studies were to determine the prevalence, cultural expression, natural history and outcome of schizophrenia at multiple sites throughout the industrialized and developing world.

The International Pilot Study of Schizophrenia (IPSS) was initiated in nine countries and included a total of 1202 patients recruited from consecutive admissions to psychiatric facilities.[4] In this sense it was not a truly epidemiological sample. The major finding of this study was that the prevalence of schizophrenia was roughly equal in all sites. The other main finding pertained to apparent better outcome of schizophrenia in developing contexts. At two-year follow-up, patients were grouped into five categories according to outcome. Surprisingly, only 39 percent of patients in developed countries fell into the two 'best outcome' groups combined as opposed to 59 percent in developing countries; while 37 percent of developed country patients fell into the two 'worst outcome' groups combined and only 23 percent of developing country patients were categorized as such. This pattern persisted at five-year follow-up, with Agra (India) and Ibadan (Nigeria) reporting significantly better clinical and social outcomes and Cali (Colombia) reporting significantly better social outcome as compared with developed country sites.[5] Later follow-up (at 10 years or more) in Cali[6] and Agra[7] found that over 50 percent of patients showed sustained good outcome; while an 11-year follow-up of the Washington DC sample found little change in functioning compared with functioning assessed at two-year follow-up.[8]

Because the IPSS cohort was not necessarily representative and selection bias might have played a role in the unexpected findings, a second large multisite study was initiated in the early 1980s. The WHO Collaborative Study on the Determinants of Outcome of Severe Mental Disorders (DOSMeD) — also termed the 'Ten Country Study' — included 12 sites in ten countries.[9] Ibadan, Nigeria was again the sole African site. The DOSMeD study had a much improved study design, with standardized instruments and methodology and comprised of first-episode incidence cohorts (total sample 1379). At two-year follow-up, 37 percent of patients in developing countries were assessed as being in complete remission, as opposed to only 15 percent of developed country patients. On five out of the six measures of outcome, patients in developing countries showed 'a more favourable evolution' than patients in developed countries. The authors conclude their report by stating that:

"(DOSMeD) replicated in a clear and, possibly, conclusive way the major finding of the IPSS, that of the existence of consistent and marked differences in the prognosis of schizophrenia between the centres in developed countries and the centres in developing countries."[9]

The third major study of schizophrenia undertaken by the WHO was the International Study of Schizophrenia (ISoS) and it incorporated numerous cohorts including some of the original IPSS and DOSMeD cohorts.[10,11] However, no African site was included in this study. At 15-year follow-up, the finding of a consistent outcome differential favouring the developing countries, remained robust.[12] The authors argued that the ISoS analyses dealt adequately with various possible sources of bias in the previous studies and that such bias could not account for the differences in outcome.

CRITIQUES OF THE WHO SCHIZOPHRENIA STUDIES

From the outset the findings of better outcome of schizophrenia in developing countries attracted criticism and skepticism.[13-15] A somewhat heated debate between critics and original authors has persisted to the present.[12,16-18] Major criticisms of the studies included: methodological inconsistencies between sites; diagnostic differences between sites; selection bias; high attrition rates and loss to follow-up (especially in developing sites); and the actual representativeness of the selected 'developing country' sites. For example, regarding the DOSMeD, Edgerton and Cohen state: *"But one thing is obvious. These five centres do not begin to represent the full range of social or cultural diversity in what might be called the developing world, nor can*

they be said to be typical of that world."[14] They also point out the significant social, economic and cultural variability between so-called 'developed country' sites.

Defenders of the finding maintain that ISoS addressed all of the methodological issues and eliminated six potential sources of bias, namely: differences in follow-up; arbitrary grouping of centres; diagnostic ambiguities; selective outcome measures; gender; and age. Hopper and Wanderling conclude that *"none of these potential confounds explains away the differential in course and outcome"* and that the robustness of the differential *"is generally taken as prima facie evidence for the relevance of 'culture' in influencing course and outcome of schizophrenia".*[12] And Besnahan and colleagues write *"It appears, therefore, that some aspect of the economic or cultural circumstance in developing countries may provide a more therapeutic context for recovery."*[18]

In essence, four explanations based on 'culture' have been offered to explain the outcome differential: Family relationships may be more conducive to recovery in developing countries[18-20]; In developing countries, informal subsistence economies may provide diverse opportunities for reintegration of patients into work roles[21]; Individuals with mental illness are less likely to be segregated within institutions in developing countries; and there is better community cohesion in developing countries. Thus the cultural and social environment was cited as the likely explanation for the WHO findings of better outcome in schizophrenia in the developing world. This is significant since this widely accepted proposal is based on the premise that the socio-cultural environment is a powerful enough entity to change the developmental trajectory of a disorder known to have a strong genetic basis. Indeed the authors of DOSMeD wrote:

> *"A strong case can be made for a real pervasive influence of a powerful factor which can be referred to as 'culture'… as the context in which gene-environment interactions shape the clinical picture of human disease … The contribution of the present study is not in providing the answer but in clearly demonstrating the existence of the question."*[9]

NEWER EVIDENCE SUGGESTS EPIDEMIOLOGICAL SHIFTS

Subsequent to the WHO studies, other data has arisen from several African studies suggesting that the epidemiology of schizophrenia may have changed somewhat over the last two decades. One of the major limitations of the WHO studies in terms of reviewing the epidemiology of schizophrenia in Africa, is that only one African site featured in the IPSS and DOSMeD

— Ibadan, Nigeria — while the ISoS did not include an African site. Cohen and colleagues addressed this obvious problem in a review of 23 longitudinal studies of schizophrenia from 11 countries defined as low- and middle-income by the World Bank.[15] These countries included three in Africa (Nigeria, Ethiopia and South Africa), two in South America (Brazil and Colombia), two in the Caribbean (Jamaica and Trinidad), three in Asia (India, China and Indonesia) and one in Eastern Europe (Bulgaria.) Studies were both prospective and retrospective, included first-episode and pre-valent cases, had follow-up periods ranging from one to 20 years, and drew samples from a variety of settings (outpatient clinics, hospital samples and communities.) The authors argued that these methodological advantages corrected a number of problems intrinsic to the WHO studies.

In their review, Cohen and colleagues reported marked variation in outcome with changing patterns of course over time.[15] Specifically, although relatively few individuals experienced chronic symptoms, the majority experienced relapse over a period of time. Disability and social outcomes tended to be worse in China, Brazil and Ethiopia; marital failure was high in Brazil, Ethiopia and Nigeria; while unemployment was highest in Brazil, Ethiopia and Indonesia. Other important findings common to many developing sites included: high percentages of subjects who had never received biomedical treatment; and markedly higher mortality rates in people with schizophrenia in low- and middle-income countries compared with the general population. The authors were also skeptical about the perceived positive role of family and the relative lack of stigma in 'developing countries' as reported in the WHO studies. In African and Asian sites particularly they identified a breakdown of family support and high levels of stigma which are believed to result in families abandoning mentally ill members.[22,23] Cohen and colleagues conclude their review by arguing that it is time to revisit the 'better outcome' hypothesis and that clinical, epidemiological and ethnographic research are required to resolve this question.[15]

Evidence from Ethiopia

Probably the most important longitudinal epidemiological study of schizophrenia in Africa in recent decades is located in rural Butajira, Ethiopia. A research team from Addis Ababa University recruited a community-based cohort of 321 prevalent and incident cases of schizo-phrenia in the early 2000s, screening a total of 68 378 adults between ages 15 and 49 years.[24] Published data from this study were included in the review discussed above by Cohen and colleagues.[15] As this is probably the most informative study to have been conducted on the continent since the

WHO studies, the major epidemiological findings from Butajira will be discussed in some detail as they shed new light on this story.

Investigators in Butajira made use of a dual method of case identification — screening with the lay-administered Composite International Diagnostic Instrument (CIDI) interview and conducting key informant interviews (KIIs). Comparing both methods against a clinician-administered diagnostic interview (the Schedule for Clinical Assessment in Neuropsychiatry (SCAN)) the authors found that the combined use of the CIDI screening and the KIIs was to be recommended in community surveys aimed at identifying cases with major mental disorders in low-income countries.[25] Flexible and sometimes novel methodological strategies are clearly indicated in epidemiological research conducted in contexts characterized by limited mental health resources and a significant reliance of the population on informal community-based providers of care. This is an important lesson for those wishing to conduct such research within the African continent.

Baseline evaluation of the cohort gave an estimated lifetime prevalence of schizophrenia of 4.7/1000, a rate similar to that in developed countries and at the upper end of the range for developing countries.[21,24] In keeping with most prevalence studies of schizophrenia, there was a male predominance in the sample (male to female ratio of 5:1). Also in keeping with findings in developed countries, male gender, single marital status and urban residence were independent risk factors for schizophrenia.[26] Strikingly, there were a number of baseline features of the cohort present that tend to be predictive of poorer course and outcome. For example, over 80 percent had negative symptoms at entry to the study, while 67 percent reported continuous course of the illness. Furthermore, less than ten percent had a history of previous treatment with neuroleptic medication, indicating a significant treatment gap almost certainly related to the unavailability or inaccessibility of mental health services in this rural region. The latter finding meant that the sample was predominantly treatment-naïve at entry — an advantage for a longitudinal study of course and outcome.

Follow-up assessments of clinical and functional outcome were conducted on the Butajira cohort at a number of points, with the most recent reports including 307 individuals (96% of the original sample) in the five-year follow-up.[27,28] At two-year follow-up of 271 individuals in the cohort, clinical status and level of functioning *"was lower than that reported for cases from developed countries"*.[29] A follow-up of the whole cohort (321) at three-years provided striking evidence contrary to the 'better outcome' hypothesis.[30] Monthly assessments throughout the period revealed that a third (30.8%) of participants were continuously ill while

most of the cohort experienced an episodic course. At the end of this period, only 5.7 percent showed complete remission and over half of cases (54%) were in a symptomatic psychotic episode. Finally, at five-year follow-up, only six percent had received continuous antipsychotic treatment, 45 percent were continuously symptomatic, and 30.3 percent had experienced continuous psychotic episode.[28] Only 20 percent had experienced continuous remission. Using a broad rating schedule and verbal autopsy, the investigators determined that 12.4 percent of the cohort had died during the five-year period, giving a standardized mortality ratio (SMR) of 5.98.[27] Most patients had died from treatable conditions such as infection and malnutrition. This is a question worth considering in the discussion section of this paper, especially since socio-cultural factors and differences appear to play a major role in risk for and outcome of this disorder.

The evidence from Ethiopia therefore suggests a poor overall short- to medium-term course and outcome for schizophrenia — quite different from the Nigerian samples in the two WHO studies. A recent prospective study of three-year treatment response in 17 000 patients in 37 countries, the Worldwide-Schizophrenia Outpatient Health Outcomes (W-SOHO) study, found that overall the proportion of patients in continuous remission throughout the period ranged from 45.7 percent to 67.4 percent depending on site.[31] This is far higher than the percentage in continuous remission at three-years in Butajira. In W-SOHO, the overall proportion with a persistent symptomatic course ranged from 15.1 percent to 39.3 percent, as opposed to 30.8 percent in Butajira. Interestingly, in W-SOHO, the North African-Middle Eastern sites (Egypt, Algeria, Saudi Arabia and Turkey) showed better outcome compared with Europe, with 67.4 percent in continuous remission and only 19 percent experiencing a persistent symptomatic course. While one cannot claim that the Butajira cohort is representative of 'non-Arab Africa', it does raise the question of whether there may be regional differences in outcome within the continent along a North African versus sub-Saharan Africa divide.

Insights from South Africa

Sadly, 18 years after the end of apartheid, South Africa is a country characterized by high levels of poverty (50% of the population live in poverty), unemployment (24%), external and internal migration, violence (highest rate of assault and rape and third highest murder rate in the world) and income inequality (second highest in the world with a Gini coefficient of 0.65).[32] It also has the highest number of people living with HIV-AIDS, with a prevalence rate of 18% (4th highest globally.) Mortality from AIDS

has impacted not just on the workforce but also on family structures, resulting in a vast number of orphans and child-led households. In recent decades, exponentially rapid urbanization and industrialization has transformed the country — it is predicted that by 2015 approximately 70 percent of the population will be urbanized, increased from 48 percent in 1975.[33] South Africa is a country that, within 20 years, has almost completely moved from a nation of racial division and discrimination to a nation of socio-economic and class-based division and discrimination. For all these reasons, it is arguably a suitable geographical region in which to study the impact of socio-economic forces and cultural dynamics on the social epidemiology of schizophrenia and first-episode psychosis (FEP). In recent years, some research has been conducted in South Africa on the social epidemiology of schizophrenia and FEP and some of the major findings are reviewed here.

A study of treated incidence of non-affective FEP was conducted in a hospital-based population in KwaZulu-Natal and reported an incidence rate of 31 per 100 000 population aged 15-49 years.[34] This is remarkably similar to rates of FEP reported from developed countries.[35] It is likely though that incidence rates in the community are a lot higher in view of the significant treatment gap that exists in developing contexts in Africa. In this study, an analysis of incidence rates by region was conducted, specifically looking at associations between treated incidence and measures of income inequality at the municipal level. After controlling for urbanicity (a known risk factor for schizophrenia) significantly higher incidence rates of FEP were detected in geographical regions characterized by higher income inequality. While such a result is open to critique on the basis of the ecological fallacy and the likelihood of multiple intermediary factors, this finding does suggest a relationship between risk for FEP and disparities in socio-economic status; and suggests that further prospective research of this and other socio-economic and environmental risk factors for schizophrenia should be a priority in contexts such as South Africa where income inequality, poverty and unemployment are at shamefully high levels.

A prospective study of non-affective FEP conducted in the same region of KwaZulu-Natal reported on the relationship between various social, economic and cultural factors and features of FEP that are predictive of poor course and outcome of the disease.[36,37] Individuals who subscribed to supernatural attributions of cause of their illness (49% of the sample) and those who had consulted a traditional healer for their illness prior to making contact with formal mental health services (39% of the sample) displayed more negative symptoms and had a longer period of untreated psychosis — both these clinical features correlate in outcome studies with poorer

course and outcome.[36] The authors stress the important role of cultural beliefs and behaviours in determining pathway to care in psychosis; and draw attention to the fact that many people in such contexts rely on traditional sources of care in part owing to the scarcity of formal mental health services available. This study also confirms the findings of other African research indicating that a considerable proportion of individuals seeking care for mental health problems rely on informal traditional caregivers rather than formal mental health services. This has important implications for mapping the epidemiology of FEP and schizophrenia in the African continent.

In the same cohort, the investigators examined associations between neighbourhood social capital and pathway to care.[37] Contrary to expectations, individuals with FEP living in communities characterized by high levels of social capital had a longer duration of untreated psychosis. The authors argued that in regions lacking availability or access to mental health services families and communities may choose to care for their relatives who are developing psychosis for prolonged periods prior to attempting to access formal services. In such contexts, persons with FEP rarely obtain hospital care until florid symptoms occur that disrupt family/community life and necessitate formal medical attention. Thus, this reality of limited structural resources (socio-economic deprivation and unavailability of health services) impacting negatively on pathway to care, must be taken into account when studying the epidemiology of psychosis and planning mental health inter-ventions in developing country contexts.

Finally, the same investigators attempted to follow-up in the community a cohort of non-affective FEP patients three years after they had been admitted to the regional psychiatric hospital. The unpublished results were startling.[38] Using hospital and referral clinic records, community psychiatric nurses (CPNs) were able to trace only 52 individuals (45% of the cohort.) Of the 52 traced, eight (15%) had died (giving a mortality rate more than twice that of the general population[39]), one had moved away and one refused assessment. Thus, 42 individuals were assessed by CPNs. In comparison with the general population, FEP patients were significantly more likely to be unemployed, single, living in overcrowded circumstances, and having lower household income. Only 55 percent were attending follow-up and were on treatment and only 19 percent had seen a psychiatrist during the last three years (i.e., since first admission). Forty percent had been readmitted at least once during this period. Clinical evaluation revealed that 50 percent were currently 'symptomatic' in that they were regularly experiencing one or more positive psychotic symptom. Auditory hallucinations (40%) and paranoid delusions (38%) were most common

with 20 percent experiencing visual hallucinations. Taken together, these findings suggest that individuals with a history of functional psychosis in this context face an uphill battle in terms of achieving clinical and functional recovery. Reintegration into occupational and social roles is poor, relative poverty is high with limited access to existing services and ongoing treatment. As in Butajira, these findings suggest that outcome of schizophrenia in Africa may not be as good in the current era as suggested by the WHO studies several decades ago.

DISCUSSION

There are several important themes and lessons that emerge from this review that require highlighting and discussion. These include: The observation dating back more than 50 years that the social, economic and cultural environment plays a critical role in shaping the epidemiology of risk and outcome of schizophrenia; Rapid changes in the social, political and economic environment give rise to a shifting epidemiology of disease, and it is not safe to base contemporary decisions regarding appropriate interventions and planning of services on dated epidemiological findings; There is a complex interplay of factors that are likely to influence the epidemiology of schizophrenia including socio-economic determinants, culture and the nature of the health delivery system; Epidemiological approaches in the current era must include novel methods that are suited to specific socio-cultural and economic contexts; And if social epidemiology is to help us unravel the complex role of a changing environment in altering risk for and the natural history of diseases such as schizophrenia, then it must include methods that incorporate multiple levels of effect and multiple stages over time.

The WHO studies suggested that outcome of schizophrenia was better in developing countries. Ibadan, Nigeria, was the sole African site in these studies and it seems inappropriate to extrapolate findings at a single site recorded nearly three decades ago to the contemporary pan-African context. This is especially true in the light of recent outcome data emerging from Ethiopia and South Africa. The continent has experienced significant socio-economic, political and cultural change during this period with rapid urbanization, industrialization, migration, and conflict. The United Nations Human Settlements Programme (UN-HABITAT) states that sub-Saharan Africa (SSA) is urbanizing faster than any other region of the world.[40] In some countries in SSA, rates of urbanization exceed four to five percent per annum, while some African cities have experienced urbanization rates in recent decades of ten percent per annum (meaning the population doubles

in a decade.) What is sobering is that the vast majority of Africa's urban residents are living in slums (72% in 2001). In addition, mass migration (both internal from rural to urban areas) and external (between countries) continues to occur throughout the SSA region. It is estimated that there are more than 14 million migrants in SSA (2.3% of the population) and many of these are refugees from famine, war and persecution. Migrants and refugees tend to move to cities and thus they comprise a higher proportion of city populations (for example 60% of the residents of Abidjan in Cote d'Ivoire are from neighbouring West African countries).[40]

Urbanicity and migration are both well recognized risk factors for mental illness.[41,42] Urban birth and urban upbringing are associated with increased risk for anxiety and mood disorders,[42] FEP and schizophrenia,[43,44] eating disorders,[45] autism,[46] substance abuse and suicidality.[47] This association has also been demonstrated for schizophrenia in Ethiopia.[26] With respect to schizophrenia, multiple studies have now confirmed an association between migrant status and increased risk for the disorder. Meta-analysis shows that this effect is greater in second-generation migrants (mean relative risk (RR) of 4.5 versus 2.7 for first-generation migrants), for migrants from developing countries (mean RR of 3.3) and for migrants from areas where the majority of the population is black (mean RR of 4.8).[48] These findings have major implications for the epidemiology of schizophrenia in contemporary Africa, especially given the major social demographic transitions in that continent over recent decades.

In studying schizophrenia in Africa, it is particularly important to consider the relative role of several important factors in influencing the epidemiology of the disorder. Clearly the changing socio-economic environment plays a major role; but so too does cultural heterogeneity as well as the nature of the mental health delivery system. It is outdated to argue that cultural beliefs and practices increase or decrease the actual local prevalence of schizophrenia. But it is certainly true that local cultural beliefs and practices may modify the apparent local prevalence of schizophrenia by changing help-seeking behaviors and altering levels of social acceptance of psychopathology. Adequacy and availability of mental health services and treatments also undoubtedly influence the validity and reliability of both epidemiological and outcome research. As described above, in KwaZulu-Natal, 40 percent of FEP patients attended traditional healers prior to formal health services; while 45 percent (of a different FEP cohort) were lost to follow-up three years after hospital admission for the first episode. KwaZulu-Natal is a province characterized by significant scarcities of human, infrastructural and financial resources for the provision

of mental health care[32]; and one can be confident in drawing a connection between this fact and the evidence we see for poor consumer access and aftercare. Thus the respective roles of socio-economic determinants, culture and the nature of the delivery system must be considered in efforts to map the epidemiology and outcome of schizophrenia in Africa. No doubt these factors interact in a complex manner; and future work should aim to formulate and test hypothesized models that explain these relationships.

In planning new research aimed at mapping the geography and natural history of schizophrenia in SSA, it is critical that novel and flexible methodologies are adopted. In Ethiopia, simple screening with structured instruments proved inadequate and complementing this approach with key informant interviews was a more appropriate strategy.[25] Standard methods of case identification will fail to produce valid data, as research has shown us that in contexts characterized by inadequate and inaccessible formal mental health services, a substantial proportion of people seeking care go to traditional healers and other informal caregivers.[36,49] Thus, in a pilot study currently underway in rural KwaZulu-Natal (piloting a future incidence study of schizophrenia), a major objective is to develop methods of engaging with traditional healers in a collaboration that will facilitate detection and referral of individuals becoming ill in the community. In Ethiopia, investigators have also highlighted the importance of building such collaboration with traditional healers in relation to mental illness.[50] Furthermore, it is important to note that, particularly within contexts where access to services is poor, household studies are much better able to provide good epidemiological and outcome data than clinic/hospital based studies. This preference for household/population level studies must of course be balanced against the higher cost and logistical complexity of these kinds of studies. Finally, if we are to strive to attain valid and reliable epidemiological data on schizophrenia in Africa, it is imperative that we ensure that our screening and diagnostic tools are culturally, socially and linguistically appropriate to the context.

This review would be incomplete without some attempt to answer the question: What does all this mean for our global and local efforts to look after the needs of individuals with schizophrenia in a resource poor environment? Certainly there will be insufficient mental health professionals and health facilities available in most African countries for at least several decades. The 'gap' between needs and resources will not be closed quickly. And so it is imperative to look to informal resources that have been an integral part of communities for a long time. Resources such as traditional healers who already provide significant care for mentally ill people and

their families. In South Africa, traditional healers and health professionals have already begun collaborative projects aimed at improving prevention, screening, identification, pathway to care, and treatment adherence for HIV and tuberculosis.[51] This model can be extended to mental health care with considerable benefits anticipated on many levels. These and other traditional support systems are endangered by the inevitable march of urbanization, globalization and industrialization across the African continent. It is arguably the responsibility of those health professionals working to improve mental health care within this context to actively and positively engage with traditional structures and systems that already play such an important supportive role in the lives of people. So too should they be developing programmes focused on task shifting skills in mental health promotion, prevention, screening and early identification as well as care, treatment and rehabilitation to community-based personnel such as community health workers (CHWs). In many low- and middle-income countries, CHWs have been tasked with a role in mental health; and research indicates that these key service providers can have an impact on helping close the treatment gap in low resourced contexts.[52,53]

CONCLUSION

In conclusion, Lambo's early observations in Nigeria regarding better outcome in schizophrenia is not supported by more recent research and insights. He was however correct in drawing a link between increased risk for psychosis and the stress associated with the rapid urbanization and socio-cultural changes occurring in Africa in the second half of the 20th Century. The future role of social epidemiology in helping clarify the burden, risk factors and natural history of schizophrenia within Africa depends largely on its success in integrating classic approaches with novel methods that are relevant to the specific socio-economic, political and cultural transformations taking place on that continent.

Acronyms List:
DOSMeD = WHO Collaborative Study on the Determinants of Outcome of Severe Mental Disorders
FEP = first-episode psychosis
IPSS = International Pilot Study of Schizophrenia
ISoS = International Study of Schizophrenia
SSA = sub-Saharan Africa
W-SOHO = The Worldwide-Schizophrenia Outpatient Health Outcomes study

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