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# **The Public Health perspective on Migratory Health – Displaced Populations in Global Disease Epidemics**

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## **1. Introduction**

The interest of migratory health displaced population and the impact on global disease epidemics has generated a lot of public health interest within the framework of movement in search for *greener pastures*. Many studies conducted to show a link between disease, travel and migration show some indications of historical connections that continue to have an impact on current medical programmes and daily activities [1]. The perspective of traditional medical services that concerns migrant health considers the recognition, identification and management of specific diseases, and health issues in displaced populations at the time and location of their destination [2]. In this paper we consider migrants population to be a group of people moving from one geographical location or environment to another for many reasons such as political instability, outbreak natural disaster, war, epidemic outbreak, for better life, search for fertile grazing field for livestock, asylum seeking and religious intolerance [2]. The various sovereign states are making more effort to put in place measures that protects immigrants population. The process of restricting migratory population in isolation for some period before liberation for health control is still adopted in developed countries. This quarantine operation

is intended to screen immigrants for potential diseases of public health concern and possible free transmission within the community. [3] The adoption of border control and restriction migrants into host countries has significantly reduced some those potential indicators that public health concerns and the constraints of increasing disease burden that in most cases are difficult to implement a developed health management system, due to inadequate health personnel and service providers.

The study of the disease epidemics, disease mapping and monitoring, and the platform of health information system reporting and analysis of researched report of diseases in the migratory community is always considered in several ways in those countries where programmes and planning are developed to handle the cohort of migratory or mass displaced population. One of the main concern of the mass movement of immigrants is the screening process to profile their state of health before the population are received in the host countries. There is also the problem to develop a programme or platform to monitor the evolution of diseases and the quality of life of the displaced population at any given time, and building a health record data base [4].

### **1.1. Quarantine strategies associated to migratory health**

The quarantine-strategies in migration health practices has ensured that much of the interest in health and migration is directed towards communicable diseases [5]. Generally, migrant medical screening is focused on conditions that prevails in different magnitudes between the migrant and host population, such as tuberculosis, and other poverty related diseases in the case of low income economies [6 Incidence of the Hansen diseases [7], and those suffering from syphilis infection [8]. In cases where medical screening are adopted and has been applied to evaluate and report public health and disease situation in the migrant population, in some cases to give an insight into the national and global health statistics. At the moment disease evaluation studies has shown some known health problems in the short and long run within the displaced migrant populations. The increasing interest in study on international migration has shown new areas and information on the migration health particularly studies in the Central African sub regions where, political instability has increased migration of displaced population within and the concentration in border countries.[9]. In addition to communicable diseases, attention is now focused on pre-existing non-infectious diseases [9] and other health domains, including behaviour [1, 10], morality [3, 11] and genetic diversity or ethnic profiles [4, 12]. Studies on displaced population concerning their behavioural pattern and psycho-social analysis has shown a public health concern especially in the sub-sahran African regions where regulation on drug and substance of abuse are difficult to put into action and the population are not under any restriction to possess and consume substances of abuse alcohol and other narcotics. Studies on genetic diversity and ethnicity within the mapped populations has indicated that genotype by environment interactions is correlated to linkage factors to non-infectious and other common diseases among the communities. This study has led to the strong consideration of implementing a health counselling programmes to manage the migrant population ethnicity and health issues [8, 12].

Epidemiological studies is currently inclusive of chronic diseases [13] like cancer malignancies [14], kidney renal failure [15] and severe cardiovascular diseases [8, 16], mental and psycho-

social health [17] maternal and child health [12, 18]. Lifestyle diseases and associated health issues (metabolic diseases), frequent tobacco use, alcohol use and substance of abuse, are critically being studied and considered in relation to the process of migration in some migrant receiving countries [19]. Due to variations in migrant demographics between receiving nations, international comparisons involving the pooled analysis of several host nations can be very challenging for interpretation and unreliable for use.

The global and national popularity in research towards the potential epidemics in migrant population has been on the increased [20]. The strategies to provide and develop health information systems on migrant population is also on the increase although the outcome of study is limited by other constraints such as ethnic diversity that is reported in most current displaced migrant communities. The displaced populations usually are made up of mixed cohorts that unevenly distributed within the displaced population receiving nations. The displaced population usually in most cases are asylum applicants, refugees, and temporary migrants like the potential students, economic migrants, and other more complex to define categories of migrants, [20]. Migratory population becomes difficult to manage in increased volume and pressure and in some situation the receiving countries have limited logistical facilities in place to cope with the influx of the uncontrolled population, especially cases with health concerns. To reduce the population pressure measures are put in place to develop strategies that uses health population principles in studying migration process which involves observations geared towards immigration health policy management programme potentially developed for the developing economies [21].

## 1.2. Population based approach

In migratory population the health-based approach in migratory health gives consideration into the factor of migration and health as a closely linked process that can be affected by short term and other local factors. [7, 20]. It has been shown by many indications that the population based approach are possibly less associated with the administrative principles of population displacement [22] and very closely linked to those important factors or characteristics that drives or motivate migration at national and global level. The population based consideration makes it possible for for the study of the long term effect that migration have between the different health communities and the effect on the different cohorts under consideration. This approach can enhance the consideration of many factors at a more global view point and many countries are making efforts to integrate the population based approach in the national and global health programmes and also address some poverty related diseases like TB, HIV/AIDS and malaria. [5, 23].

Following the information in table 1 below, the major problem of the different health milieu and the evolution of the migration of displaced population considers problems of disease associated with migratory related diseases within the framework of population-based risk that could add more value to the disease control programs during the period-of-entry screening for individual conditions [3, 11, and 24]. The study on migration and history of displaced populations supports the quantitative and analytic investigation on health variables important for study of disease burden in migratory population [24, 25].

General Trends	Outcome indicators
<i>Point of exit and extend of medical need identified and the state of detected disease</i>	State of disease progression - Care provision facilities - Access to basic health care
Migrant population in host community needing health attention and service:	Disease severity and epidemic survey assessment • Sensitization of health care services and providers • Disease diagnosis facilities, treatment and monitoring
<i>Potential health problems among migratory population</i>	Potential health factors-depression - trauma, stress - vulnerable exposure - tribal and religious conflicts, disease stigmatization
Migratory population exposure and predisposition to ill-health cause by change in environment.	Migration cohorts of war victims, civil unrest, asylum claimant Child trafficking
<i>Health problems acquired in host communities by socio cultural interaction</i>	Health factors linked to poverty, starvation, famine and hunger - linguistic and cultural problems - Unemployment constraints
Sensitization on access and health care facilities and service providers in the displace community	Groups of migrant services include farm and factory jobs • Prostitution • Housemaids • Drug trafficking and abuse

**Table 1.** The influence of immigrant health environments evolution of migratory community [25]

### 1.3. Population health approach

The population health approach to migration health is focused on the issue on standardized examination of two key factors that are: (1) sustained stable and disparate health environments and (2) the movement of mixed populations between regions or environment of varied prevalence of key health indicators and potential outcomes [2, 14,24].

#### 1.3.1. The main trends in migratory health variability

It is important to note that a number of migratory related diseases results from some genotype by environmental interactions [25], The variation in health problems in migratory population identified in most cases, and some the determinants of health impacts can be attributed to frequent population socio-cultural cross fertilization [26], also economic and social, genotypic variations, and psycho social behaviours.

These variables greatly affects the population and evaluation of the evolution of disease within the cohort population. Some examples of endemic disease are in most cases caused by in hygienic conditions, water borne and vector transmitted diseases. With no frontier control

some vector transmitted diseases like malaria, yellow fever can rapidly spread across countries [9]. Environmentally-related non-communicable disease epidemiological variations are caused by some deficiencies micronutrients [27] and geographically-defined exposure risks, such as health outcomes related to extreme weather or altitude, climate change [28].

. Social and economic influences can be important contributing factors in the development and maintenance of disparity in health and disease outbreaks between populations. Problems related to poverty, low education, housing and nutrition are shown to be closely associated to disease or illness prevalence and illness outcomes in low income countries [29]. The capacities and technical knowhow of medical and health sectors can influence health through the availability, accessibility of health facilities and state of the art medical equipment [30] and accessibility and ability to afford health promotion, disease prevention and treatment services [31,32]. Some of the major hindrance to manage disease burden in migratory population and slow response health delivery system include the problem of language barrier [33], socio-cultural cross fertilization and integration [34, 35], drug abuse, food tolerance and adoption of new menu and conformity to the norms and practice of host community, social interaction [36]. The displace populations in the case of massive displacement can have a great influence on the host countries and can drastically cause a hospitality problem by indigenes as a result of the pressure to deal with their new inhabitants who are considered as of great threats [37, 38]. Most displaced population are under the influence of micro environmental factors that are linked to disease burden.

These micro factors could be caused by the process of migration, during the travel period between origin and destination. These factors are usually observed within the refugees' communities, displaced populations and disadvantaged migrant communities such as the trafficked or smuggled groups of the migrant population, groups with psycho-social behaviours like depression, trauma and torture victims [39-41]. Other migration-specific health issues have been recorded in the groups of migrant worker [44, 45], the population of migrants' children [46] and some groups of returning migrant returning from family visits and or attending major ceremonies outside the immigration zones [47].

### *1.3.2. The impact of genetic diversity and biological interaction*

The impact of genetic diversity and biological interactions of health and disease may be a contributing factor to migrant adaptation and sustainability. However, in non-endemic regions these influences, and their association to mobility of population, can be poorly appreciated during the early stages of migration mainly due to inadequate of awareness, sensitization, knowledge or experience in the healthcare delivery sector [47]. The changes in disease progression and disease burden are dynamic and in most cases evolving at a steady rate in developing countries. This disease dynamism pattern expression is an indication of the complex nature of data base record analysis and management [24]. Socio -economic environments can rapidly change in our current global world especially if those changes have influence on health determinants, consequential changes in health outcomes observed over relatively short periods of time [2, 15], In case where there are basic health improvement facilities such as putting in place modern facilities for the provision of good source of portable drinking

water, proper housing conditions, food and basic clothing facilities in more ways can have a great impact on reducing disease burden and greatly address public health problems resulting from disease epidemics. [20]. Conflict, environmental change, natural disasters and population growth are known to result in new risk exposures and acquisition of adverse health outcomes over a short period of time [5]. Investigation at the global and national level of genotype by environment interactions on disease progression, psycho social behavioural patterns of the migratory population that may have a negative influence on the health of the population. [11, 17]. The aspect of climatic oscillation has the potential to influence disease epidemic as the migrant population are predisposed to diseases resulting from the climate changes and the slow process of human adaptation [28, 40]. The future of the health situation of displaced communities usually differs from the population of the host countries in many ways within the same community due to the genotypic variation of these two cohort coexisting in same environment.

The changes in the health indicators of displaced population are linked to complex individual health status at the time of migration which makes the health management programmes at the host countries difficult to implement [33, 44],.

## 2. Modern migration and population mobility

Migration phenomenon has generally been considered as a fluid process that is constantly undergoing changes, that needs to be assessed in terms of rate of change and global magnitude of population movement. In the last decades, the process of migration and movement of other mobile populations has been greatly influenced by the following factors:

1. The decolonialization of many nations and post-independence adaptation in Africa, the Middle East, Asia, Latin America and the Caribbean [3, 8, 41];
2. Large refugee displacement following conflicts and civil disturbances in Africa, South East Asia, the Balkans, Central America and Central Africa; *and*
3. The fall of the former Soviet Union has caused some socio-political, and economic problems to the extent that the institution for the legal and administrative restrictions on the ability of migrants to travel, work and move internationally have undergone a significant change at the global and national. One of the contributing factors has been linked to a complete shift in the demography of migrant population [17, 21]. In most traditional migrant-receiving regions such as Australia and North America where huge influx of migration has been recorded in the past, there has been a shift in the patterns of migration from Central Europe to new exploratory countries in Asia, South Africa, Central and South America and the Middle East countries [20, 33]

### 2.1. The Grazer displaced population and Trans-humans

In the sub Saharan African countries facing a long period of dry season, the grazer population are faced with problem of extreme shortage of vegetation for their animals and therefore have

to travel for long distances and away from home for months in search of greener pastures and water for their herds [25, 46], in an activity termed trans-humans. During the trans-humans period the grazer population generally from the Fulanis and Masai population are vulnerable to many forms of disease attack[8, 47], There is poor medical care, poor nutritional intake leading to mineral deficiencies and disease epidemic outbreak. This period of trans-humans has led to significant loss of grazer herds, and human life [45].The grazer population are general nomads and are constantly involved in gazer land disputes with the local indigenous population [45].

## 2.2. Concern to expanding immigrant foreign born population

There is a global and national concern with the expanding immigrant population due to the fact that these group of people have been shown to reproduce at a rate that is difficult for host countries to managed. The long term implication response to growing immigrant born population has been summarized in table 2.

Critical Issues	Implications
Increased demands for health service and access	Increased in Health Budget spending of host countries Provide adequate diagnostic and treatment services
Implementation of training programs for health providers and personnels	Adequate translation and interpretation services Set up information and communication systems (health information)
Increased in the migration of health professionals from migrant source regions	Address Issues of unemployment and job competition with indigenes, Social issues of labour exploitation of immigrants.
Training/certification of professional migrants who have linguistic skills	Sensitization in cultural awareness and sensitivity programs and training expensive to be introduced

**Table 2.** Long Term implication Response to Growing Immigrant -Foreign Born Population Component

## 2.3. Health environments and displaced population

In low income economies the health environments are limiting to manage the immigrant population mobility. In the Central African regions for example the lack of health environmental settings has been a health concerns in conflict areas to cope with the increasing displaced population. This problem has not been limited to regulated, traditional immigration and emigration. It also involves refugee and humanitarian movements and an increase in irregular arrivals (refugee claimants, asylum seeking, smuggling and trafficking in humans).

The different support structures at global and national level involved in supporting and addressing the problems of displaced population work with a common vision of reducing environmental crisis, prevent or control disease outbreaks and maintaining peace and mutual coexistence of the interacting population. Great efforts have been made at the international



and national levels enhance international mass displacement of migrant population during period of crisis, civil riot, natural disaster or political instability in a region. The role of international bodies involved in conflict management has been very important in managing massive population influx. These organizations directly implicated in peace and conflict management and health intervention include medicine without borders (*medicine sans frontier*) the United Nations High Commission for Refugees (UNHR), UNICEF, and the AU in the African sub regions [26]. Other bodies like the International Organization for Migration has played an important role in managing the problems of global displaced population [37]. New approach put in place globally through the improvement of health facilities and capacity building of health personnel and delivery systems can enhance the management of displaced population at point of entry [15]. With worldwide fluctuations in socio-political landscape, terrorist attacks dynamics, civil societal change, the nature, speed and access to international travel has also undergone marked changes in regulation and evolution of travel trends. The global travel patterns have been affected by changes in information and communication technology, transportation technology, accessibility, and affordability [5, 24]. Growth in air travel has functionally reduced previous limits on the rapid international movement of large numbers of individuals. The high volume of international travel supports greater population exchange and return flows between migrant origin and destination locations. Increased international travel has also been an integral component to support the growing process of globalization [2, 9, and 41], the progressive integration of global economic and communications sectors has been achieved by, a corresponding growth in the international demand and flow of labour and manpower. Recent report by the International Labour Organization (ILO) show an increasing global trend in foreign-born migrant labour market [22]. The trend of occupational mobility among migrant population from one location to another is on the increase leading to the slogan too many skilled migrants chasing few. In most cases occupational mobility is well structured managed by job agencies and outsourcing contract houses in most cases targeting illegal migrants workforce for exploitation [14, 39].

#### **2.4. Geopolitical changes**

One of the major factor affecting population mobility and migration is geo-political changes such as the collapse of the former Soviet Union, the fall of the Berlin wall, independence of smaller countries like Southern Sudan, Eritrea etc [41]. The implication of socio-economic and political factors of migration have other consequences on the population trends and dynamics of displaced mass population globally. [19].

#### **2.5. The epidemiological implications of mobility across differentials in disease prevalence**

Contrary to the developed countries, where infections that were historically considered as major causes of illness and death are decreasing in incidence and prevalence or have been eliminated, sub-Saharan Africa is still suffers from poverty related diseases and new diseases emerging like Ebola, konzo, buruli ulcer especially in west and central Africa.[38. 40]. Well-developed health facilities and sensitization programmes for healthy living and clean environmental, the adoption of environmental protection agency programmes on a global basis

has significantly reduced disease burden in most developed nations. In the last decade diseases of global economic importance has attained a level that can be managed within the different sub regions [3,11] and large improvement of immunization programmes and vaccine development initiatives has significantly reduced infectious diseases under a manageable scale [32, 35], and some of these diseases like polio, measles, mumps etc. are in the process of complete eradication.

The level of public health sensitization programs towards disease eradication also varies from regions to region and this disparity has led to problems in understanding the disease burden in the different migrant communities. Where there is mass movement of displaced population across borders the outbreak of disease can become a national or international public health concern. [17].The disparity in epidemic outbreaks of diseases that are not usually predictable is not restricted to communicable disease pressure but also cut across non communicable diseases. The issue of developed framework geared towards the control of non-infectious diseases in migrant communities has been properly developed in advance countries than in the poor resource nation, due to the priorities given to strategic health development process This developed health structures enhance the process and potential to diagnose, treat and control non infection diseases in well developed countries when compared with the cases shown in sub Saharan Africa. Availability and services for complex and expensive medical interventions like heart bypass, chemotherapy, organ transplant etc and other health delivery services varies based on the health priorities and logistics implementation between one country to another [1, 6, 23].

The variation in public health spending are linked to social and economic attributions, health service delivery facilities and access of the displaced population to health care and medical insurance [27]. In areas where there is limited international migration and national massive population occupational mobility the variation in disease epidemics is less significance and disease survey data base is easy to develop. On a global scale there is a concerted effort in the different regions to improve on health programmes, policies and infrastructures and delivery systems that can enhance the reduction of disease burden in the displaced population. In the last two decades there has been a general global increase in disease epidemics with potential health implication on disease burden of some poverty related disease like tuberculosis (TB), sexually transmitted infection (STIs), HIV/AIDs, Ebola Konzo, buruli ulcer and Chagas' disease. Within the migrant communities problems of disease co-infections are common and mostly observed from displaced population where the diseases are endemic [21, 33, and 42]. The trends in disease epidemic progression in developed countries has been shown for long un sustainable infections such as HIV/AIDs, hepatitis B and C. This trends are significantly different for developing countries of the Middle East, Asia and Africa where the diseases are very common and mostly recorded in foreign born migrant population [11, 44]. Disease epidemics linked to mass displaced population can influence local and community disease trends for the host migrant countries for both communicable and non-communicable diseases [20]. Displaced migrant population from resource poor countries have limited access to health facilities, disease diagnostics, health insurance, health promotion programmes, and therapeutic interventions for disease. The migrants have the potential of disease predisposition in an

advanced stage than is normally seen by health personnel and service providers in the migrants host countries [16, 20]. An overview of health problems within the migratory population gives an indication that all epidemic situation linked to migration is correlated with the situation where the migrant population are less privileged than the migrant host population. Many migrants population base on life style related non communicable and non-infectious disease tend to show health indicators that are far superior than those of host population [21, 25, 41]. A number of factor such as nutrition, psycho social behavior changes with time tends to change within the migrant population. In some cases the displaced migrants may show some adverse health effects closely related to those of host population. [1, 6]. In most cases some of the benefits and privileges derived from immigrant communities may be short lived and may be lost with time when the host country can no longer cope with the massive influx of population.

## 2.6. Short term impact of migration on health and disease epidemic

Migration has been closely linked to the influences on the potential disease epidemics with some short and long term implications on host country and there are significant disparity in disease health indicators. The disparity in disease indicators has led to the obligation of the international and national communities to develop health policies and programmes to address international population mobility as shown in table 3 below.

Critical Issues	Implications
Main entry point of monitoring and checks	Practice of immigrant health screens for defined diseases at entry points very difficult and time consuming
Migratory health intervention integrated programmes in migrant nations	Programmes are likely to be user friendly and more adopted than the nationwide intervention programmese
General movement of displaced population	May become a more important determination factor influencing many health outcomes, with age, sex, genetic diversity factor, behavior, educational, ethno-religious issues, and wealth attainment
Mobile population health policy frameworks (Mobile health, e-health)	may significantly need integration and harmonization at all jurisdictional levels with international economic, trade and security strategies.

**Table 3.** Health policy issues resulting from international population mobility

Where diseases of rare occurrence, has been reduced to very low levels, the occurrence of a few cases may have significant health impact at local and international scale [3]. This health impact can lead to a public health concern at the local necessitating an increase health response.

There are cases of global public health control strategies developed from the 2003 SARS events [22, 30, and 42], the case of zoonotic avian-to-human influenza transmission [4], and the records on spontaneous outbreaks of viral haemorrhagic fevers [1. 20. 43] and the

health impact of HIV/AIDS incidences recorded in developed countries [27, 35] transmitted by overseas visitors or migrant population. Regular mass displacement of new migrants from high disease endemic zones contribute significantly to the existing diseases due to low incidence of migrant host population. There is a need for long term health care programme to put in place policies and strategic plan to manage disease burden in host migrant communities for a more effective international and global integration. Countries that rely on historical, and local disease epidemics data for health policy, legislation and implementation may have less impact in the case where the disease burden develops above a manageable dimension at national and global level within the different control programmes [4, 21, and 27]. Concerning non-infectious diseases, migration-associated pressures result from the need to provide service delivery in culturally or linguistically sensitive programmes for the prevention or treatment of illness in migrant communities. There has been increase public health concern cause by introduction of new diseases through mass displaced populations into areas where there has been no known incidence of the disease. This situation can be worsen by the rapid growth of the new migrant populations with a gap in linguistic, socio- cultural cross fertilization, psycho social behaviours that may potentially cause problems in disease recognition, diagnosis and possible therapy [2, 31]. In some recorded cases of the delay in diagnosis and possible treatment can lead to important health implications affecting the population [8,34], difficulties in the management of health programmes. With the increasing growth and freedom of migration coupled with increased number of occupational mobility there is a potential danger of increasing global and national health disease burden in situations of mass displacement of migrant population [11].

### **2.7. The public health problems associated with complex emergencies and refugee situations in developing countries**

In many displaced migrant populations caused by war, natural disasters, civil disobedience and other macro environmental problems, there are always public health problems caused by disease burden that are either communicable or non-communicable in nature in the affected area. Other consequences of massive displaced population include food insecurity, famine, lack of basic access to health care, and the difficulties in developing a standard health programme, policies for a good standard of care [5, 13, 31]. The impact of mass displacement of population on public health disease management programmes has had a significant impact in low income economies. The other drawback caused by mass displaced population includes increasing death and morbidity ratios. In most low resource countries like in sub-Saharan Africa, there is high mortality rates due to significant increase in disease burden, extreme poverty, unemployment and the most common causes of death within the displaced population are associated with water borne diseases like diarrheal and dysentery, measles, acute respiratory infections, malaria and most recent in sub Saharan Africa, ebola virus disease [9, 14, 37]. High prevalence of acute malnutrition have contributed to high case fatality rates. In conflict-affected African countries, such as Sudan, the Central African Republic, Mali, Chad etc., war-related injuries have been the most common cause of death among civilian populations; however, increased in-

cidence of communicable diseases, neonatal health problems, and nutritional deficiencies (especially among the elderly) have been reported [35, 39, 45]. Studies have shown that in massive displaced communities some of the standard procedures put in place to manage and control high mortality and morbidity includes a sustainable food security, improvement in hygiene and sanitation, portable good source of drinking water supply, shelter and clothing;; reduction in water borne related diseases, well developed immunization programmes; good mother and child health care, neonatal health monitoring systems, and strategic management and control of communicable and non-communicable endemic diseases; and the implementation of enhanced special feeding programs where migrants of special dietary needs are put under selected or special diet and follow up for the improvement of their nutritional status.

### **2.8. Migration of displaced population from farmers' grazier conflicts in sub-Saharan Africa**

The movement of population of grazers from one locally to another over a wide area in search of greener pastures has led to tribal conflicts and problem of human coexistence. Studies have been conducted on the conflict problems arising from grazer activities and in an attempt to appreciate some of the main causes of conflict and also to give an insight into the implication on local and national migration, and how they can be managed within the framework of effective and sustainable community development [46, 47]. In a global scale conflict results from a serious misunderstanding, communication problems, dispute, difference of opinions among individual and groups of people in a community. In most cases conflicts leads to threats that can be directed to an individual or groups restriction to some privileged, or access to some properties or resources [46]. Within the grazer population conflicts are usually linked to land disputes between crop farmers and grazers in areas where both parties compete for a limited space of land for their main activities of farming and grazing (Normadic herds' men and farmers' population). The conflict has caused in some cases the grazier population to adapt a persistent nomadic lifestyle which predispose them to disease attack and little access to medical care. The long period of trans humans requires that grazer population travel long distance in search for green vegetation or pastures and water for their livestock. During the long period of transhumans there is less access to medical protection and the livestock suffer severe disease infection due to little veterinary visits [45]. Access to proper food is limited and the herders go for long period of poor feeding, under feeding, lack of balance diet. The health consequences are tissue wasting, diarrheal, cholera attack from poor water source [23].

## **3. Future impact of population mobility on global health**

Some of the drawbacks resulting from increased migration and population mobility is the constant increased pressure in developing in the migrant receiving countries a structured health planning programmes Population migration is an essential part of the current process of globalization. Studies have shown that migration trends, forecast on the move-

ment or the migration of workforce may stay stable or take a steady rise with time. The variation in health indicators at the global and regional scale are likely to expand despite the mobilization effort at the international level to develop control strategies for population displacement. International efforts and programmes have been developed to reduce disparities and impacts of disease and ill health, such as attempts to achieve the Millennium Development Goals [14, 31, 40], are in progress in many health friendly societies. Efforts to put in place sustainable initiatives is still in progress, resources and extensive financial mobilization is needed for effective implementation of programmes. The variation in health and health indicator analysis at the global and regional levels has a continuous influence on the health of the migratory population. There is an added challenge of financial cost towards the initiation of the sustainable control strategies of migrated displaced population. It has been shown that in the early studies, most of the health issues linked to migratory health were initiated at the national level. In recent times this health initiatives programmes has been achieved through immigration health actions, as a vital aspects of some local health programmes put in place. The importance of effective migratory health service needs to be put in place in most regions due to defined issues linked to displaced population [1, 13, 29, and 47]. The evolution of travel and migration has reduced the effectiveness of many national, point-of-arrival activities. New patterns of population mobility needs to reconsider the practicality and viability of border-health inspection for exclusion or containment strategies [42]. In most nations where large immigration medical programs are effective, there is a maintenance of specific screening or intervention programs for targeted diseases such as tuberculosis, syphilis and HIV/AIDS. Studies have also shown that in some situations a more effective screening outcomes could be obtained through interventions focused on disease control efforts in source nations rather than reliance on arrival screening alone [21, 28].

Studies on anxiety, depression and post-traumatic stress disorder (PTSD) in asylum-seekers are known to be linked to pre-migration trauma and post-migration stress. The number of documented mental health issues of refugees has increased in recent times, but there is a gap in the studies focusing specifically on the factors associated with psychiatric distress in asylum-seekers who have not been given residency status [11, 17, and 33]. Such studies associated anxiety scores with female gender, poverty, and conflict with immigration officials, while loneliness and boredom were linked with both anxiety and depression. A diagnosis of PTSD has also been linked with greater exposure to pre-migration trauma, delays in processing refugee applications, difficulties in dealing with immigration officials, obstacles to employment, racial discrimination, and loneliness and boredom of asylum seekers who find it difficult to *socio-culturally cross fertilize*, due to language barriers [24].

#### 4. Conclusions

The global issue of migratory health has stimulated much interest in the public health sector in most developed and developing nation to the extent that policies towards ad-

Addressing the problems is on the agenda of public health debates and putting in place strategy policy plan by stakeholders and states decision makers. There is a need to address migration problems at national and international levels especially as there are increasing displaced population under war, civil disorder, disease outbreak, political instability, natural disaster, *credit crunch*, or in search of better life and migration by the displaced population in developing countries. Population under refugee status needs a more advanced psychosocial service and procedures for dealing with asylum-seekers to reduce the high levels of stress and psychiatric symptoms in those who have been previously traumatized. Government in developing countries with displaced immigrant population and those in areas with intensive grazer migration, there is the need for the ministry of health and health actors to develop a system of global and national disease management in crisis.

The epidemiological issues that is linked to migration at the global and regional level have been shown to result from the movement of population flows across regional boundaries and frontiers and variation in disease prevalence outcome. The increasing trends of various types of migratory population has led to the gaps in health indicators. The changes in the trends of migration has also cause a rapid change in the implementation of health policy for the existing health programmes to meet up with these new challenges. The new action plan to deal with the new trends of migration has resulted in an increasing globalization that has a direct impact on health programmes and the indicators that is necessary for disease epidemics mapping.

The health effect of epidemics resulting from the mass displacement of migrants has been demonstrated by the level of infectious disease health information that is available in the developing regions and there is also interest to develop information on non-infectious diseases in immigration receiving nations. The global health disparities and disease epidemics and prevalence will continue to exist in the national health programs and policies in migrant receiving nations and will continue to be challenged by illness and disease arising beyond their frontiers. A more holistic approach at the global and national level is needed to address migration of population irrespective of the circumstance predisposing the population to such migration, and strategic policy towards controlling migratory health issues within the framework of globalization.

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