

Residential mobility and associated factors as predictors of psychological well-being among Somali refugees in London

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Residential mobility and associated factors as predictors of psychological well-being among Somali refugees in London

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Thesis submitted for the degree of doctor of philosophy (Ph.D)
At the University of London

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Declaration

I hereby declare that this dissertation, submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy and entitled “***Residential mobility and associated factors as predictors of psychological well-being among Somali refugees in London***” represents my own work and has not been previously submitted to this or any other institution for any degree, diploma or other qualification.

Mohamud Salaad Mohamud_____

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Abstract

Background: Previous research has consistently documented that residential mobility creates stress, of various degrees, on the individuals involved. However, when the process of mobility compounds other stressful post-migration events such as poor housing, lack of relocation choice, deprivation and disruption to the social support networks, it may have more devastating health impact on vulnerable groups.

Objective: To explore the relationship between residential mobility and mental health of Somali refugees and whether mobility across primary care trust (PCT) boundaries, choice over move and distances moved are associated with higher risk of mental disorder.

Methods: Of the 150 individuals planned, 143 (95.3%) were successfully interviewed. 100 subjects were recruited from qualitatively mapped non-health community venues and 43 from General Practitioners' (GP) registers in two boroughs of London. The present study assessed the mental status of the study participants using culturally adopted Mini Neuro-psychiatric Interview (MINI). Modified Accommodation Record Questionnaire collected information on their residential movements and choice of relocation in the preceding five and half years.

Results: Overall, 108 (75.5%) of the participants made one or more moves in the last 5.5 years. Of these, 60 (55.6%) were females and 48 (44.4%) males; ($\chi^2 = 4.8$, $df = 1$, $p < 0.03$). The majority of the movers 71 (65.7%) were recruited from non-health community venues while the remaining 37 (34.3%) were recruited from the General Practice (GP) registers; $\chi^2 = 3.7$, $df = 1$, $p < 0.05$.

In logistic regression analysis, when fully adjusted for age, gender, marital status, social network beyond household, insult because of race or religion, immigration status, tenure current and period of stay in the UK; risk of mental disorder was associated with residential mobility (Odds Ratio [OR], 3.8; 95%

CI: 1.2 – 9.9, $P < 0.02$), Crossing Primary Care Trust Boundaries (OR, 4.0; 95%CI = 1.4 – 11.5; $p = 0.005$), lack of choice over move (OR, 4.3; 95% CI = 1.5 – 12.4; $p = 0.008$), most recent move (5.1; 95%CI = 1.6 – 16.1; $p = 0.005$) and moving longer distances than 10.2km (OR, 4.6; 95% CI = 1.4 – 15; $p = 0.01$). Men who were cases were more likely to change address (OR, 4.9; 95%CI: 1.3 – 19; $p < 0.02$) than women (OR, 2.0; 95%CI: 0.5 - 11.1; $p < 0.2$) even after adjusting for all possible confounding variables.

Conclusion: In addition to documented post-migration difficulties, residential mobility, lack of choice in the process of moving and longer distances moved were all associated with mental disorders in Somali refugees and asylum seekers living in London. Involving clients in the decision making during the relocation process and also taking into account the practical social support network may lessen the burden of mental disorders of the study population.

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Introduction and Literature Review

What is Migration?

According to National Geographic, ***“migration is the movement of people from one place in the world to another for the purpose of taking up Temporary or permanent residence, usually across a political boundary. People can either choose to move (voluntary migration) or be forced to move (involuntary migration)”***. Movements of people have always been a part of human history and today we are witnessing variety of people moving in their thousands across the globe not only as migrants, refugees and asylum seekers but also as aid workers, students and tourists (Bretell, C. & Hollifield, J., 2000). Historically, migration, whether forced or voluntary, was very localised and intra-national albeit tribal and religious invasions that resulted in crossing into other nations. Communities were better off sticking together for their very survival. Communication facilities and means of transport were very primitive hence not encouraging for travel. However, the trend changed in the later stages of the first millennium. As a result, the human knowledge of the world geography increased which, in early parts of the 14th century, encouraged Spanish and Portuguese explorers to embark on sea journeys across the world.

Massey (2003) described the process of international migration and broadly divided them into four time periods. The mercantile period: this was between the 14th and 18th centuries when the Europeans started to explore and subsequently inhabit parts of the Americas, Africa and Australasia. (Tinker, H., 1995; Lucassen, J., 1995). These explorations eventually led to the colonisation of the

endogenous people and later forced many of them to become slaves (Curtin, P. D., 1969; Palmer, C., 1992).

The second wave of emigrants from Europe took place in the mid 19th century and continued until the beginning of the First World War. During this period, it is estimated that approximately 50 million people emigrated from the continent representing some 12% of the total population (Hatton and Williamson 1998). It coincided with the industrialisation and increased movements between colonial regions and the European countries. Majority of the migrants (60%) went to the United States and rest resettled in Australia, New Zealand, Canada, Argentina and Southern Africa (Massey, 1988).

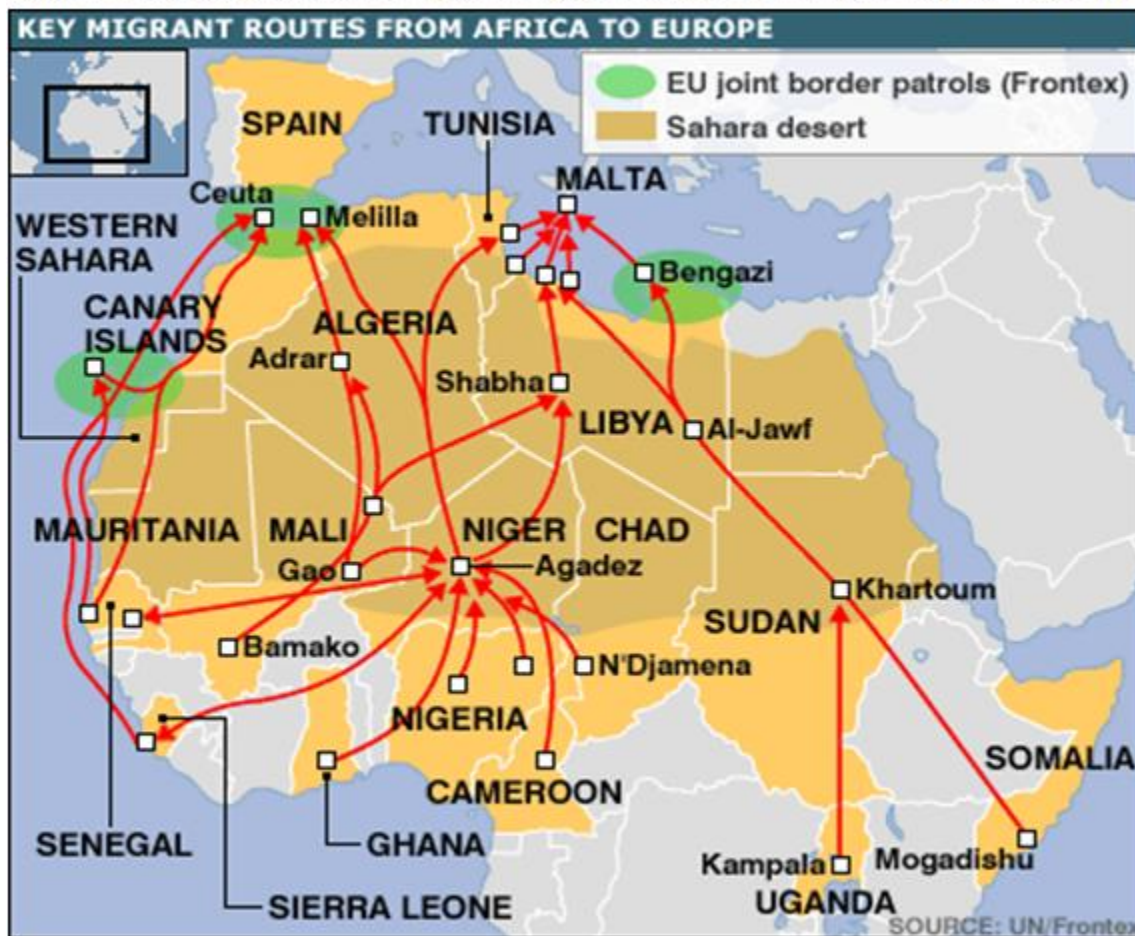
After the World War 1, emigration from Europe was very limited for about four decades. In this period, the great economic depression coupled with the Second World War has further affected the movement of the migrants. The only exception was the forced migration of millions of refugees and displaced persons fleeing the war, persecution and the systematic discrimination (Kay, D., 1995). Up until 1970's, migration was intra-continental and mainly from southerners heading west and north of the European continent (Castles, S. and Kosack, G., 1973). However, the migration trend has changed during 1980's when southern European countries were allowed to join the then European Economic Community (EEC).

Migration Shifts

The global supply of immigrants shifted from European countries to the developing world (Castles, S. and Miller, M. J., 1993). Traditional sending countries such as Italy and Spain started to initially receive immigrants from North Africa followed by West and Eastern African emigrants. As a result, emigration from Africa, Latin America and Asia into Europe and North America has increased dramatically (Stalker, P., 1994 and Zlotnick, H., 1998). Labour migrants also headed to new destinations that included the oil rich states in the Middle East as well as to newly industrialised countries in the Far East Asia (Hugo, G., 1995).

Despite the same basic pressures that propelled emigration (Castle, 2008), movements from outside the European Union (EU) were severely restricted with the introduction of tighter immigration controls and lately with the much publicised EU joint border patrols (Frontex). These joint operations, however, did little to stop migrants from north and sub-saharan Africa, seeking refuge, asylum and economic opportunity, to make the perilous boat journeys and reach the European soils. In recent years, migrants from Africa to Europe have received extensive and sensational media coverage that portrayed them as security threats (Pastore, *et al.*, 2006). Inflammatory remarks from some politicians and other migration sceptics in Europe have further fuelled the fear of a gradual invasion.

Map 2: Routes which African migrants take on their way to Europe



Map source: [news.bbc.co.uk/2/hi/europe/6228236.stm](https://www.bbc.com/news/world-europe-6228236)

Influences and Destination Choices

People may leave their homes, either because of pull factors such as family reunion, education or better working condition in other countries or push factors such as wars and disasters that compel them to leave their homeland. Although emigrants would in principle prefer to reach where they can find established migrant networks (Heering, L., *et al*, 2004), their immediate priority is to go to any country that would guarantee their safety. Influences and destination choices can

be traced back to the 19th century when Europeans invaded and colonised the African and the Asian continents. Many young men from these continents were conscripted to fight alongside the colonial army in their countries. Soon after the world war two, some of these conscripts sought and subsequently granted residence permits in their respected colonial powers' countries and were later allowed their families to join them. Because of unrestricted travel to and from the country of origin, these first migrants created new kind of transnational community and as a result, their presence in the west became a major influence on the choice of emigrants' destinations.

On the other hand, some countries such the United States and Germany deliberately started flows of migrants into their countries. For example, in late 1940's, United States farmers recruited farm workers from their neighbours. Majority of these workers were invited in to fill the gaps in the labour market. However, flow of migrants searching for better life has increased in the Americas in the last few decades (Passel, J., 2006). As a result, the US government introduced tougher immigration and border controls by building fences along their border with Mexico. Undeterred by the physical and technological barriers, these determined migrants continued their attempts to cross into the United States. As a result, they suffered death (Cornelius, W. 2001) and other life threatening injuries at the border. Similarly, in the 1960's, Germany too recruited what they called guest workers from Turkey and former Federal Republic of Yugoslavia. Although we tend to think about migration in terms of force vs choice, conflict vs

peace, etc; Van Hear (1998a) argues that at some point all migrations involve some kind of compulsion and certainly not without choice.

Forced Migration

Globalisation, political instability and environmental disasters in many parts of the world have changed the dynamics of migration in the past few decades. As a result, the twentieth century has witnessed the greatest human movement in modern era. People are moving in greater numbers than ever before and are doing so at a faster pace and over greater distances (Kelly, 2003; Carballo, *et al*, 1998). United Nations High Commission for Refugees (UNHCR) estimates that there are more than 35 million people who live as forced migrants worldwide. These forced migrants may initially seek refuge within the boundaries of their own country as internally displaced persons (IDP) or across international borders as refugees (Prundtland, 2000). The question that naturally comes to your mind will be: Why would millions of people across the world choose to leave their homes, livelihoods, and more importantly their social relations in favour of an uncertain future in their own countries or across the border? Surely there is no simple answer to this question. However, the most common explanations are those focusing on the political as well as the economic dimensions (Zolberg, A. *et al.*, 1989)

Most of the published literature on migration has broadly divided the root causes of forced migration into internal and external factors. Some researchers

(Anderson, B., 1992; Gilbert, G., 1993 and Richmond, A., 1993) argue that high levels of unemployment, disagreements over the control and distribution of resources, collective state persecutions (Van de Berghe, P., 1990) as well as developmental projects and ethnic, cultural and religious conflicts are the primary factors that may internally trigger a mass migration. In addition to the above factors, others migration experts believe that external causes such as colonialism (Dekker, B., 1991; Chimni, B. S., 1998), legacy of the cold war and the unfair trade regulations that has negatively impacted on many developing countries (Held, D., *et al.* 1999; Castles, S. and Miller, M. J., 1998) and condition attached financial aid (Bultron, R., 2003) may play significant roles in forced migration processes.

Types of forced migration

Whatever the cause, forced migration is regarded to be a major life changing process with profound consequences for the displaced individuals, host societies and international organisations involved in managing refugee crisis. Generally, when discussing types of forced migrants in the literature, they are often divided into natural and man made disasters, developmental disruptions and conflict induced displacement. These three factors mostly force people to either move into other areas within their country of origin (internally displaced persons) or cross the international frontiers (refugees).

Disaster and forced migration

Despite technological and scientific advances in predicting natural disasters, the world has witnessed some of the most serious natural disasters in recent memory. Disasters come in different forms such as earthquakes, floods, hurricanes, volcanoes, etc or man made hazards such as industrial accidents (Chernobyl in Russia and Bhopal in India), hazardous material incidents, etc. People in these situations naturally respond to the unfolding events and instantly think of survival strategy (Hugo, G., 1996). Today, the complex nature of disasters such as the Asian Tsunami and Hurricane Katrina that hit New Orleans do create unprecedented economic and human suffering.

Ever since the term “environmental refugees” was first proposed (El Hinnawi, 1985), migration researchers have been debating whether environmentally displaced migrants could be classified as refugees. This proposal received support from some researchers (Myers and Kent, 1995) who have argued that environmental changes such as desertification, deforestation and soil erosion as well as natural disasters inevitably force millions of people to migrate thereby entitling them to be recognised as refugees.

Others (Wood, 2001, Black, R., 2001, Castles, S., 2002) strongly disagreed with the accuracy of the term “environmental refugee”. They find it misleading and rather attributed the displacement of people to complex factors that include

political, social, economic as well as environmental ones. They further argued that natural disasters should be regarded as temporary displacement and any permanent migration would only be the result of a weak response from that nation state. The debate on what constitutes environmentally induced move and what status should be given still continues, and the general agreement is that environmental factors certainly contribute to population mobility but not the only one (Suhrke, A., 1993).

Development induced displacement

Development induced displacements mostly occur when a government or powerful transnational company requires a land in the name of developmental projects (Cernea, M., 2000). Although no formal figures are available for development displaced people, Castles, S. et al., (2005) estimates that 10 million people are displaced by such projects. World Commission on Dams have reported that between 40 and 80 million people have been forced to leave their homes as a result of developmental projects. Governments of China and India both admitted that millions have been displaced by these projects and majority of them are living in extreme poverty and are still waiting to be resettled.

Although they may share the suffering, these development displaced populations do not get the attention of the United Nations or other international organisations as conflict and disaster affected populations. However, lot of efforts is now being made to raise the awareness of development induced migrants and as a result,

World Bank and some other financial institutions have developed resettlement policies. If the displaced are not properly resettled (Pettersson, B., 2002) and their capacity to earn a living is not restored to them, it becomes irrelevant if the project forcing them off their land is of a public interest.

Conflicts, wars and forced migration

The increase in armed conflicts in the last few decades has forcibly displaced millions of people from their homes. This kind of displacement initially produces greater numbers of internally displaced persons (IDP). Because of their vulnerability, these persons suffer different kinds of human rights abuses at the hands of their own governments or armed militias. As a consequence large number of IDP's may involuntarily decide to cross into the neighboring countries as refugees and asylum seekers (Brun, C., 2005). Because of the laws and institutions that have evolved since the 1950s to provide assistance and protection, refugees were given more attention compared IDP's.

Refugees and Migration

Refugees and asylum seekers make up a special group of immigrants, as they feel being forced to emigrate. This type of migration usually occurs in an effort to avoid risks from a host of causes including war, political, ethnic violence and social discrimination (Burnett & Peel, 2001). As a result, they are distinguished from economic migrants who have left their country of origin for economic purpose and those much debated people that were displaced because of environmental problems such as floods, earthquakes and severe droughts. According to the 1951 Convention relating to the Status of Refugees and its 1967 Protocol, refugee status is conferred to individuals who:

“Owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable, or owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside that country of his former habitual residence as result of such events, is unable or, owing to such fear is unwilling to return to it”

The UNHCR similarly defines internally displaced persons (IDP's) as ***“people who are also forced to flee from these [same] dangers, but either cannot or do not wish to cross an international border”***

At the end of 2008, the number of people of concern to UNHCR was 42 million. This figure includes 15.2 million refugees, 827.000 asylum seekers (pending

cases) and 26 million internally displaced persons (IDP's). Approximately half of the total refugee populations in the world are in Asia and half of that number is believed to be in Africa. Substantial numbers of these refugees are thought to have crossed to the developed world. Refugees living in Europe came from all over the world, but in recent years, majority of new arrivals were coming from the Balkans, former Soviet Republics, the Middle East and the North, Eastern and South-central African countries.

History and causes of Somali Migration

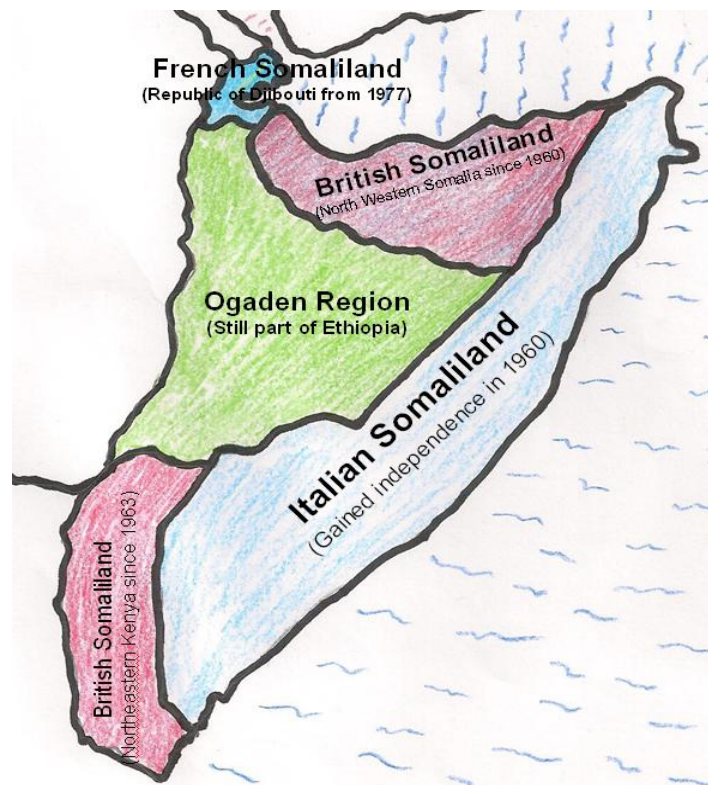
Population mobility, in the Horn of Africa, has been vital part of the Somali culture since time immemorial. Majority of mobile communities were nomads trying to find pasture for their animals or sell them when needed to buy food and clothing for their families. Somalis also travelled abroad to import goods needed domestically and perform the religious duties of Hajj in Makkah in what is now called the Kingdom of Saudi Arabia. Although movement is a vital part of Somali identity, it is equally important to understand the root causes and the different timelines that these reported migrations took place. To this end, I will briefly review three time periods (colonial period, the independent Somalia and the civil war) where intra and international migrations have occurred.

The colonial period (1884 – 1950's)

Before the opening of the Suez Canal in mid 19th century, the European interest towards the Somali inhabited territories was largely limited to visiting the Indian Ocean and the Red Sea coastal towns. However, the opening of the Suez Canal

increased the strategic importance of the horn of African territory. In the second half of the 19th century (1884 – 1885), the European powers finally agreed on a plan that led to the partitioning of the African continent. Somalia became one of the most unfortunate territories that were affected by the partitioning. The colonial powers divided the territory into five protectorates (see the map). Two (North Western Somalia and Northern Frontier District for Great Britain, Italy took the north Eastern and Southern parts of Somalia, Ethiopia, though not invited to the partitioning conference in Berlin, was given the Ogaden region and France colonised the strategic red sea entrance of Baabul Mandab (Lewis, I. M., 2002; Hess, R. L., 1966).

Map 2: Somalia's 1885 partitioning in Berlin, Germany



After the partitioning and the decades that followed saw an increase in the number of Somali nationals, particularly males, that was working as seamen in the transport and navy ships. They frequently visited places like the Docklands in the London's East End, Cardiff city and Liverpool. Their initial intention was to work and return to Somalia upon the end of their contracts. However, shortage of jobs in the merchant navy coupled with the expanding steel industry (Sporton, D. *et al.*, 2005), forced many Somali seamen to become steel workers in Sheffield, Manchester and Birmingham. They were later joined by their wives who became the foundation of the current Somali community networks in these cities (Veney, C., 1998).

Independent Somalia

Somalia became independent Republic in July 1960 through the merger of two former colonial territories British and Italian Somaliland. However, Britain did not handover the Northern Frontier Districts to Somalis as did by the French and Ethiopians. As a result, Somalia involved in territorial disputes with Ethiopia and Kenya in the 1960's and all out war with Ethiopia in 1977-78. These territorial disputes created huge population movement in and out of Somalia and also severely affected the country's economy (Griffiths, D., 2002; Gundel, J., 2002). Further, during the 1960s and 1970s, Somali university students came to study in Italy and the UK. Majority of these students returned to Somalia after finishing their studies. However, small number of these students decided to settle in the UK and to lesser extent in Italy.

Flight from the civil war

Understanding the reasons behind the recent migration of Somalis is an important first step in gathering a complete picture of the present refugee situation in the west as well as establishing good link with the study participants. It all started in 1977, when President Mohamed Siad Barre, who seized power in a bloodless coup, embarked on a cross border war with Ethiopia to liberate the Ogaden region (known by Somalis as Western Region of Somalia). The war had an immediate effect in terms of refugee flows into Somalia. During the war, there was a massive influx of ethnic Somalis and Oromos from the Ogaden region into the northern and central border regions of Somalia. By 1979, there were approximately one million refugees in Somalia.

Rebel Movements (1978 – 1990)

When Ogaden war ended, clan-based opposition groups had begun to form in the north-eastern regions of Somalia with the backing of Ethiopian government. However, the first effective armed opposition to president Barre started in late 1978 when the Somali Salvation Democratic Front (SSDF), headed by the Former interim president, Colonel Abdullahi Yusuf Ahmed, declared war against Mr. Barre's government. In the early 1980s, the Isaq clan from the north similarly formed Somali National Movement (SNM) and president Barre responded to systematically reduce their influence in the armed forces and other government positions (Lewis, 1994). In May 1988 the SNM launched co-coordinated attacks on the northern cities of Hargeisa and Burao and succeeded in temporarily

routing Barre's forces out. By July of the same year Barre had regained both cities, having subjected them to heavy artillery and aerial bombardment. As a result of the war in the northwest, hundreds of thousands sought refuge in Ethiopia while many thousands were reportedly killed by government troops.

Mass Migration 1988 to 1992

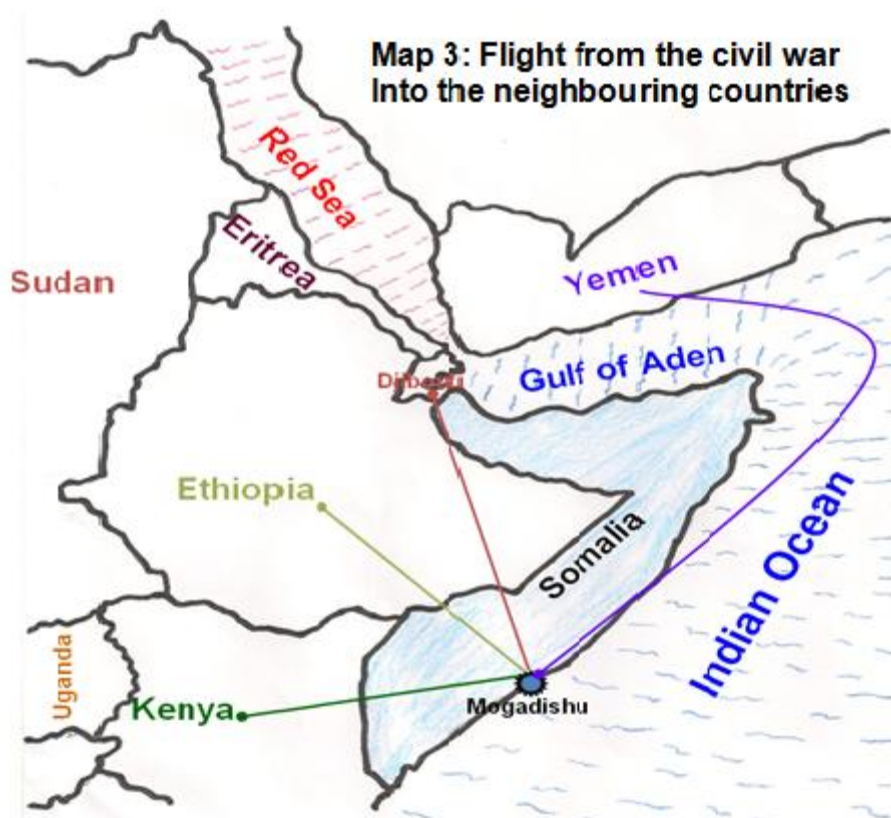
The flow of refugees out of Somalia actually started in 1988 in the North Western part of the country and gradually spread to the South. Hundreds of thousands fled from the clan based civil war of the early 1990's into the neighboring countries. During the 1990's, the epicentre of the civil war was in the capital, Mogadishu, which was once a vibrant and fast growing modern city that was reduced to ghost city.



Source: www.hiiraan.com

More fighting in many parts of the south created new waves of internal displacements (Ahmed & Green, 1999). As a result, up to a quarter of million people from rural areas flooded into the relief camps in Mogadishu. However,

the renewed inter-militia conflict in Mogadishu in the years that followed forced many residents and internally displaced populations (IDP's) to flee the city. These scenarios became the norm in many parts of the country. At the worst point of the conflict (Gundel, 2002), estimated that 1 to 2 million Somalis were in neighbouring countries. Some 600,000 went to Ethiopia; three quarter of a million crossed into Kenya and tens of thousands sought refuge in Djibouti. Others dangerously crossed the red sea on un-seaworthy boats into Yemen. It is important to note, however, that approximately 2 million people were internally displaced (UNHCR, 2002).



Somali Diaspora

Before the civil war broke out in December 1990, the Somalia's population was estimated at 8 million of who 1.5 million are thought to be outside of the motherland. Of these, the largest concentration of Somali people is found in neighbouring countries such as Kenya, Ethiopia and Yemen. In addition to that, there are sizable Somali communities in Uganda, Tanzania, South Africa, and Djibouti. In the Gulf States, Menkhaus, K. (2008) and de Montclos, P. (2003) put the number of Somalis living in these countries as high as 100,000. Latest reports have indicated that large numbers of young Somalis are now attending universities in Sudan, Egypt, and Malaysia. Outside Africa, the largest numbers of the Somali communities are found in the United Kingdom and the United States followed by Canada, Scandinavian countries and Australia (Sheikh and Healy, 2009).

Secondary migration from other European countries

As discussed in the introduction to the migration, everyone's priority was to reach a safe place. Many families and close friends were separated during the civil war and never had the opportunity to reunite with their loved ones. However, during 1990's, many Somali refugees were given the citizenship of their country of asylum which enabled them for the first time to visit their relatives in other European countries. UK with its traditional links with the Somali community became a popular destination. As a consequence, large number of Somalis with

citizenships from The Netherlands, Sweden, Denmark and Norway moved to the UK to reunite with their friends and families (Sporton, D. *et al.*, 2005).

Before the year 2000, Somali communities in the UK were only concentrated in London, Cardiff and Liverpool. However, recent arrivals from other European countries have settled in Birmingham, Leicester and Manchester. In the last ten years, Somalis have been an active force in the business and transport sectors almost making internet cafes as their own. Large Somali communities also live in the United States where they established themselves in many American states. For example Minneapolis is believed to be a home to more than 80,000 Somalis, who have created a vibrant community in which many of its members are educated professionals or are attending tertiary education. The Somali community in Columbus, Ohio, meanwhile, has established itself in the state but not as Somalis in Minneapolis.

As the diaspora became more established in the west, they started to strengthen the Somali economy and support Somali livelihoods back home with hard currency through the Somali run remittance companies (Horst, C., 2008). Despite the state collapse and widespread insecurity over two consecutive decades, some estimates put the figure to around 80% of the total national income (Sheikh and Healy, 2009). Interestingly, widespread famine that is always reported from Ethiopia does not affect Somalia and this really shows that the diaspora took a lead role in keeping the economy afloat while effectively saving the Somali

people inside the country and throughout the neighbouring countries from economic collapse and extreme poverty (Menkhaus 2008).

These efforts were largely made possible by the proliferation of the World Wide Web, which presented an opportunity for the Somali diaspora to easily communicate, regroup, share views, help their friends and families at home, and organise activities such as the annual football tournaments for young men living in different parts of Europe and cultural and religious events to celebrate important dates in the Somali history. The role of the Somali televisions such as the Universal TV and Eastern Television Network (ETN), have re-created the sense of togetherness in the diaspora.

Migration and Mental Health

People who migrate under stressful circumstances often experience many difficulties during the journey and in the host nation after arrival and are found to be at higher risk for mental health problems as a direct result of their experience. Primary factors leading to this increased risk are war/trauma experience and disaster and developmental displacements (Burnett & Peel, 2001; Silove & Ekblad, 2002). Danso (2001) also suggested that the suddenness of displacement and conditions of flight combine to produce a set of cultural, socio-economic and psychological challenges to the displaced people, which may impede their successful integration. In addition to these factors, it should be remembered that refugees are also subject to the same mental health problems

as any other population. Here, I will examine only issues specific to refugees' mental health.

Mental health of Refugees

While there are many difficulties facing migrants in general (Beiser *et al*, 1989; Silove, *et al*, 1997), the challenges for refugees may be greater in terms of social adjustment, being made to feel welcome in the recipient society, availability of appropriate housing and occupational fulfilment. Their legal status in the host country may not be decided for months, and sometimes for years, putting huge stress in their lives, which is detrimental to their physical health (Connelly & Schweiger, 2000; Garcia-Samaniego *et al*, 1994) as well as their mental health status (Burnett & Peel, 2001).

A number of population-based studies have been carried out among refugees in the west and most of these surveys reported prevalence rates of psychiatric disorders, mainly post-traumatic stress disorder (PTSD) and, to lesser extent, depression and anxiety, the two most frequently documented psychiatric symptoms in studies of refugee populations (Kinzie, 1989; Michultka *et al*, 1998; Mollica *et al*, 1998; Silove, 1997; Kivling-Boden & Sundbom, 2002). The reported prevalence rates of post-traumatic stress disorder among refugee populations ranged from as low as 4% to as high as 86% (Steel, 2002; Carlson & Rosser-Hogan, 1991). Similar rates were also reported for the prevalence of depression ranging from 3% (Steel, 2002) to 88% (Carlson & Rosser-Hogan,

1993) and anxiety (2% to 80%). The heterogeneity, sample source biases, pre and post-migration experiences and perceptions and culture differences of the studied subjects and most importantly cross-cultural validity of the survey instruments may offer some explanation for the huge discrepancies reported in these studies.

Furthermore, most of the research on the mental health of refugees and other ethnic minority focused primarily on understanding the etiological role of pre-migration, war related experiences in the development of posttraumatic stress disorder (Kinzie, 1989; Michultka *et al*, 1998; Mollica *et al*, 1998; Silove, *et al*, 1997; Kivling-Boden & Sundbom, 2002; Cardozo *et al*, 2004; Tang & Fox, 2001; Ritsner *et al*, 2000). Depending on the type of migrants' motives, mode of travel and the society, the stages of migration (pre, during and post-migration) can create varying levels of psychological distress triggered by different risk factors. I will address here these stages and their effects on the refugee individuals and groups.

Pre-migration Stressors

Trauma Exposure

Pre-migration experiences of refugees vary considerably, but many have either witnessed or directly experienced trauma prior to escape from their native countries. In addition to the trauma associated with pre-migration exposure to violence, including the loss of loved ones and separation from family, by the time

these people arrive in the west, many have endured years of deplorable living conditions in refugee camps. Steel *et al* (1999) in a sample of Tamil refugees reported that pre and post-migration factors accounted for 20% and 14% of the cases respectively. In a study of Kosovan refugees in the UK, Turner *et al* (2003) also found that a substantial number had clinically significant mental health problems which, was mostly linked to trauma experienced in the home country.

However, with time, some members of the war-affected refugees may not recover from the trauma (Kessler *et al*, 1995) suggesting that there is a need for prospective studies, which are relatively scarce (Miller *et al*, 2002). The few studies that have either included a follow-up plan to study refugees several years after their arrival in the host countries have found that painful symptoms of trauma and depression often persist over periods of many years (Lie, 2002; Kinzie *et al*, 1989). Refugees who live long-term in refugee camps in the developing world may also experience traumatic stressors related to refugee camp life that are associated with high rates of psychiatric morbidity, economic stressors, or poor health (de Jong *et al*, 2001; Mollica, *et al*, 1993; Mollica *et al*, 1998; Lawson, 1999; Van Ommeren, *et al*, 2001).

In-transit difficulties

Asylum seekers frequently take extreme risks in attempting to reach safety. Many, if not most, refugees do not travel directly from their countries to destination countries through regular routes. Limited possibilities for legal entry in

most countries of destination mean a large proportion attempt to reach other states without legal documentation, and often through long, tortuous and dangerous travel routes. Those who embark on long and difficult sea voyages endure overcrowding, deprivation of food, dehydration, and, on occasions, robbery and exploitation. Deaths or near drowning have occurred when old and un-seaworthy vessels have sunk or were abandoned. Organised people smugglers commonly take money from asylum seekers prior to the adventure and provide them with false information full of optimism and mostly leave them stranded on a boat in the high seas or bring them to the land without further means of transport (BBC, November 2000). In 2007, the number of Somali refugees attempting to reach Yemen by boat has doubled. There are horrific reports of deaths at sea, Men, women and young children being thrown overboard far from shore and told to swim. Such desperate attempts that may be taken by asylum seekers were highlighted by a report of 58 Chinese people dying due to suffocation in an enclosed truck while attempting to enter the United Kingdom without being detected (Kelso, 2000, the Guardian).

Detaining Asylum seekers on arrival

Although not common, some governments, such as that of Australia, have a policy of mandatory detention of asylum seekers. However, the effect of detention on the mental health of asylum seekers has been raised repeatedly (Bunce, 1997; Bracken & Gorst-Unsworth, 1991). Mental disorders commonly found among asylum seekers in detention include high rates of attempted suicide

(Pourgourides *et al*, 1995), hunger strikes (Silove *et al*, 1996; Salinsky, 1997; Steel & Silove, 2001) which are detrimental (Steel *et al*, 2006) to longer term mental well-being of refugees.

In a study of 25 detained Tamil asylum seekers in Australia, Thompson *et al* (1988) found twice the level of exposure to war-related trauma compared with compatriot asylum seekers and refugees living in the community. Eighteen of these detainees reported exposure to torture, almost all reported that a family member or friend had been murdered, and 22 had been exposed to a life-threatening situation in their homeland. Detained Tamil asylum seekers exhibited significantly higher levels of depression and anxiety, suicidal ideas, posttraumatic stress, panic, and physical symptoms, compared with compatriot asylum seekers, refugees, and immigrants living in the community (Thompson *et al*, 1988).

Post migration Risk Factors

Refugees who have successfully immigrated to the western world may continue to have psychological distress and difficulties adapting and adjusting years later. For example, many Southeast Asian patients, other than those with schizophrenia and bipolar disorders, who continued to seek mental health care years after entry into the United States, have not made successful adjustments when they compared themselves with their neighbours (Chung & Bemak, 1996). Like many other refugees, these refugees learnt little English, had difficulties finding proper jobs and were entirely dependent on government housing and

welfare handout that was increasingly getting complicated. Worst of all, they were in despair that their children, once their hope for the future, were dropping out of school, and became disrespectful to them.

However, as Lavik, *et al* (1996) pointed out, relationships between living conditions in exile and mental ill-health does not automatically arise from simple cause-and-effect relationships. Living conditions may influence mental health, and mental health problem may create more adjustment difficulties in the host country. Good example is the Guatemalan refugees described by Sabin *et al* (2003). After 20 years in exile, it was difficult for these refugees to have hope for the future or believe that there was anything they could do to improve their lives. Consequently, many of these refugees experienced profound demoralization that calls for a social solution at least as important as a medical one (Chodoff, 2002).

Asylum Procedure

Asylum determination of whether a person is a refugee is most often left to certain government agencies within the host country. This could sometimes lead to unfair decisions in some countries with a very restrictive official immigration policy. The long period of times it takes to recognise refugees and asylum seekers in the host countries tend, in many instances, to aggravate both physical and mental health difficulties (Van Ommeren, *et al*, 2001; Laban, *et al*, 2004). The immigration procedure relating to granting refugee status may last for few months to few years. This long waiting period places great strains on asylum

seekers who during this time are forced to reside in special refugee centres as in many parts of Europe or dispersed to areas where they might come under attack from local residents. Hallas *et al* (2007) who studied asylum seekers in designated centres in Denmark found an association between the period of stay and referrals for mental disorders. They reported that referrals for psychiatric disorders increased with the length of stay (0 to 1600 days) in the asylum centres.

Access to Health care services

The legal status of migrants in receiving societies often determines access to health and social services. For example, a migrant who is granted permanent residence enjoys the same access to services as the citizens of the host society, but this is not usually the case for labour migrants or irregular migrants. In the United Kingdom, asylum seekers are eligible for National Health Service (NHS) treatment only if they have made an application to remain in the country or have been detained by the immigration authorities (Department of Health, 2004). Those who have not made an application for asylum or have had an application refused are not eligible for NHS treatment. The exceptions to this rule are emergency care, treatment of sexually transmitted infections (excluding HIV), and other conditions that threaten public health.

There are still varying degrees of inequality when it comes to the access migrants and refugees have to the health system in the west, the human dignity

of migrants seeking health care is still being violated, and migrants are discriminated against on account of their origins, their way of life, and their convictions (Domenig, 2004). People of refugee background often come from countries with vastly different health systems. Access to care for some refugees is therefore hindered by a lack of familiarity with available services (Portes, *et al* 1992). Many refugee patients might not be fully informed, if at all, about upcoming treatment, such as operations or other invasive medical interventions. Often they do not understand the diagnosis that they were given and therefore are unable to deduce any subsequent therapeutic or other consequences.

Language Barrier

As ethnic minority populations grow in developed countries, language may become an increasingly common barrier to health care. Because effective communication is fundamental to the practice of medicine, language differences may have an important impact on patients and providers. Akiyama (1996) in Japan and Hussain *et al.* (1977) in the UK, have demonstrated that not knowing the local language can influence adjustment and may become a risk factor for mental distress. Both verbal and non-verbal communications play a key role in adjustment across cultures. However, lack of language barriers may not sometimes help refugee communities to use the available health services more effectively than non-English speakers and may nevertheless be linked to discrimination (Gillam *et al*, 2004).

Acculturation

Culture, like language, is acquired in early childhood and is then reinforced through formal and complex informal social education into adulthood. Culture provides a framework for personal and social interactions. Therefore, contact with a new culture is often not an exciting or pleasurable experience that most people expect but may instead lead to anxiety, stress, and mental illness and, in extreme cases, physical illness and suicide (Steward & Leggat, 1998). When immersed in a different culture, people no longer know how to act when faced with different value systems. The experience of the new culture is an unpleasant surprise or shock, partly because it is unexpected and partly because it can lead to a negative evaluation of one's own culture. With culture shock and many other processes of psychological adjustment (Bhugra and Ayorinde, 2004), people tend to suffer in silence, thinking that they are the only ones not coping well with their new circumstance.

At each stage of the migration process (from the decision to the journey, reception and integration in a new community) the physical, mental, and social well-being of individual migrants, their families and their communities need to be considered in policy-making and practice. Well-managed migrants' and refugees' social care promotes understanding, inclusion and cohesion in mixed communities. It can be a tool to facilitate the integration of migrants, stabilize societies and enhance development. However, both culture shock and culture

conflict can cause depression among migrants, probably by interacting with the genetic make-up of the individuals (Bhugra and Ayorinde, 2004).

Employment opportunity

Educational level and occupational background will obviously influence post-migration adjustment. However, if the migration is forced or unplanned, the chances are some individuals with higher qualifications may not find suitable jobs and resort to doing menial jobs (Stewart & Nicholas, 2002), which may lower their self-esteem and lead to isolation. In an interesting study, Zilber and Lerner (1996) found that levels of emotional stress among immigrants in Israel who had arrived the year before were correlated with individual factors including their professions and past history of distress. In general, unemployment has been considered a risk factor for mental ill health in refugees. A higher level of education was associated with a lower level of mental health (Bhui, *et al*, 2003; Papadopoulos, *et al*, 2004). With time this advantage may be lost as their frustration grows because they are unable to reach a corresponding position in the host society. It is worth mentioning here that some of these educated men and women had been leaders in their home countries and had high self-esteem and recognition. In exile, they may not be able to maintain that level of self-esteem and recognition.

Family Separation

Unlike many immigrants, who can dream about and plan their departure, refugees often flee their homelands in a hurry, leaving part or sometimes all of their loved ones behind. Once in the host country, refugees' separation problem is rarely rapidly resolved. Instead, people claiming leave to remain face legal hurdles that may take years to be sorted out. As a consequence, those coming alone and waiting for their families to join them may experience distress and suffer from lack of emotional support. They may feel guilty, powerless and depressed about a separation over which they have little or no control (Fox, *et al*, 1995; Tseng, *et al*, 2002).

For refugees, the question of what an extended separation means to the various members of the family, and what their different expectations are, is the one they ask themselves frequently. In a study of South East Asian Refugees (Beiser & Hyman, 1997) found that separation from spouses had higher psychological impact than separation from parents and sibling. Marital status appeared to be an important factor such that married refugees whose spouses were with them in Canada had lower levels of depression than single, divorced, or widowed adults (Beiser et al, 1993).

Social and Family Network

Pernice & Brook (1996) found that post-migration or exile related variables, such as unemployment, discrimination and social isolation were all significantly

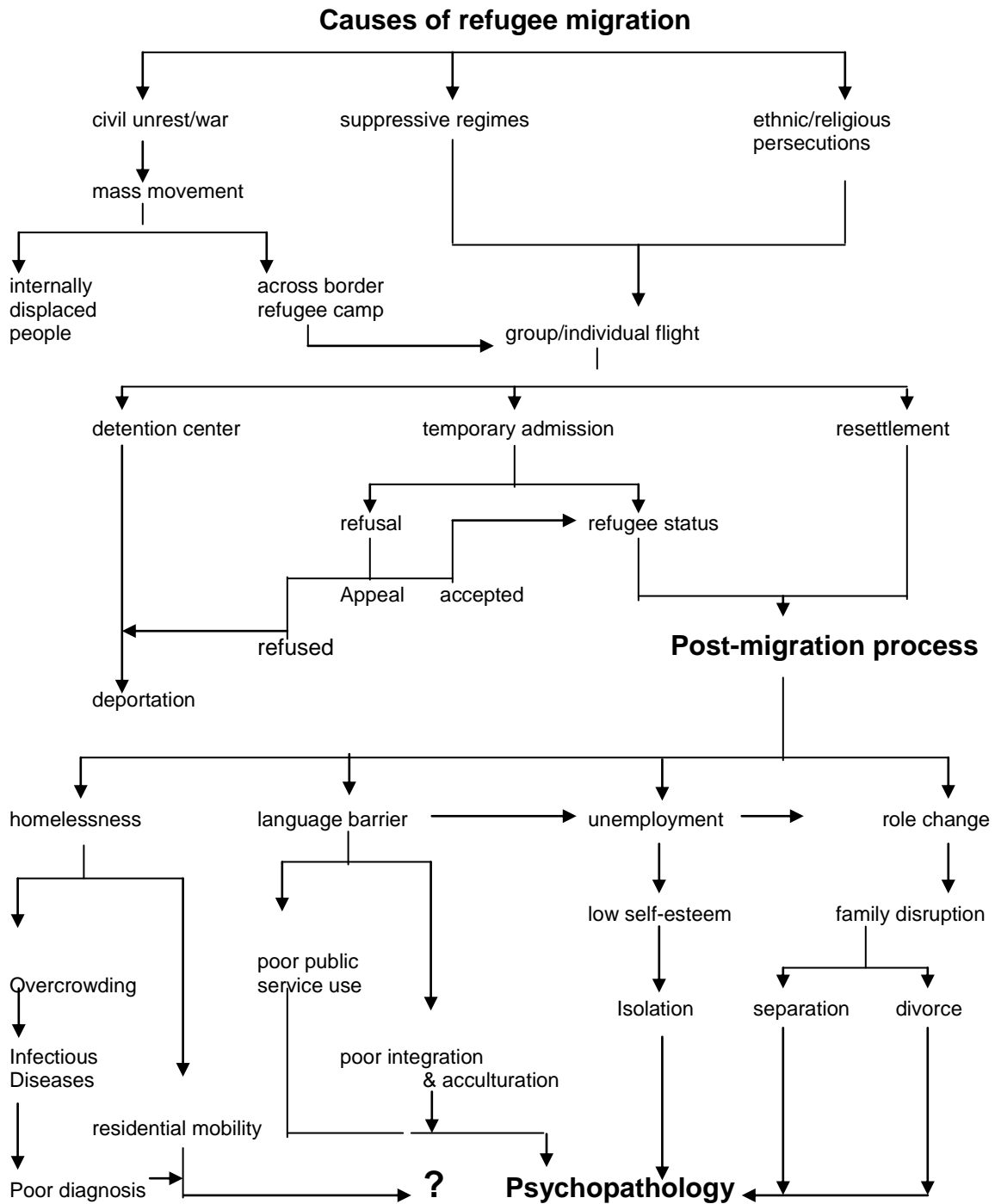
associated with levels of anxiety and depression in their study of Southeast Asian refugees in New Zealand. Many other studies also reported that much of the depression and anxiety of refugees can be relieved if they can keep family ties somewhat intact and can develop social networks with others from the same culture (Beiser, et. al, 1989, Beiser, et. al., 1993, Allden, et. al., 1996, Baker, et. al., 1994, & Carlisle, 1995; Barnes & Aquilar, 2007).

Clark *et al.* (1993) reported that exile-related stressors were more strongly associated with depressive symptoms than to trauma-related events. This finding draws support from a study in London of 84 Iraqi refugee men (Grost-Unsworth & Goldenberg, 1998) which reported that perceived level of effective social support in exile was significantly associated with levels of Post-traumatic Stress Disorder (PTSD) and depression. This perceived level of affective social support was, in fact, a stronger predictor of depression in the sample than the level of exposure to war-related events. Van Valsen *et al* (1996) also found significant relationship between levels of depression and social factors such as poor accommodation, isolation and lack of family unity.

Other studies, however, have shown that while family can be a valuable source of emotional support, immigrant families can, at times, be too overwhelmed by their demands and fail to provide support to fellow refugee families (Aroian, *et al.*, 1996). This argument is supported by a study of Mckelvey & Webb (1996) which

reported that members of Asian Americans cohort who anticipated support from the Vietnamese community in the United States were disappointed. This disappointment led them to experience significantly more symptoms of depression than those Asian Americans whose expectations for the Vietnamese community were lower and, perhaps, more realistic.

Figure 1: Schematic presentation of refugee migration and probable mental stressors in exile



Literature Review

Despite these extensive studies on types of migration and factors that may influence the choice of the destination and the effect that these unpredictable events can have on refugees' mental health, there still remained some gaps in our knowledge to fully understand the causes of mental disorders of refugees in the host countries. Among potential predisposing factors that have not been previously addressed include the effect of residential mobility, choice over move and distances moved on the mental health of the refugees in general and Somali refugees and asylum seekers in particular. To this end, I carried out a literature search with the help of Dr Alain Besson, the chief librarian at the Whitechapel Medical Library, Queen Mary" School of Medicine and Dentistry. I also visited other libraries including the library of the Institute of Psychiatry.

Search Strategy

I conducted a comprehensive search on several primary data bases including **OVID Medline, Web of knowledge (Social Sciences Citation Index (SSCI), Science Citation Index (SCI), Psych-info, Pubmed, British Medical Journal (BMJ)** and number of other search engines such as: Ingenta, Science Direct and Blackwell Science. I also extensively searched the internet using google search engine to unearth many unpublished materials on theories of migration and the impact of social capital on refugees and migrant communities. Key terms and associated words used in the initial searches are shown in (Box 1). These terms

generated 824 papers, articles, reviews, letters and research reports in which only 315 abstracts selected for further screening and possible review.

Box 1: Key search terms and combination operators

Key search terms

Refugees: refugee(s), asylum seeker(s), seeking asylum, internally displaced, immigrants, transients and migrants.

Mobility: mobility, migration, immigration, Geographical mobility, residential mobility, social mobility and cross-national mobility.

Mental health: mental health, mental disorder(s), mental illness, psychiatric disorder(s), psychiatric illness, anxiety and anxiety disorders, depression and posttraumatic stress disorder.

Combination operators

Refugees: All terms under refugees have been combined.

Mobility: All terms under refugees have been combined.

Mental Health: All terms under refugees have been combined.

Final combination:

All terms of Refugees AND Mobility AND Mental Health.

Inclusion and exclusion criteria

I set out the inclusion and exclusion criteria as follows: I included all studies on general migration and migration and mental health of refugees and migrant regardless of whether these studies are quantitative, qualitative, review, research report, a letter or an article. I also reviewed government pages, and social and news websites. For the mobility papers, I have included studies that linked residential mobility with mental disorders. Although cross-cultural adaptation of outcome measures was an important component in my study, papers were not excluded on the bases of methodological quality. Limitations were noted and presented as part of the review. Studies were excluded if they were published in other languages, I did not attempt to translate all 29 non-English papers and hence excluded.

Based on the above criteria, I screened all abstracts and rated them as:

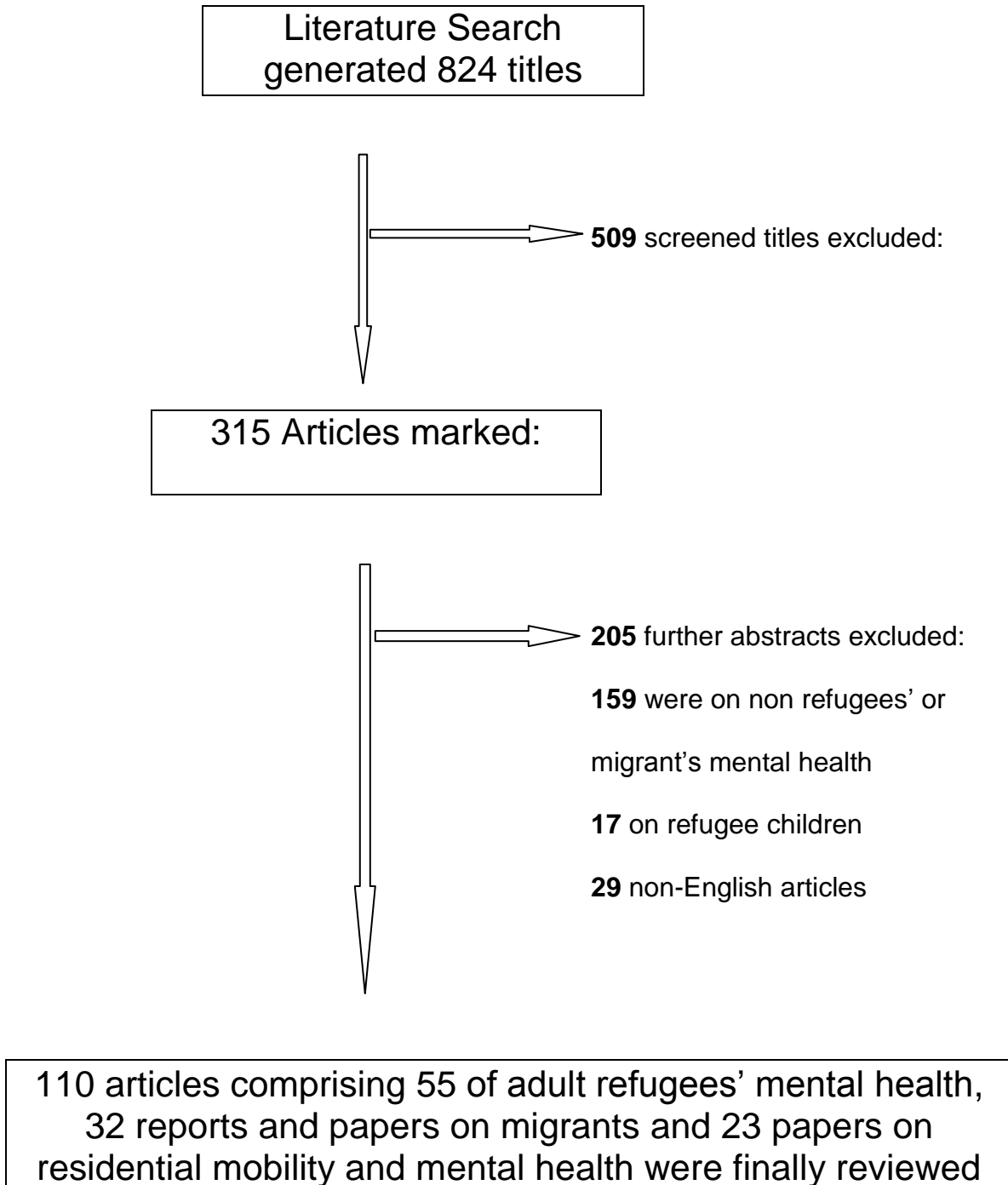
- ◆ Very relevant : Mental health of Somali refugees and papers on residential mobility carried out in any community.
- ◆ Relevant : Studies of other refugees and naturalised migrants.
- ◆ Less relevant/irrelevant: All non-mental health studies on refugees or migrant populations.

I included Very relevant and relevant papers in the literature review. I also used papers on naturalised migrants in the introduction. I did not include all non-mental health studies on refugees.

Results

Of the 315 publications, reviews and research papers I identified for further review, 205 were excluded for not meeting my inclusion criteria (see Figure 1). 159 (77.6%) of these were not specifically on refugees or migrant's mental health. 17 (8.3%) papers were on refugee children and hence excluded because of the proposed work only studied subjects between the ages of 18 and 65. The remaining publications were non-English 29 (14.1%). Thus, 110 papers, reviews and articles were finally reviewed and included in the study. 55 (50%) of these articles were specifically on refugee mental health, 32 (29.9%) on migrant's mental health and the remaining 23 (20.9%) papers did investigate the possible relationship between residential mobility and psychological problems. None of these mobility papers studied the relationship between refugees and residential movement and how that could affect their mental status.

Figure 2: Results of the literature search publication evaluation



Residential Mobility

Traditionally, residential mobility might have involved endogenous people in search for better employment, housing or education. As Dieleman (2001) puts, *“it often involved in two stage process: In the first, people become dissatisfied with their present housing situation, employment status or access to better education for their children. Stress follows and eventually leads to the second stage: which is a search for a vacancy in the housing sector”*.

The first stage in residential relocation is the decision to become active in the housing market, or the residential mobility stage. The primary motivations can be characterised as either "pushing" or "pulling" forces. A household can be pushed into the market by changes such as marriage, divorce, a new family member, a death in the family, or a new job. Pulling forces are often more gradual. For example, the attraction of lower mortgage rates or high rates of return in housing investment can also persuade a household to become mobile. None of these push and pull factors do apply to refugees and asylum seekers as they are dependent on public funds.

Residential mobility has an important influence on the population demographics of an area. Migration dynamics in the UK differ widely particularly between small areas within a region (Lewis, 2003). This may be due to population demographics, as well as environmental and socio-economic factors. The relationship between socio-economic status and mobility depends on the

distance of migration and the individuals involved. Most of the literature on residential mobility concerns how households are matched to houses. There is extensive information on the household attributes, the household life course, and the educational and job career, which determine the propensity to move and the choice of a dwelling

Effects of residential mobility on families and children

Past research that examined mental health outcomes of children resulting from residential mobility has focused on school-age children and adolescents. These studies were driven by the concerns about the negative academic and psychological effects of unstable school placements (Brown & Othner, 1990; Ingersoll, 1989). Among these older children, high rates of residential mobility have been associated with poorer academic achievement (Eckenrode *et al*, 1995; Ingersoll *et al*, 1989), drug use (DeWit, 1998) and heightened feeling of stress and anxiety as a result of lost contact with close friends and relatives (Cornille, 1993; Hendershot, 1989 & Tolan, 1988).

Moves involving significant distances require a change of schools. School transitions have been described as a stressful process in that young children and adolescents must adjust quickly to unfamiliar surrounding, new friends and teachers as well as the demands and expectations placed on them relating to their academic performance. Number of studies show that entering a new school is linked with academic and behavioral problems, increasing anxiety over

meeting school expectations, and problems gaining acceptance among peers (Crockett *et al*, 1989) Some stressors such as parental divorce, low family socio-economic and family dysfunction have also been found to impact positively on both geographical relocation and deviant outcomes (Astone & McLanahan, 1994; Eckenrode *et al*, 1995).

Families living in poverty often experience high levels of residential mobility. Like adult refugees, young children are generally powerless to affect any decision about moving and can experience poor health services, anxiety and stress from residential relocations (Brown & Othner, 1990). Fowler *et al* (1993) reported that, 8% of overall US children lacked a regular site for preventive care services, 7% lacked sick care and 3% routinely used an emergency department for sick care. However, 14% who had moved three or more times lacked a regular site for preventive care and 10% lacked regular site for sick care, compared to only 3% of children who had never moved.

For adults, however, residential instability may also be detrimental to their mental well being. In a study of African American (Brown *et al*, 1995), reported that major depression was associated with stressful life events. They further found that residential mobility was also a risk factor for depression, not only because moving may cause stress but also may be disruptive to established social relationships and support networks. His argument is supported by Larson *et al*, (2004) who investigated the relationship between health variable and local

moves (within same post-code), longer distance moves (between post-codes) and inter-regional mobility. After controlling for socio-economic and marital factors, moves between post-codes and inter-regional movements were positively associated with multiple recent visits to a medical specialist.

In the UK, however, studies on the relationship of geographical mobility and mental ill-health are scarce. One of the few surveys carried out (Lamont, *et al*, 2000), reported that greater geographical mobility by the schizophrenic patients could be an important factor for the high demands of psychiatric bed use and the difficulties in keeping contact with patients in London. Frequent change of residential address was also associated with patients from more deprived inner London areas than patients from outer areas. In Birmingham, Vostanis *et al* (1998) suggested that homeless families and their children's access to primary and secondary health care may be disrupted because of frequent change of address. He also found that mental health problems remained higher in re-housed mothers and their children.

Mobility and mental health

Contemporary migration is complex, challenging not only migration policy but also linking it with other important domains such as public health. As people move, they connect individual and environmental health factors between one country and another (Davidson, *et al*; 2004). Mobility has an effect that goes beyond the physical displacement of persons or populations. People travel with

their culture, religion, traditions and health beliefs. Migrants also bring their genetic material and their socioeconomic, environmental and epidemiological backgrounds that shape their health. They may carry with them a higher risk of infectious diseases (e.g. tuberculosis and Human Immuno-deficiency Virus) because of a higher prevalence in a region from which they travelled from (Hobbs, *et al*; 2002), which can impact on host public health systems and local communities. The role of language, religion, immigration status, shared history and proximity to host country can influence whether or not to make use of available health services and affects compliance with preventive health recommendations that are in place in the host societies (Chen & Jung-Chen, 1999; Powell, *et al*; 2004).

People also carry their sad memories of the events and traumas they experienced before or during the journey such as loss of loved ones, fear, torture and rape. Such experiences may put them at a higher risk for health problems, including mental health problems, and once they reach safety, can affect their ability to adapt to new environment (Gushulak & MacPherson, 2004). These determinants of migrant health present a challenge to decision-makers and service providers who need to plan and provide effective and accessible health services for communities with diverse languages, cultural backgrounds, migration circumstances and socioeconomic status.

People moving within the same culture can also experience stress and feelings of alienation. The resulting changes in environment and social support can act as pathogens and can increase the likelihood of poor health (Larson *et al*, 2004). New migrants arriving in the host countries often face greater difficulties in adjusting to the social structure of the host country that may at times create a sense of vulnerability and insecurity in their lives (Meadows *et al*, 2001). Causes of migration, the ideological commitments of individuals as well as their personality traits need to be understood in order to have a better view of the migration processes. However, in-depth explanation of these aspects of migration is beyond the scope of this brief introduction which concentrates on the causes of residential mobility and its impact on the mental well being of refugees and asylum seekers.

The patterns of mobility always define the conditions of the journey and their impact on health. The preparation for migration prior to the actual process, the difficulties that migrants experience during the adventure (Vergara *et al*, 2003), the acceptance by the host community after arrival, and the degree of acculturation and integration after resettling are all key features, which may provide valuable information on the causes of mental health problems in migrating populations (Bhugra, 2000). However, a planned movement such as those found in hired employee or a sponsored student may be safer mentally than the journey of a person being smuggled into a country or as in most cases forced out of a place of residence. This type of managed migration does not

necessarily mean that individuals and groups involved will have smooth transition and better adjustment than the unplanned migration (Aroian & Norris, 2002).

Somali refugees, migration behaviour and mental health

In recent years there have been number of research studies carried out among Somali refugees in the west which highlighted the levels of their migration behaviour, socio-economic status in the host countries and the mental health problems. Prior to the year 2000, support for newly arrived asylum seekers was not coordinated nationally. Asylum applicants who lodged their applications in London were not entitled for income support and sought help from the social services department of their local authority. Meanwhile, those who declared asylum at their port of entry were eligible for income support, housing and council tax benefit. Local authorities take them into temporary accommodation while their asylum application is processed. Decision on their application might take months if not years and in this period, the asylum seekers might be taken to different temporary accommodations.

However, the introduction of the dispersal schemes in 2001, which was supposed to relieve London local authorities, brought both positive and negative effects on the asylum seekers. Originally, the policy of 'dispersal' system was aimed to create temporary settlement of asylum seekers in places such as: Liverpool, Coventry, and Glasgow. Moving these asylum seekers from their

communities and other self help groups further isolated and negative impacted on their mental health (Warfa, N. *et al*, 2006; Refugee Council, 1994).

These enforced movements also denied refugees to settle down and get jobs to feed their families. This unfavourable situation naturally places refugees and asylum seekers bottom of the socio-economic ladder. Furthermore, many of these asylum seekers had school aged children who were denied continuous education by constantly moving them. In a recent report (2007), Institute of Public Policy Research (IPPR) ranked the Somalis as the worst performing community in the UK in terms of employment, annual income, house ownership and education. Given that a large proportion of Somalis in the UK are likely to be refugees, this low employment rate may reflect the difficulties such groups have in accessing employment once they have gained refugee status (Bloch, A., 2004a & Bloch, A., 2004b).

Migration not only has implications on migrants and refugees themselves, but also equally affects those who are left behind and the host countries (Carballo *et al*, 1998). Because migration often causes involuntary separation of spouses, marital problems are reported to be common. However, when families are eventually reunited, separation and divorce often follow, particularly when one of the partners (the man) cannot find work which suggests that role change might be an important factor that could trigger mental disorder and subsequent move (Hersi, 1997).

Refugees are especially vulnerable to mental disorders such as anxiety, depression and post-traumatic stress disorder (Bhui, *et al.* 2006; Ramsay *et al.* 1993). Several studies on the status of the mental health of Somali have been carried out. For example, Jaranson *et al* (2004) studied 1134 refugees (622 Somalis and 512 Oromos), resettled in Minnesota, USA. They reported that over 40% of Somalis and Oromo participants met the criteria for torture exposure. Torture history varied by gender and ethnicity with 45% of the men and 43% of the women had approximately equal exposure to torture. They also reported that more Oromos were exposed to torture (55%) than their Somali counterparts (36%). However, this study did not find any statistical significance in terms of gender difference.

In a subset study of the same participants, Halcon, *et al*, (2004), found statistically significant differences for nearly all trauma/torture counts and by ethnicity and gender. Oromo males often reported experiencing higher incidence of the items classified as torture than the Somali youth, and again Oromo youth of both genders reported significantly more traumatic events than Somali. However, no ethnic differences in average number of social problems were found.

In the UK, studies on Somali immigrants and refugees are very few. Silveira & Ebrahim (1998) carried out a comparative study to assess the social factors that

affect the psychiatric morbidity and health in immigrant elders and whites in East London. Their data showed that Somali elders had lower rates of depression (25%) than their Bengali counterparts (77%) but similar rates to white elders in the area. On the social aspects, authors found that Somalis together with Bengalis had lowest life satisfaction scores. However, these results suggest that social conditions under which Somali migrants to UK live may be as important as the experience of migration itself in leading to increased risk of mental illness. A follow-up of an ethnographic study of perceptions of life satisfaction, anxiety and depression by the same authors showed that social and family support greatly increases the mental well-being of elderly people (Silviera & Ebrahim, 2001).

In a community survey carried out by Bhui *et al* (2003) among Somali refugees in London, reported that participants who were on psychiatric treatment had significantly higher levels of total anxiety, depression and psychosis. Contact with mental health services was also associated with having symptoms of anxiety and depression or suicidal ideas. In their study, they demonstrated that there are complex and very inter-related factors that could play a mediating role in the development of mental disorder. However, reasons and causes were recorded as fear for own safety. The negative experience of sudden migration and its associated trauma was very noticeable in the studied group.

The present Study

Justification and rationale

Most of the research on the mental health of refugees and other ethnic minority focused primarily on understanding the etiological role of pre-migration, war related experiences in the development of post-traumatic stress disorder (Kinzie, 1989; Michultka *et al*, 1998; Mollica *et al*, 1998; Silove, 1997; Kivling-Boden & Sundbom, 2002; Cardozo *et al*, 2004; Tang & Fox, 2001; Ritsner *et al*, 2000). However, numerous clinical reports together with a limited number of empirical studies (Beiser *et al*, 1993; Steel *et al*, 1999) suggest that post-migration experiences may themselves account for a significant amount of the psychological disorders such as anxiety and depression that are commonly seen in refugees and asylum seekers living in the west.

Data from around the world show that residential mobility creates stress of various degrees on the individuals involved. Mobility, especially moves over shorter and longer distances have been strongly associated with health care disruption (Larson, 2004), mental disorder (Lix, 2006) and material and educational deprivation (Dewitt, 1998). However, when the process of mobility compounds with other stressful post-migration events such as poor housing, lack of relocation choice and disruption to social support networks, discrimination and living in highly deprived areas, it might even have more devastating effects on

refugees' mental well-being (Bhui, 2008). Being one of the newest migrants in the UK, Somali refugees and asylum seekers experienced high levels of residential movement that involved both short and long distances. Has the residential instability disrupted health and educational provisions and other protective factors such as the support networks that were available to them? In the light of all these extensive research on the pre and post-migration risk factors on the mental health of refugees, addressing important post-migration risk factors such as residential mobility and its correlates may provide some explanations into why high prevalence of anxiety and depression during the first few years in the host country are not yet fully understood.

The present study, however, aimed to explore the post-migration risk factors with special emphasis on the effects of frequency of residential mobility in general, movement within and across the primary care trust boundaries, choice over move, distances moved and the influence that low social support, discrimination and level of deprivation can have on the mental health of Somali refugees in two areas of London. I set the following research objectives to contribute and provide additional insights to the patterns and processes associated with mental health of Somali refugees.

Aims and objectives

- To examine the relationship between residential mobility and mental health of Somali refugees.
- To establish whether mobility across primary care trust (pct) boundaries is associated with higher risk of mental disorder than within pct movers.
- To investigate the role of choice of relocation in the development of mental disorder and lower service use.
- To explore whether distances moved are associated with mental disorder.
- To examine whether low social support, levels of deprivation and discrimination in the form of verbal abuse do influence the relationship between residential mobility and mental disorder.

Study hypotheses are:

- ◆ Residential mobility among Somali refugees in London is associated with higher risk of mental disorder.
- ◆ Movement across Primary Care Trust (PCT) boundaries is associated with mental disorder and increases the levels of unmet needs.
- ◆ Differences in residential relocation choice explain the risk of mental disorder.
- ◆ Most Recent Move (MRM) and Total Distances Moved (TDM) are associated with mental disorder.
- ◆ Low social support, physical attack, discrimination and deprivation are linked to mental disorder and independently predispose residential mobility.

Methods

About the study

This study, funded by the then London Region NHS Executive, was carried out between May 2001 and August 2003 in two areas of London; Tower Hamlets in the East and Lambeth in the South (Map 4). Both boroughs are among the most deprived areas in London when compared to more affluent areas in the city and have scores of 13 and 10 on the Townsend Index respectively. The residents in both areas are ethnically diverse and according to the latest census (2001), almost half (48%) of the population in Tower Hamlets and approximately one third in Lambeth are from minority ethnic groups. Of these, large proportions are thought to be refugees with multiple needs ranging from homelessness to mental disorders. Ethical approvals for the study from both areas were obtained from the respective health authorities.

Map 4: Showing the locations of the London Boroughs of Tower Hamlets and Lambeth



Sample size

The research team proposed to recruit 150 participants (men and women) between the ages of 18 and 65. Of these 50 were planned to be recruited from general practice registers (GP's) and the remaining 100 recruited from non- conventional places such as: Somali cafés, community centres, mosques, further education (FE) colleges and refugees hostels. The study was originally designed to collect data on 150 subjects and had approximately 80% power at the 5% significance level to detect a 25% difference in morbidity between a sample of 100 and a sample of 50 subjects, assuming a low baseline prevalence of 25% for all mental disorders. Previous work shows baseline estimates of 40% (Aldous, *et al.*, 1999) making possible the detection of a 25% difference with 99% power.

The research team

The research team consisted of three psychiatrists, medical Geographer, health economist, two research assistants and a team of Somali translators. The project leader and the senior research members designed and steered the project throughout the study period. As I detailed below, the team collectively participated in the selection and translation of the study questionnaires, general data management and dealt with all difficulties encountered during the study period.

I was one of two research assistants recruited to develop a methodology to engage with Somali refugees and assess their health, social status, service use and mobility within and across primary care trust (PCT) boundaries and to

carry out qualitative and quantitative study that measured mental health and social outcomes in mobile populations.

My specific role in the study was to:

- Translate study instruments into Somali
- Carry out Interviews in East London.
- Undertake data entry, cleaning, analysis and dissemination.
- Match addresses with their post codes.
- Link complete post codes to NHS designated primary care trust codes.
- Create mobility, distance and deprivation variables.

Sampling Strategy

Sampling new migrant and refugee populations is methodologically challenging. An accurate assessment of the number of asylum seekers and refugees in the UK (Bhui, *et al.*, 2003) and elsewhere (Spring, *et al.*, 2003) is reported to be difficult. To maximize participant recruitment and obtain good response rates, while trying not to miss out socially excluded individuals, we employed a number of strategies to map out potential recruitment sites that included conventional (General Practice Surgeries) and non-conventional (restaurants, community centres, educational establishments, hostels, mosques etc) sites.

At the start of the project, we set out a number of strategies to engage and collect data from the non-conventional venues. We publicised the study and

relayed to Somali community in the designated study areas. A number of community organisations offered their support for the study. They provided information on the days that Somali refugees and asylum seekers visit their offices. We spoke to the owners of the Somali shops, cafés and restaurants and explained the research aims. In East London, I approached Somali student advisor and a youth worker from Tower Hamlets College to help in the recruitment of women students. This is because majority of Somali women do not socialise in cafés, restaurants and khat* houses. Other Somali community training centres were also identified as potential recruitment sites. We targeted international call centres as this was a place frequented by Somali subjects to contact their relatives back home and also channel money through remittance companies who mostly own the call centres. Management of the homeless hostels, for example Euro-tower and YMCA in Lambeth, were also contacted and informed of the project to help us access their Somali Refugees clients.

Mosques were among the potential recruitment venues cited in the original proposal and subsequently recommended by the focus group participants. Unfortunately, the only mosque owned by the Somali community in East London underwent a major refurbishment, which coincided with the start of the second phase of the project and lasted for several months.

*The leaves of the shrub *Catha edulis*, first identified by a Swedish botanist Peter Forskal in 1775, which is widely chewed in Eastern Africa (Kenya, Tanzania & Uganda), horn of Africa (Ethiopia, Eritrea, Somalia & Djibouti) and some Arabian countries such as Yemen and Oman. In the last two decades, however, the consumption of Khat has spread to western countries including the UK).

However, people who used to attend prayers also dined and socialised in the cafés and restaurants mentioned above and therefore recruitment strategies were not affected.

List of the Non-conventional community Venues:

East London

Oxford House (Bethnel Green)

Bridge Project (Whitechapel)

Call Centre (Whitechapel)

Somali café (Mile End)

Tower Hamlets College

Somali run training centre (Mile End)

South London

Eurotower & YMCA (Stockwell)

Refugee Council (Brixton)

Somali community Centres (various)

Somali Cafés (Streatham)

For the Conventional Sites, a number of General Practice surgeries (GPs) in both areas were identified as possible recruitment sites. We (research assistants) produced a list of most common Somali names to help participating GPs to print out potential participants registered with them. The lists they produced contained large numbers of non-Somali specific Somali names. This was methodologically very challenging as GP users come from diverse background who might share names. We overcame this by sorting the names into three categories:

1. Unique Somali names
2. Possible Somali names
3. Non Somali names

The unique Somali names were verified by the research assistants. This verification was based on whether the full name contained specific Somali names such as Jama, Weheliye, Warsame, Rooble, Hersi etc. However, to validate the possible Somali names, we telephoned people on the list. If the phone is answered, we spoke to them in English to ask if they were Somalis by birth or at least have one Somali parent and arrived in the UK in the last five and half years. If the answer is yes, then continued the conversation in Somali to verify and If not, the name was deleted from the list. However, if the phone was not answered, a letter was sent out followed by a home visit, provided the address is correct, taking all necessary precautions. The other problems we encountered included wrong contact details or patients moved to another area a year or two earlier but still registered with the practice. The verified names were numbered and randomised using table of random numbers.

List of Conventional venues (General Practice Surgeries)

East London

Jubilee Street

Albion Centre

Gill Street

XX Place

Tredegar

South London

Benfield Surgery

Pavillian Practice

Edith Cavell Practice

Streatham Common Practice Group

Selection strategy

Potential participants from both conventional and non-conventional sites were approached at the above sites using the eligibility criteria set by the research committee. Subjects from the non-conventional sites were selected systematically. For example, I approached every third person entering the café, restaurant, the community offices or the call centre. If a suitable participant is identified and accepts the interview, the systematic process is repeated after the interview is completed. In order for a subject to qualify for the study, s/he needed to meet the following conditions:

- Age: between 18 and 65.
- Residence: more than two weeks in the study areas.
- Duration of stay in the UK: up to five and half years.

Informed Consent Procedures

As part of the informed consent process, potential participants were told that the purpose of the study was to learn about the post-migration life experiences of the Somali community who arrived in the UK as refugees and asylum seekers and that the researchers were interested in their current life situation and their physical and emotional health. Potential participants were informed that participation was completely voluntary and that they were free to stop at any time. Interviewees were informed of the specific topics to be covered in the interview. Potential participants were also advised that they might wish to talk with someone about these feelings or concerns and were given contact

information for two mental health professionals. Participants, who completed the interview, received a nominal incentive payment of £10 (ten UK pounds).

Selection of the Psychiatric Measures

The uses of the structured interview schedules that generate psychiatric diagnoses in epidemiological studies have prompted an intense interest in its cross-cultural use. However, the valid use of these instruments across cultures requires a careful adaptation process, which goes beyond mere language translation. Selection of the outcome measures used in this study was based on the recommendations of Flaherty, *et al.*, (1988), that ranked psychometric questionnaires according to their track record in previous cross cultural studies. He used the following criteria to rank Instruments into one of three groups:

- a) Instruments that are proven to be cross-culturally equivalent.
- b) Instruments that have established validity and reliability in the original population or culture but have not yet been tested in other cultures and;
- c) Instruments that have high face validity but have not been tested in the country of origin followed by cross-cultural validation.

In our study, we selected the Mini Neuro-psychiatric Interview (MINI) to assess the mental status of the target population. The MINI is a commonly used instrument for the diagnoses of depression, suicidality, mania, panic disorder, post traumatic stress disorder, alcohol and drug dependence, psychosis, anxiety and anti-social personality disorder (Sheehan *et al*, 1998).

The instrument is highly structured and can be administered by non-clinicians producing a valid and reliable diagnostic assessment (Lecrubier *et al*, 1997). The questions are precise and carefully worded, requiring only 'yes' or 'no' answers hence reducing any possible errors in the interpretation of responses during the interview. The MINI diagnostic framework allows for multiple psychiatric disorders, and distinguishes current mental disorders from those arising at an earlier stage of the subject's life. It is currently available in over 40 languages.

Before I move to the translation procedure, I would like to briefly review the history of the target language. Historians place the Somali language within a group of languages called lowland Eastern Cushitic (Diriye, A. M. 2000). The Somali language is widely spoken in the Republic of Somalia, North Eastern Kenya, vast area of Eastern Ethiopia and the Republic of Djibouti. It is estimated that about 10 to 15 million people fluently speak the Somali language, which ranks among the few that have over 10 million native speakers in Africa. There are also other large communities who also speak Somali as their second language. These communities include Oromo people in Ethiopia and Kenya and Afars tribe in Djibouti.

Somali is a newly written language and uses the Latin alphabet. It was first adopted in 1972 but officially introduced into the primary schools in early 1973 after educational materials were prepared (Johnson, 2006). By the 1975, the Somali language was medium of instruction throughout the compulsory education (Year one to 12). The Somali language has two major dialects: the

standard dialect, spoken by all Somalis, and the localised Digil or Rahanwein dialect, spoken primarily by sizable communities in the south western regions of Somalia. After the independence and particularly after the civil war in 1991, many Somali refugees settled in western countries including the UK and more significantly, the USA. There are also strong Somali communities in most countries in Eastern Africa, the Middle East and Australia.

Translation Procedure

The original English version of the MINI was translated into Somali using a stepwise protocol developed in a series of expert meetings and agreed upon by the research members. Because of regional or/and dialect variations, we selected Somali translators from the north and south of Somalia. As recommended (Edwards, 1994), the two translators studied the English as a second language to ensure careful and unbiased translation. Translation process involved forward/backward translation (Brislin, R. 1970), expert review, focus group discussions and pilot testing to ensure a valid and reliable instrument. During the translation process, psychiatric experts and Somali researchers made sure that the five major dimensions of cross-cultural equivalence (content, semantic, technical, criterion and conceptual) are met. Consideration was also given to the wording of some questions related to sexual practices as Somalis do not traditionally discuss these issues openly.

The translation process involved the following steps:

1. I (Salaad Mohamud) and another researcher undertook independent forward translation of the original instrument into Somali. We agreed a consensus on a draft version before forwarding it to two other bilingual

professionals (a psychologist and a medical doctor) to assess face and content validity, readability and ease of understanding. None of us had any previous knowledge of the MINI and we were not given any specific instruction as whether to aim for literal or conceptual translation. Any items that were linguistically or culturally problematic (see validity tests section in this chapter) were negotiated by all four of the forward translation team to produce the most acceptable draft with reference to the English version.

2. We presented the resulting Somali version to two bilingual Somalis (A PhD researcher in molecular biology and an experienced family doctor) who independently translated it back into English. Problematic items were identified and the two English versions were reconciled by consensus. The agreed English back translation was compared with the original English version by the psychiatric research team. Again, all problematic items were identified, discussed and modified in a focus group that included all 6 Somali bilingual professionals.

Training for the interviewers

We, bilingual Somali researchers, undertook video training and attended lectures on mental disorders. Senior psychiatrists working on the project also provided training in the use of the scale by role-plays and some pilot interviews with feedback. Patient selection criteria and procedures for administration of the questionnaire were specified. Standard Somali language was used throughout the interviews.

Pilot study

Before the actual study, we interviewed 18 subjects. These subjects were recruited from non health community venues such as cafes, community centres and refugees training facilities in the two study areas. The aims of this preliminary work were to assess the ease and comprehensibility of the new instrument by the target population. The subjects were specifically asked to indicate if they did not understand some words in the sentence rather than respond to the overall meaning of the question. None of these subjects reported any problems in understanding the questions and what it referred to, suggesting that the final draft to be understandable, and conceptually appropriate.

MINI Reliability Tests

Inter-rater reliability

The inter-rater reliability coefficients (Cohen, 1960) between the two Somali raters (R1 = Salaad Mohamud) and a non-Somali psychiatrist for the MINI English version and between Somali raters for the Somali version are shown in table 1. The Somali version was assessed at the beginning and at the end of the project on a total of 21 subjects. Agreement of diagnostic questions in the Somali version ranged from 0.64 to 0.87. For the Somali version, the agreement between the Somali raters was excellent with the exception of Major Depression with Melancholic Features for which the Kappa was 0.60.

Table 1: Inter-rater reliability (Kappa) of the MINI English and Somali versions

Diagnostic items	English Version		Somali Version	
	R1/Psychiatrist	R2/Psychiatrist	*R1/R2	R1/R2
Major Depressive Episode (MDE)				
Current	1.0	0.76	0.76	1.0
Recurrent	1.0	1.0	1.0	1.0
MDE with Melancholic features				
Current	0.87	1.0	0.87	0.6
Dysthymia Current	1.0	1.0	1.0	1.0
Suicidality Current	1.0	1.0	1.0	1.0
Hypo-manic Episode	1.0	1.0	1.0	1.0
Manic Episode	0.83	0.83	1.0	1.0
Panic Disorder Current	1.0	1.0	1.0	1.0
Panic Disorder with Agoraphobia	1.0	1.0	1.0	1.0
Agoraphobia Current	1.0	0.64	0.64	1.0
Social Phobia	1.0	1.0	1.0	1.0
Obsessive Compulsive Disorder	1.0	1.0	1.0	1.0
Posttraumatic Stress Disorder	1.0	1.0	1.0	1.0
Alcohol				
Dependence	1.0	1.0	1.0	1.0
Abuse	1.0	1.0	1.0	1.0
Substance				
Dependence	1.0	1.0	1.0	1.0
Abuse	0.77	1.0	0.77	1.0
Psychosis Disorder				
Current	1.0	1.0	1.0	1.0
Lifetime	1.0	1.0	1.0	1.0
With mood disorder	1.0	1.0	1.0	1.0
Generalised Anxiety Disorder	1.0	1.0	1.0	1.0
Anti-social Personality Disorder	1.0	1.0	0.77	1.0

*R1 & R2 = Research Assistants 1 & 2

Test –Retest Reliability

I measured test retest reliability by administering the MINI- Somali version twice to 9 participants (table 2). The recruitment for the retest was extremely difficult and may have been due to the high residential mobility and other post-migration challenges of this group. However, the two-week test retest correlation coefficients (r) were all statistically significant and ranged from $r = 0.70$ to $r = 1.0$ with an overall mean of $r = 0.88$, $P < 0.01$.

Table 2: Test re-test reliability of the 10 participants who were interviewed within 2-weeks of the first interview.

Subject ID	Correlation Coefficients (r) of time 1 and time 2	
TT151	1.0	
TT152	0.92	
TT153	0.705	
TT154	0.906	
TT155	0.703	
TT156	0.94	
TT160	0.79	
TT162	0.933	
TT169	0.98	
Overall mean	0.875	

MINI validity tests

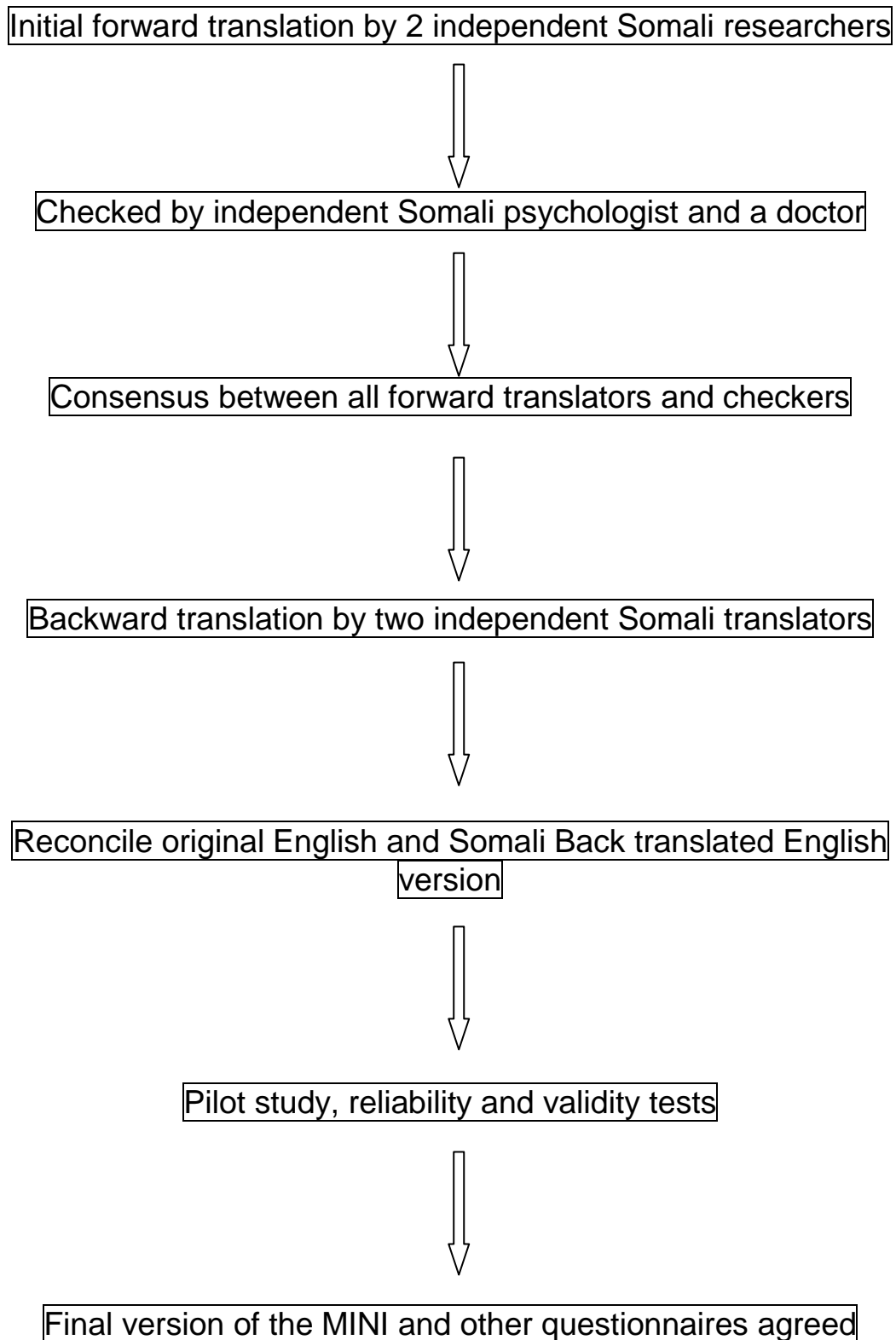
During the translation process, face and content validity of the Somali version were established and further strengthened by focus group discussions between the forward and backward translators, pilot studies, and consultation with Somali community health workers. Translating some of the words proved particularly problematic. In Somali culture, it is difficult for the lay person to distinguish between depression, severe headache and migraine. From the focus groups and during the translation process, Translators identified two words, *qulub* and *buufis*, that can be conditionally used in place of depression. The word *qulub* is mainly used as a medical term, which originated from the northern part of Somalia, whereas the word *buufis* has emerged more recently to mean a mental condition since the start of the civil war in late December, 1990.

The condition of feeling 'up' or 'high' in the manic episode question did not have direct meaning in the Somali language. However, we translated the explanations given by the original authors such as having elated mood, increased energy, needing less sleep, having rapid thoughts etc. This was one of the strengths of the MINI that it anticipated that some words will puzzle interviewees and might not also have meaning in other cultures. In some questions where there were two alternate words, for example impulses or images as in the obsessive-compulsive disorder, translators agreed to use the word images, as there was a direct word in the Somali language. Hung-over was another condition, which we could not get a meaningful translation. We translated the symptoms of hung-over such as shaking, sweating or agitation in relation to alcohol use.

Some tests of concurrent validity were also carried out. The results revealed highly significant positive association between aggregated mental disorders (cases and non-cases from the MINI-Somali version) and items from previously validated Camberwell Assessment of Need (CAN) (Slade, M. & Thornicroft, G., 1999) such as feeling sad recently $\chi^2 = 77.3$, $df = 2$, $p < 0.001$, feeling physically unwell $\chi^2 = 20.8$, $df = 3$, $p < 0.001$. Having a mental illness of any kind, also correlated with Short Form – 12 (Ware *et al.*, 1996) items for having any longstanding illness $\chi^2 = 9.3$, $df = 1$, $p < 0.002$.

Reliability and validation procedures are reported in Bhui *et al.*, 2006.

Figure 3: Summary of the translation Procedure for the MINI and other Questionnaires



Other Questionnaires

This study also used number of other questionnaires including demographic, accommodation record and health service use. Like MINI, all of these measures were also translated and back translated.

Demographic

The demographic data was one of the core data components of the project. Its main use in this study was to obtain baseline information from the subjects. In addition, some questions on pre-migration such as time left in the country of origin and reasons for leaving, flight routes (direct or through other countries) and family separation in the civil war were included. The questionnaire also touched on post-migratory stressors such as current legal status, conflict with immigration officers on arrival, continued isolation from family and educational, employment opportunities and welfare benefits. I also used a number of variables from Client Service Receipt Inventory (Slade, *et al*, 2001) such as GP contact in the preceding six months, refugee centre visit, benefits etc and included in my study.

Accommodation Record

The purpose of this questionnaire was to record every stay of two weeks or more at any particular address that the study participant resided in the past five and half years. This questionnaire was adopted from Homelessness youth study (Craig & Hodson, 1998) and collected information on tenure status, decision to move, in-house facilities, overcrowding, how the participant

felt about the move (choice over move) and satisfaction with each accommodation. I asked participants to come to the interview with written address if they have one or at least tell me the first line of their address or, if they are new in the country, roughly the area they have lived and try to mention a nearby popular place such as a stadium, cinema, a market etc. I started recording accommodation details retrospectively starting with the current address and then one before the current and so on.

However, to enable me to generate data on geographical mobility, distances moved and deprivation indices of each address, I needed to have full six or seven figure post-codes. Unfortunately, substantial number of participants either did not know the exact post-codes of the previous addresses or they had difficulties in recalling them. To overcome this problem, I used number of strategies to find complete post-codes for the addresses provided. I searched online databases such as official Royal Mail post-code finder, Consignia, and streetmap.co.uk. I also hand searched the postal address book for London (2001 edition). This was particularly problematic for those who provided only street names, incomplete post-codes or roughly the areas they lived. I made attempts to contact participants by telephone in order to clarify ambiguous addresses.

Overall, 94 (65.7%) of the participants had their post-codes recorded correctly, 33 (23.1%) had one proxy post-codes and the rest of the post-codes were either missing 9 (6.3%) or incomplete 7 (4.9%). When assigned proxy post-codes, I considered number of issues that included: correct house name,

street name and whether there was another participant that lived in the same street and his/her post codes recorded correctly and that these proxy post-codes do not significantly alter the distances between the two addresses and do not cause crossing over to another PCT or London Borough. .

One of the key objectives of this thesis was to classify the types and characteristics of participants' movements within and across Primary Care Trusts (PCT) boundaries and examine their relationship with mental disorder. Once I had all available full post-codes, particularly the two most recent addresses, I entered them into a National Health Service (NHS) intra-net look-up service. This online facility is only available to NHS staff in the UK. Using the information generated, I was able to link each post-code to a designated NHS code to respective PCT or the associated London Borough.

I forwarded all full post-codes to the department of Geography, Queen Mary University of London. Post-codes were then linked to respective electoral wards (as defined in 1998) and the area deprivation indices such as housing, education, and health and child deprivation using digitised grid reference locator. The generated file also provided data on the distances moved between post-codes. Although some participants moved three to six times, they were small in number compared to those who moved one to two times. Because of this I only included 94(65.7%) participants and measured the distances that they moved between the last accommodation and the current which was included in the analyses as Most Recent Move.

Social network and related questions

The following questions, derived from the close persons questionnaire, collected information on number of indices:

- ❖ **Confiding and emotional support:** where participants were asked to rate[©] how much, in the last 12 months, this person made you happy, made you feel good about yourself, shared interest with or confided with?
- ❖ **Practical support:** on how much the closest person gave practical help with major things when you needed it.
- ❖ **Negative aspects of close relationships:** I also asked whether this close person made them worried or made things worse for them.
- ❖ **Social support network:** These questions asked how often* they contact or visit their relatives or friends outside their households. If they do so how many of them do they meet every month?
- ❖ **Discrimination:** Questions on this explored about the things that may have happened to them in the last 12 months. These yes/no questions included: physical attack, damage to their properties, insults for reasons to do with ethnicity or religion and employment related racism.
- ❖ **Religious practices:** these questions concerned participant's belief in God, his strength in religious and spiritual beliefs and how important to attend regular prayer services.

© 1) Not at all 2) A little 3) Quite a lot 4) A great deal

*1) Almost daily 2) About once a week 3) About once a month 4) Once every few months
5) Never/almost never 6) No relatives or friends outside household

Interviews

After screening, selected participants were invited to the study. Acceptance was always the first obstacle. Subjects were naturally reluctant to be interviewed, as suspicion was a major part in their survival skills (Silove, *et al*, 1997). After reassurances, I asked participants to read the invitation letter or read out for them if they were unable to. I explained where they do not understand. Afterwards, I asked them to sign a written informed consent before the interview started. Not all approached accepted the invitation or were eligible (see response rates in the results).

Triangulation

Overall aim of the triangulation was to establish the validity of the respondents answers particularly his or her use of the health and other support services. All interviews lasted between 40 to 80 minutes depending on the individual. I carried out triangulation on the service used by the participants. It involved double checking the information given with the service providers both the statutory and voluntary sectors such as General Practice surgeries, other health centres and refugees support centres. I encountered difficulties in triangulating the information collected with the service provider (particularly NHS hospitals) due to data protection act 1988. The only ones who agreed were those who knew about the study. Mostly there was no problem in triangulating those recruited from the GP's as their records showed when they last visited the service. However, many non-health and refugees support centres did not have all the records in hand hence could not verify the service use. In the next page, I listed the services contacted and the results obtained.

Triangulation record

East London

Non-conventional (non-health community centres)

ID	Service contacted	Confirmed
107	Bridge Project	yes
108	Bridge Project	yes
109	Bridge Project	no
112	Bridge Project	yes
118	Bridge Project	yes
124	Bridge Project	yes
125	Bridge Project	no
131	Bridge Project	yes
137	Bridge Project	yes
142	Steels Lane Health Centre/ Somali MIND	yes
150	Bridge Project	yes
151	Bridge Project	yes
152	Bridge Project	yes

Conventional

ID	Service contacted	Confirmed
106	Albion Health Centre	yes
123	Albion	yes
139	Albion	no
153	Jubilee Street Practice	yes
154	Jubilee	yes
155	Jubilee	yes
156	Jubilee & Steels Lane	yes
157	Jubilee	no
158	Jubilee	yes
159	Jubilee	yes
160	Jubilee	yes
161	Albion Health Centre	yes
162	Albion	yes
163	Albion	yes

Summary of East London triangulation.

Non-conventional	=	13
Conventional	=	14
Total confirmed	=	23
Total not confirmed	=	4
Matched percentage	=	23/27 = 85.2%

Total triangulated (27) divided by total interviewed (73) = 37%

South London

Non-conventional (non-health community centres)

ID	Service contacted	Confirmed
S06	Refugee Council	Yes
S07	Puntland Somali Community	Yes
S15	Refugee Council	Yes
S17	Refugee Council	Yes
S18	Lambeth Somali Community	Yes
S20	Waabari Somali Cultural Association	Yes
S21	Eurotower	Yes
S27	Lambeth Somali Community	Yes
S28	Somali Relief Society	Yes
S29	Lambeth Somali Community	Yes
S37	Lambeth Somali Community	Yes
S39	Lambeth Somali Community	Yes
S40	Refugee Council	Yes

**In South London, 13 subjects triangulated out of 70 = 18.6%.
All of them confirmed.**

Total subjects triangulated in both sites (40) divided by total interviewed (143) = 30%

Data Entry

I entered data collected into a computer using Statistical Program for Social Sciences (SPSS) version 11. To assure overall data quality, I followed standard protocols to ensure consistency in the entering and coding of data. I arranged the data according to the different questionnaires and created separate files for them under a folder entitled SOMMER PROJECT DATA. After completing the data entry, I carried out routine comparisons between the hard copy data forms and the keyed data to reduce input errors. I also performed periodic edits on the computer database to amend any out-of-range entries. As the data set was quite large, I created an extra working file where I brought together my variable of interest.

Analysis Plan

All statistical analyses were performed using Statistical Program for Social Scientists (SPSS). A P-value of 0.05 was taken to indicate statistical significance. Before I carried out my analysis, I re-categorised continuous variables such as number of moves into binary variable. I measured the distance moved from the previous address to the current (Most Recent Move) taking $\pm 3.75\text{km}$ as the median score and, depending on the length of the distances they moved, divided participants into those who moved $< 3.75\text{km}$ and those who moved $\geq 3.75\text{km}$. Similarly, I used the median split (10.2km) as a cut-off point for the total distances moved by the participants. In social network questions, for example, I aggregated all relatives and friends sub-categories into one main variable named Network beyond Household Scale (NETW). I measured deprivation data in two ways. First I manually

calculated the difference between the last two addresses to see if the level of deprivation improved by a single digit (high to low), got worse (low to high) or not changed (low to low).

Secondly, I used the median score (± 56.5) of the current address as an indicator for the deprivation level of the study subjects. I converted all discrete variables (movement within and across primary care trust boundaries, choice over move, social network questions) into categorical variables. Finally, I tested mental disorders of the study subjects particularly Common Mental Disorders (CMD) and Post-traumatic Stress Disorder (PTSD). I also added up all cases from the MINI into a new Aggregated Mental Disorder (AMD) variable. The following statistical tests were used to analyse the data in accordance with the study hypotheses:

Cross tabulations

The statistical differences on the categorical data between the outcomes of interest and all socio-demographic characteristics were calculated with Chi square test (χ^2). Firstly, the association between mobility variables and mental health outcomes were examined in cross-tabulations and unadjusted logistic regression. Secondly, the relationship between the mental disorders and types of mobility were further tested by stratifying with areas of study, recruitment sites and gender.

Logistic regression

I constructed logistic regression models that allowed me to efficiently estimate the strengths of the association between the outcome [Aggregated Mental Disorders (AMD)] and the exposures (types of mobility and choice over move), while controlling for a number of potential explanatory factors simultaneously. Because common mental disorder (CMD) and post-traumatic stress disorder (PTSD) were not associated with any of the mobility variables, I took aggregated mental disorders as the outcome for its relationship with categorised mobility, PCT moves within and across, choice to move and distances.

Social support network, legal status, period of stay in the UK, discrimination in the form of insult and tenure current that are independently associated with mental health outcomes or the exposure were entered into logistic regression models together with conventional co-variates (age, gender and marital status,). No move was taken as the reference category for all exposure variables such as residential mobility, PCT movement, choice over moves and distances entered in the models.

I also examined gender differences in relation to mobility and mental disorder using both descriptive and multivariate statistics. I constructed separate multivariate models for men and for women to study the association between mobility variables, choice over move and distances and aggregated mental disorders (AMD). The gender variable was categorised in the models taking men as the reference variable.

RESULTS

PART ONE

DESCRIPTIVE ANALYSIS

Socio-demographic characteristics of the study participants

Of the 150 individuals planned to include in the study, 95.3% (143/150) were recruited over a one-year period. The sample comprised males (49.7%) with ages ranging from 18 to 52, (mean age 31.7 years; SD = 9.08) and females (50.3%) with ages between 19 and 69, (mean age 33.3 years; SD = 11.0). Just over half of the subjects were married (51.7%) followed by singles (42.7%), while the rest of the participants (5.6%) were separated, divorced or widowed. Information was also obtained about the residential characteristics of the study sample in their home country. 134 (93.7%) reported to have lived in urban areas.

Upon arrival in the UK, 108 (75.5%) of the sample declared asylum at the port of entry and majority of these did not report any conflict with the immigration officials. Of those who applied for asylum in the UK, 118 (82.5%) cases were successfully resolved and 25 subjects (17.5%) were still awaiting a decision about their leave to remain in the UK. Employment status of the participants both in Somalia and the UK were recorded. Close to half of the participants 61 (42.7%) were students in either primary or secondary education in Somalia. Unemployment was 36 (25.5%) in the study subjects while 46 (32.2%) were either in full or part time jobs. In the UK, however, the rate of the unemployment in the group was 124 (86.7%) compared to 15 (10.5%) who had full or part time jobs. Few participants 4 (2.8%) stated that they were in full time education hence not working.

Table 3: Demographic characteristics of the 143 participants in the study

Characteristics	N	%
Gender		
Female	72	50.3
Male	71	49.7
Marital Status		
Married	74	51.7
Never married	61	42.7
Separated	2	1.4
Divorced	4	2.8
Widowed	2	1.4
Education in Somalia		
Primary	21	14.7
Intermediate	28	19.6
Secondary	42	29.4
College	10	7.0
University	6	4.2
No education	36	25.2
Education in the UK		
Secondary	3	2.1
Further education college	82	57.3
First degree	2	1.4
Other	9	6.3
Not studying at present	46	32.4
Immigration status		
Pending	25	17.5
Resolved – Refugee status granted	118	82.5
Employment in Somalia		
Student	61	42.7
Unemployed	36	25.2
Employed (full and part time)	46	32.2
Employment in the UK		
Student	4	2.8
Unemployed	124	86.7
Employed (full and part time)	15	10.5
Age (in years)	Mean = 32.46	SD = 10.12

Response Rates

Participants were recruited from a total of nine General Practices and ten community venues (Tables 4a & 4b). Response rates were 75.7% (50/66) in East London community sites and 82.1% (23/28) from East London GP registers. In the South, response rates were 80% (20/25) and 83.3% (50/60) from community venues and GP registers respectively. Response rate of the non-conventional sites in both areas was 79.4% (100/126) whereas those recruited from General Practice surgeries the total response rate was 81.1% (43/53). Overall, the response rate was 79.9% (143/179).

Table 4a: Response Rates of East London

Non-community health Venues

Site name	Type of site	Number Screened N (%)	Number eligible N (%)	Number not Eligible N (%)	Number Refused N (%)	No Contact N (%)	Number Interviewed N (%)
Oxford House	Non-conventional	40 (22.7)	10 (15.2)	30 (27.2)	2 (12.5)	0	8 (16.0)
Bridge Project	Non-conventional	35 (19.9)	17 (25.8)	18 (16.4)	5 (31.3)	0	12 (24.0)
Call Centre	Non-conventional	30 (17.0)	7 (10.6)	23 (20.9)	3 (18.7)	0	4 (8.0)
Somali café	Non-conventional	22 (12.5)	7 (10.6)	15 (13.6)	2 (12.5)	0	5 (10.0)
Tower Hamlets	Non-conventional	34 (19.3)	19 (28.8)	15 (13.6)	4 (25.0)	0	15 (30.0)
Comm training	Non-conventional	15 (8.5)	6 (9.1)	9 (8.2)	0	0	6 (12.0)
	Total	176	66	110	16	0	50

General Practice Surgeries

Site name	Type of site	Number Screened N (%)	Number Eligible N (%)	Number not Eligible N (%)	Number Refused N (%)	No Contact N (%)	Number Interviewed N (%)
Jubilee Street	Conventional	31 (36.0)	10 (35.7)	21 (36.2)	1 (20.0)	24 (72.7)	9 (39.1)
Albion Centre	Conventional	21 (24.4)	7 (25.0)	14 (24.1)	1 (20.0)	7 (21.1)	6 (26.1)
Gill Street	Conventional	15 (17.4)	9 (32.1)	6 (10.3)	3 (60.0)	0	6 (26.1)
XX Place	Conventional	7 (8.1)	2 (7.1)	5 (8.6)	0	2 (6.1)	2 (8.7)
Tredegar	Conventional	12 (14.0)	0	12 (20.7)	0	0	0
	Total	86	28	58	5	33	23

Table 4b: Response rates for South London

Non-community health Venues

Site name	Type of site	Number Screened N (%)	Number eligible N (%)	Number not eligible N (%)	Number Refused N (%)	No Contact N (%)	Number Interviewed N (%)
Eurotower & YMCA	Non-conventional	36 (36.0)	14 (23.3)	22 (55.0)	2 (20.0)	58 (dispersed) 9 (No contact)	12 (24.0)
Refugee Council	Non-conventional	11 (11.0)	11 (18.3)	0	3 (30.0)	0	8 (16.0)
Somali community Centres	Non-conventional	29 (29.0)	13 (21.7)	16 (40.0)	2 (20.0)	0	11 (22.0)
Towfiq & Shebelle Somali Cafés	Non-conventional	24 (24.0)	22 (36.7)	2 (5.0)	3 (30.0)	0	19 (38.0)
	Total	100	60	40	10	67	50

General Practice Surgeries

Site name	Type of site	Number Screened N (%)	Number eligible N (%)	Number not eligible N (%)	Number Refused N (%)	No Contact N (%)	Number Interviewed N (%)
Benfield Surgery	Conventional	24 (36.4)	7 (28.0)	17 (41.5)	2 (40.0)	0	5 (25.0)
Pavillian Practice	Conventional	14 (21.2)	12 (48.0)	2 (4.9)	3 (60.0)	2 (8.7)	9 (45.0)
Edith Cavell Practice	Conventional	28 (42.4)	6 (24.0)	22 (53.7)	0	15 (65.2)	6 (30.0)
Streatham Common Practice	Conventional	0	0	0	0	6 (26.1)	0
	Total	66	25	41	5	23	20

Geographical differences (East & south London)

There was no significant difference among the agegroups in the areas studied. More females 61.6% were recruited from East London compared to 38.6% from South London ($\chi^2 = 7.6$, $df=1$, $p<0.006$). Family separation, after the civil war broke out, was reported more in East London than in the South (76.8% v 59.7%; $\chi^2 = 4.5$, $df=1$, $p<0.035$). As a result, successful family re-unifications were greater in East London than in the South ($\chi^2 = 24.6$, $df = 1$, $p<0.0001$). Contact with General Practitioner (GP) was more common in the East compared to the South ($\chi^2 = 4.3$, $df = 1$, $p<0.04$). Employed people were more likely to be living in the South rather than the East (15.7% v 5.5%; $\chi^2 = 4.0$, $df = 1$, $p < 0.046$).

Residential moves, choice over move and movement within and across Primary Care Trusts (PCT) did not vary across locations. However, there were differences between the two study areas with regard to the level of deprivation in their most recent accommodation. Significantly higher number of participants in the East lived in areas with a deprivation score greater than 56.5 ($\chi^2 = 127$, $df = 1$, $p<0.0001$). With regard to distances moved from the last address to the current, more East London subjects 44.1% (30/68) moved upto 3.75*km in their most recent move (MRM) compared with the South London sample (23.0% (14/61); $\chi^2 = 6.7$, $df = 2$, $p<0.03$). However, when calculated the total distance moved regardless of the number of residential changes occurred, South Londoners were found to have moved longer distances than their East London counterparts ($\chi^2 = 8.6$, $df = 2$, $p<0.01$).

Table 5: Differences between the two study areas (East and the South)

Variables (N)	Categories	East (%)	South (%)	X ²	Df	P-value
Age group (143)	18 – 25 26 - 35 < 36	24 (32.9) 27 (37.0) 22 (30.1)	15 (21.4) 30 (42.9) 25 (35.7)	2.3	2	0.3
Gender (143)	Male Female	28 (38.4) 45 (61.6)	43 (61.4) 27 (38.6)	7.6	1	0.006
Family Separation (131)	Yes No	53 (76.8) 16 (23.2)	37 (59.7) 25 (40.3)	4.5	1	0.04
Re-united (131)	Yes No	51 (73.9) 18 (26.1)	19 (30.6) 43 (69.4)	24.6	1	0.0001
Tenure current (142)	Temporary Permanent	54 (74.0) 19 (26.0)	44 (63.8) 25 (36.2)	1.7	1	0.2
Period in the UK (143)	< 2 years ≥ 2 years	36 (49.3) 37 (50.7)	34 (48.6) 36 (51.4)	0.008	1	0.9
GP contact in the last 6 months (143)	Yes No	60 (82.2) 13 (17.8)	47 (67.1) 23 (32.9)	4.3	1	0.04
Categorised Education in Somalia (143)	Upto intermediate Secondary & above	38 (52.1) 35 (47.9)	53 (75.7) 17 (24.3)	8.6	1	0.003
Mobility (143)	Not moved Moved	17 (23.3) 56 (76.7)	18 (25.7) 52 (74.3)	0.1	1	0.7
Physical attack (143)	Yes No	3 (4.1) 70 (95.9)	9 (12.9) 61 (87.1)	3.6	1	0.059
Types of PCT movements (140)	Not moved Within PCT Across PCT	17 (23.3) 14 (19.2) 42 (57.7)	17 (25.4) 18 (26.9) 32 (47.8)	1.6	2	0.45
Distances of Most Recent Move (MRM) (129)	Not moved < 3.75 km* ≥3.75 km*	17 (25.0) 30 (44.1) 21 (30.9)	18 (29.5) 14 (23.0) 29 (47.5)	6.8	2	0.03
Total distances moved (129)	Not moved < 10.2km* ≥ 10.2km*	17 (25.0) 33 (48.5) 18 (26.5)	18 (29.5) 15 (24.6) 28 (45.9)	8.6	2	0.01
Receipt of income Support (143)	Yes No	28 (38.4) 45 (61.6)	16 (22.9) 54 (77.1)	4.0	1	0.045
Categorised Deprivation scores (143)	< 56.5* ≥ 56.5*	3 (4.1) 70 (95.9)	69 (98.6) 1 (1.4)	127	1	0.0001
Types of moves in deprived areas (94)	High to Low Low to High Low to Low	25 (49.0) 6 (11.8) 20 (39.2)	22 (51.2) 16 (37.2) 5 (11.6)	13	2	0.001
Employment in the UK (143)	Unemployed Employed	69 (94.5) 4 (5.5)	59 (84.3) 11 (15.7)	4.0	1	0.046

*Median score was used as a cut off point

Sample source variations

Subjects were recruited from non-health community venues and General Practice (GP) surgeries. There was a significant gender difference between the two sample sources. More females were recruited from the GP surgeries compared to males (69.8% v 30.2%; $\chi^2 = 9.3$, $df = 1$, $p < 0.002$). Significant differences were also found in the type of lease that participants were holding. Large number of the subjects recruited from non health community sites had short term tenancy compared to those from GP registry ($\chi^2 = 9.2$, $df = 1$, $p < 0.002$).

There were also significant differences in the overall social support network in the study subjects. The majority of the community subjects had low levels of social support network beyond their household compared to those recruited from the GP sample ($\chi^2 = 4.4$, $df = 1$, $p < 0.04$). A higher percentage of conventional sample reported to have moved on their own choice ($\chi^2 = 8.2$, $df = 2$, $p < 0.01$). There were no other significant differences between the two sample sources in terms of age, marital status, study areas (East or South), types of mobility among the participants and distances they moved.

Table 6: Differences of socio-demographics and sample sources

Variables (N)	Categories	Community sample (%)	GP sample (%)	χ^2	Df	P-value
Gender (143)	Male Female	58 (58.0) 42 (42.0)	13 (30.2) 30 (69.8)	9.3	1	0.002
Age group (143)	18 – 25 26 - 35 >36	30 (30.0) 38 (38.0) 32 (32.0)	9 (20.9) 19 (44.2) 15 (34.9)	1.2	2	0.5
Location (143)	East South	50 (50.0) 50 (50.0)	23 (53.5) 20 (46.5)	0.1	1	0.7
Marital status (143)	Married Never married Separated, divorced or widowed	53 (53.0) 42 (42.0) 5 (5.0)	19 (44.2) 18 (41.9) 6 (13.9)	3.6	2	0.02
Tenure current (142)	Temporary Permanent	76 (76.8) 23 (23.2)	22 (51.2) 21 (48.8)	9.2	1	0.002
Period in the UK (143)	< 2 years ≥ 2 years	56. (56.0) 44 (44.0)	14 (32.6) 29 (67.4)	6.6	1	0.01
GP contact in the Last 6 months (143)	Yes No	69 (69.0) 31 (31.0)	38 (88.4) 5 (11.6)	6	1	0.01
Network beyond household (143)	Low High	61 (61.0) 39 (39.0)	18 (41.9) 25 (58.1)	4.4	1	0.04
Mobility* (143)	Moved Not moved	71 (71.0) 29 (29.0)	37 (86.0) 6 (14.0)	3.7	1	0.055
Types of PCT movements (140)	No move Within PCT Across PCT	28 (28.9) 20 (20.6) 49 (50.5)	6 (14.0) 12 (27.9) 25 (58.1)	3.7	2	0.15
Choice over move (107)	Not moved Own choice Others choice	28 (28.3) 17 (17.2) 54 (54.5)	6 (14.3) 16 (38.1) 20 (47.6)	8.2	2	0.01
Distances of Most Recent Move (MRM) (129)	Not moved < 3.75 km* ≥ 3.75 km*	29 (30.9) 27 (28.7) 38 (40.4)	6 (17.1) 17 (48.6) 12 (34.3)	5.0	2	0.08
Total distances moved (129)	Not moved < 10.2km* ≥ 10.2km*	29 (30.9) 32 (34.0) 33 (35.1)	6 (17.1) 16 (45.7) 13 (37.2)	2.7	2	0.3
Khat use (103)	Yes No	13 (20.0) 52 (80.0)	4 (10.5) 34 (89.5)	1.6	1	0.2

*Median score was used as a cut off point

Gender Differences

Table 7 presents the results of gender comparison in the study. There were significant differences in the areas of study and the sample sources as mentioned earlier. They also differed in the choices of the place of the interview. More women did prefer to be interviewed at community or educational centre 55.6% (40/72) or at their homes 43.1% (31/72) compared to their male counterparts 39.4% (28/71) and 28.2% (20/71) respectively. Close to one third of the male participants were interviewed at cafes compared to only one woman ($\chi^2 = 25$, $df = 2$, $p < 0.0001$). There was no significant difference between men and women in the age groups. However, the percentage of the women in the age group 26 - 35 was relatively higher than the men in that category. More women reached secondary school or above in Somalia than males (45.8% v 26.8%; $\chi^2 = 5.6$, $df = 1$, $p < 0.02$). There was also significant gender difference in help seeking behaviour. More women reported to have constantly visited refugees centres for help than men did ($\chi^2 = 4.0$, $df = 1$, $p < 0.047$).

A majority of the subjects were unemployed. However, men (15.5%) were more likely to be among the few that had full or part time jobs compared to women 5.5% ($\chi^2 = 3.8$, $df = 1$, $p < 0.05$). As expected, receipt of income support was another variable that showed significant gender differences. More women were on income support compared to males (45.8% v 15.5%; $\chi^2 = 15$, $df = 1$, $p < 0.0001$). Khat consumption was significantly higher in men than in women ($\chi^2 = 15$, $df = 1$, $p <$

0.0001). Majority of the women lived in more deprived areas in their current addresses compared to men ($\chi^2 = 9.6$, $df = 1$, $p < 0.002$). However, when further looked at the patterns of movements in the deprived areas, the analysed data showed that significantly higher percentage of men had moved from lowly deprived areas to highly deprived areas ($\chi^2 = 6.3$, $df = 2$, $p < 0.04$).

Table 7: Differences of socio-demographic variables and gender

Variables (N)	Categories	Male (%)	Female (%)	χ^2	Df	P-value
Age group (143)	18 – 25 26 - 35 >36	22 (31.0) 24 (33.8) 25 (35.2)	17 (23.6) 33 (45.8) 22 (30.6)	2.2	2	0.3
Location (143)	East South	28 (39.4) 43 (60.6)	45 (62.5) 27 (37.5)	7.6	1	0.006
Sample source (143)	Community sample GP sample	58 (81.7) 13 (18.3)	42 (58.3) 30 (41.7)	9.3	1	0.002
Place of Interview (143)	Comm. Centre Home Café	28 (39.4) 20 (28.2) 23 (32.4)	40 (55.6) 31 (43.1) 1 (1.4)	25	2	0.0001
Period in the UK (143)	< 2 Years ≥ 2 Years	36 (50.7) 35 (49.3)	34 (47.2) 38 (52.8)	0.2	1	0.7
Tenure Current (142)	Temporary Permanent	50 (71.4) 20 (28.6)	48 (66.7) 24 (33.3)	0.4	1	0.5
Categorised Education in Somalia (143)	Upto intermediate Secondary & above	52 (73.2) 19 (26.8)	39 (54.2) 33 (45.8)	5.6	1	0.02
residential mobility (143)	Moved Not moved	48 (67.6) 23 (32.4)	60 (83.3) 12 (16.7)	4.7	1	0.03
Types of PCT movements (140)	No move Within PCT Across PCT	22 (31.4) 12 (17.1) 36 (51.4)	12 (17.1) 20 (28.6) 38 (54.3)	5.0	2	0.08
Distances of Most Recent Move (MRM) (129)	Not moved < 3.75 km* ≥ 3.75 km*	23 (33.8) 15 (22.1) 30 (44.1)	12 (19.7) 29 (47.5) 20 (32.8)	9.6	2	0.008
Total distances moved (94)	Not moved < 10.2km* ≥ 10.2km*	23 (33.8) 19 (27.9) 26 (38.2)	12 (19.7) 29 (47.5) 20 (32.8)	6.0	2	0.05
Visit to a Refugee Centre for help (143)	Visited Not visited	22 (31.0) 49 (69.0)	34 (47.2) 38 (52.8)	4.0	1	0.047
Choice over move (141)	Not moved Own Choice Others Choice	22 (31.4) 16 (22.9) 32 (45.7)	12 (16.9) 17 (23.9) 42 (59.2)	4.3	2	0.1
Receipt of income Support (143)	Yes No	11 (15.5) 60 (84.5)	33 (45.8) 39 (54.2)	15	1	0.0001
Khat use (103)	Yes No	16 (34.8) 30 (65.2)	1 (1.8) 56 (98.2)	20	1	0.0001
Employment in the UK (143)	Unemployed Employed	60 (84.5) 11 (15.5)	68 (94.4) 4 (5.6)	3.8	1	0.05
Types of moves in deprived areas (94)	High to Low Low to High Low to Low	24 (53.3) 14 (31.1) 7 (15.6)	23 (46.9) 8 (16.3) 18 (36.7)	6.3	2	0.04
Categorised Deprivation scores (143)	< 56.5* ≥ 56.5*	45 (63.4) 26 (36.6)	27 (37.5) 45 (62.5)	9.6	1	0.002

*Median score

Prevalence of mental disorders of the study subjects

Of the 143 participants, 26% (38) were diagnosed with major depression current (table 8). Of these, 34.2% (13/38) were found to have suffered recurrent depression episode and 44.7% (17/38) met the criterion for major depression with melancholic features. Other significant diagnoses in the sample included post-traumatic stress disorder (14.0%), current agoraphobia (11.9%) and current panic but without agoraphobia (6.3%). Rates of dysthymia, anti social personality disorder, generalized anxiety disorder; alcohol dependence, substance misuse and psychotic disorders were either very low or was not detected at all in the study subjects.

Table 8: Prevalence of Mental Disorders of the study subjects

Diagnoses (N)	Total Prevalence N (%)
Major Depression - current (N =143)	38 (26.6)
Major Depression - recurrent (N =143)	13 (9.1)
Major Depression - melancholia (N =141)	17 (12.1)
Dysthymia (N =143)	2 (1.4)
Level of Suicide risk>0 (N =143)	13 (9.1)
Hypo-manic Episode (N =143)	1 (0.7)
Manic Episode (N =143)	0
Current Panic (no agoraphobia) N =143	9 (6.3)
Current Panic with Agoraphobia (N =143)	2 (1.4)
Current Agoraphobia (no panic) N =143	16 (11.9)
Social phobia (N =143)	0
Obsessive Compulsive Disorder (OCD) (N =143)	2 (1.4)
Alcohol Dependence Current (N =143)	0
Substance Dependence (N =143)	1 (0.7)
Substance abuse-current (N =143)	1 (0.7)
Psychotic Disorder-current (N =143)	1 (0.7)
Psychotic Disorder-lifetime (N =143)	1 (0.7)
Mood disorder with psychotic features (N=143)	0
Anti Social Personality Disorder (N =143)	0
Generalized Anxiety Disorder (GAD) (N =142)	1 (0.7)
Post-traumatic Stress Disorder (PTSD) (N =143)	20 (14)

Common Mental Disorder

Overall, 34.3% (49/143) of the respondents have met criterion for common mental disorder (CMD). Close to half of the cases (46.9%) reported that they were insulted because of their race or religion ($\chi^2 = 6.7$, $df = 1$, $p < 0.01$). Being in temporary accommodation was also associated with high number of common mental disorder compared to those who had long term lease (79.6% v 20.4%; $\chi^2 = 4.0$, $df = 1$, $p < 0.048$).

Common Mental Disorder was also associated with low levels of confiding and emotional support ($\chi^2 = 5.4$, $df = 1$, $p < 0.02$), low levels of relatives network ($\chi^2 = 6.7$, $df = 1$, $p < 0.01$) low levels of friends network ($\chi^2 = 14.0$, $df = 1$, $p < 0.0001$) and combined networks beyond household ($\chi^2 = 15.0$, $df = 1$, $p < 0.0001$). Interviews conducted at respondents residence (49.0%) was very significantly associated with CMD compared to those interviewed at café's (20.4%) or community centres (30.6%). There were no other significant statistics detected between men and women, age groups, study areas (East and South), sample source, period of stay in the UK and contact with general practitioner (GP).

Table 9: Differences between socio-demographic variables and CMD

Variables (N)	Categories	Cases (%)	Non-cases (%)	χ^2	Df	P-value
Gender (143)	Male Female	27 (55.1) 22 (44.9)	44 (46.8) 50 (53.2)	0.9	1	0.3
Age group (143)	18 – 25 26 - 35 >36	10 (20.4) 21 (42.9) 18 (36.7)	29 (30.9) 36 (38.3) 29 (30.9)	1.8	2	0.4
Location (143)	East South	24 (49.0) 25 (51.0)	49 (52.1) 45 (47.9)	0.1	1	0.7
Sample source (site) (143)	Community sample GP sample	30 (61.2) 19 (38.8)	70 (74.5) 24 (25.5)	2.9	1	0.1
Period in the UK (143)	< 2 years ≥ 2 years	25 (51.0) 24 (49.0)	45 (47.9) 49 (52.1)	0.1	1	0.7
GP contact in the Last 6 months (143)	Yes No	38 (77.6) 11 (22.4)	69 (73.4) 25 (26.6)	0.3	1	0.6
Insult	Yes No	23 (46.9) 26 (53.1)	24 (25.5) 70 (74.5)	6.7	1	0.01
Tenure (142)	Temporary Permanent	39 (79.6) 10 (20.4)	59 (63.4) 34 (36.6)	4.0	1	0.048
Confiding/ Emotional support (143)	Low High	26 (53.1) 23 (46.9)	31 (33.0) 63 (67.0)	5.4	1	0.02
Negative aspects of close relations (143)	Low High	32 (65.3) 17 (34.7)	70 (74.5) 24 (25.5)	1.3	1	0.25
Relatives Network (143)	Low High	32 (65.3) 17 (34.7)	40 (42.6) 54 (57.4)	6.7	1	0.01
Friends Network (143)	Low High	31 (63.3) 18 (36.7)	29 (30.9) 65 (69.1)	14.0	1	0.0001
Network beyond household (143)	Low High	38 (77.6) 11 (22.4)	41 (43.6) 53 (56.4)	15.0	1	0.0001
Mobility	Moved Not moved	41 (83.7) 8 (16.3)	67 (71.3) 27 (28.7)	2.7	1	0.1
Types of PCT movements (140)	No move Within PCT Across PCT	8 (16.3) 9 (18.4) 32 (65.3)	26 (28.6) 23 (25.3) 42 (46.2)	4.8	2	0.90
Distances moved (94)	No move < 3.75 km* ≥3.75 km*	8 (18.2) 14 (38.9) 22 (61.1)	27 (31.8) 32 (55.2) 26 (44.8)	4.2	1	0.1
Total Distances moved (94)	< 10.2km ≥10.2 km	15 (41.7) 21 (58.3)	33 (56.9) 25 (43.1)	1.6	1	0.2
Choice to move (141)	Not moved Own choice Others choice	8 (16.3) 9 (18.4) 32 (65.3)	26 (28.3) 24 (26.0) 42 (45.7)	5.1	2	0.08
Khat use (103)	Yes No	9 (29.0) 22 (71.0)	8 (11.1) 64 (88.9)	5.1	1	0.03
Place of interview (143)	Community centre Own Home Café	15 (30.6) 24 (49.0) 10 (20.4)	53 (56.4) 27 (28.7) 14 (14.9)	8.8	2	0.01

Post Traumatic Stress Disorder (PTSD)

Although 72% (103/143) of the participants had experienced or witnessed traumatic events at some point in their life, only 14% (20/143) met the criterion for PTSD. Respondents in the age group 36 – 65 had the highest percentage in the PTSD compared to other age groups ($\chi^2 = 8.3$, $df = 1$, $p < 0.02$). Three quarters of the cases were from the South London sample whereas a quarter of the cases were living in East London ($\chi^2 = 6.3$, $df = 1$, $p < 0.01$).

Like common mental disorder, low levels of social support were more common amongst those with post traumatic stress disorder PTSD. More than half (60.0%) of the PTSD cases reported low levels of confidence and emotional support compared with 40.0% of the high social support group ($\chi^2 = 4.0$, $df = 1$, $p < 0.05$). Similarly, Low levels of friends network ($\chi^2 = 17.7$, $df = 1$, $p < 0.0001$) and overall network beyond household ($\chi^2 = 11.4$, $df = 1$, $p < 0.001$) were very significantly associated with PTSD.

Table 10: Differences of socio-demographic variables and PTSD

Variables (N)	Categories	Cases	Non-cases	χ^2	Df	P-value
Gender (143)	Male Female	11 (55.0) 9 (45.0)	60 (48.8) 63 (51.2)	0.3	1	0.6
Age group (143)	18 – 25 26 - 35 ≥ 36	2 (10.0) 6 (30.0) 12 (60.0)	37 (30.0) 51 (41.5) 35 (28.5)	8.3	2	0.02
Location (143)	East South	5 (25.0) 15 (75.0)	68 (55.3) 55 (44.7)	6.3	1	0.01
Sample source (site) (143)	Community sample GP sample	13 (65.0) 7 (35.0)	87 (70.7) 36 (29.3)	0.3	1	0.6
Period in the UK (143)	< 2 years ≥ 2 years	13 (65.0) 7 (35.0)	57 (46.3) 66 (53.7)	2.4	1	0.1
GP contact in the last 6 months (143)	Yes No	15 (75.0) 5 (25.0)	92 (74.8) 31 (25.2)	0.0	1	1.0
Insult	Yes No	8 (40.0) 12 (60.0)	39 (31.7) 84 (68.3)	0.5	1	0.5
Tenure (142)	Temporary Permanent	16 (80.0) 4 (20.0)	82 (67.2) 40 (32.8)	1.3	1	0.3
Confiding/Emotional support (143)	Low High	12 (60.0) 8 (40.0)	45 (36.6) 78 (63.4)	4.0	1	0.05
Negative aspects of close relations (143)	Low High	12 (60.0) 8 (40.0)	90 (73.2) 33 (26.8)	1.5	1	0.2
Relatives Network (143)	Low High	14 (70.0) 6 (30.0)	58 (47.2) 65 (52.8)	3.6	1	0.58
Friends Network (143)	Low High	17 (85.0) 3 (15.0)	43 (35.0) 80 (65.0)	17.7	1	0.0001
Network beyond household (143)	Low High	18 (90.0) 2 (10.0)	61 (49.6) 62 (50.4)	11.4	1	0.001
Mobility (143)	Not moved Moved	3 (15.0) 17 (85.0)	32 (26.0) 91 (74.0)	1.1	1	0.3
Types of PCT movements (140)	Not moved Within PCT Across PCT	3 (15.0) 3 (15.0) 14 (70.0)	31 (25.8) 29 (24.2) 60 (50.0)	2.8	2	0.3
Distances moved (94)	< 3.75 km* ≥ 3.75 km*	4 (26.7) 11 (73.3)	42 (53.2) 37 (46.6)	3.5	1	0.06
Total Distances moved (94)	< 10.2km ≥ 10.2 km	5 (33.3) 10 (66.7)	43 (54.4) 36 (45.6)	2.2	1	0.1
Choice to move (141)	Own choice Others choice	2 (11.8) 15 (88.2)	31 (34.4) 59 (65.6)	3.4	1	0.06
Legal status	Pending Resolved	7 (35.0) 13 (65.0)	18 (14.6) 105 (85.4)	5.0	1	0.03
Place of interview (143)	Community centre Own Home Café	3 (15.0) 10 (50.0) 7 (35.0)	65 (52.8) 41 (33.4) 17 (13.8)	11.1	2	0.004

Prevalence of aggregated mental disorders (AMD)

Table 11 presents analysis of aggregated mental disorder (AMD) and various variables. Overall, 37.8% (54/143) of the study subjects were found to have at least one diagnosis of mental disorder. Like CMD & PTSD, low levels of social support networks were again associated with aggregated mental disorder (AMD) with low levels of confiding and emotional support ($\chi^2 = 6.9$, $df = 1$, $p < 0.008$), visits and contacts with relatives ($\chi^2 = 9.2$, $df = 1$, $p < 0.002$), visits and contacts with friends ($\chi^2 = 13.1$, $df = 1$, $p < 0.0001$) and overall social support network beyond household ($\chi^2 = 12.4$, $df = 1$, $p < 0.0001$). Furthermore, Khat use ($\chi^2 = 6.7$, $df = 1$, $p < 0.01$) and insult because of race and/or religion ($\chi^2 = 3.7$, $df = 1$, $p < 0.05$) were also both associated with AMD. There were no other significant differences between variables tested and AMD

Table 11: Differences of socio-demographic variables and aggregated mental disorders

Variables (N)	Categories	Cases	Non-cases	χ^2	Df	P-value
Gender (143)	Male	30 (55.6)	41 (46.1)	1.2	1	0.3
	Female	24 (44.4)	48 (53.9)			
Age group (143)	18 – 25	12 (22.2)	27 (30.3)	1.3	2	0.5
	26 - 35	22 (40.7)	35 (39.3)			
	35 - 65	20 (37.0)	27 (30.3)			
Location (143)	East	24 (44.4)	49 (55.1)	1.5	1	0.2
	South	30 (55.6)	40 (44.9)			
Sample source (site) (143)	Comm. sample	34 (63.0)	66 (74.2)	2.0	1	0.2
	GP sample	20 (37.0)	23 (25.8)			
Period in the UK (143)	< 2 years	28 (51.9)	42 (47.2)	0.3	1	0.6
	≥ 2 years	26 (48.1)	47 (52.8)			
GP contact in the Last 6 months (143)	Yes	41 (75.9)	66 (74.2)	0.06	1	0.8
	No	13 (24.1)	23 (25.8)			
Insult	Yes	23 (42.6)	24 (27.0)	3.7	1	0.05
	No	31 (57.4)	65 (73.0)			
Tenure (142)	Temporary	42 (77.8)	56 (63.6)	3.1	1	0.077
	Permanent	12 (22.2)	32 (36.4)			
Confiding & Emotional support (143)	Low	29 (53.7)	28 (31.5)	6.9	1	0.008
	High	25 (46.3)	61 (68.5)			
Negative aspects of close relations (143)	Low	36 (66.7)	66 (74.2)	0.9	1	0.3
	High	18 (33.3)	23 (25.8)			
Relatives Network (143)	Low	36 (66.7)	36 (40.4)	9.2	1	0.002
	High	18 (33.3)	53 (59.6)			
Friends Network (143)	Low	33 (61.1)	27 (30.3)	13.1	1	0.0001
	High	21 (38.9)	62 (69.7)			
Network beyond household (143)	Low	40 (74.1)	39 (43.8)	12.4	1	0.0001
	High	14 (25.9)	50 (56.2)			
Khat use (103)	Yes	10 (30.3)	7 (10.0)	6.7	1	0.01
	No	23 (69.7)	63 (90.0)			
Legal status (143)	Pending	11 (20.4)	14 (15.7)	0.5	1	0.5
	Resolved	43 (79.6)	75 (84.3)			
Employment in the UK (143)	Unemployed	52 (96.3)	76 (85.4)	4.3	1	0.04
	Employed	2 (3.7)	13 (14.6)			
Place of interview (143)	Comm. Centres	17 (31.5)	51 (57.3)	9.2	2	0.01
	Home	26 (48.1)	25 (28.1)			
	Cafe	11 (20.4)	13 (14.6)			

RESULTS

PART TWO

Will attempt to:

- ❑ Examine the relationship between residential mobility and mental health of Somali refugees.
- ❑ Establish whether mobility across primary care trust (pct) boundaries is associated with higher risk of mental disorder than within pct movers.
- ❑ Investigate the role of choice over move in the development of mental disorder and lower service use.
- ❑ Explore whether distances moved are associated with mental disorder.
- ❑ Examine whether low social support, levels of deprivation and discrimination in the form of verbal abuse do influence the relationship between residential mobility and mental disorder.

Residential Mobility & Socio-demography

In **table 12**, I explored the relationship between residential mobility (dichotomised) and number of socio-demographic characteristics. These cross tabulations revealed that significantly more female participants made one or more moves compared to males (55.6% v 44.4%; $\chi^2 = 4.8$, df =1, p<0.03). More movers reported that they had experienced racism, in the form of insult, because of their race, colour or religion compared to non movers ($\chi^2 = 5.2$, df =1, p<0.02). With regard to the type of lease that participants had, the analyses showed that higher percentage of those who had permanent tenure had previously changed their address suggesting that a permanent address required more moves ($\chi^2 = 5.5$, df =1, p<0.02).

There was also significant difference between movers and non-movers with respect to contact with the General Practice (GP) surgeries. Movers 87/108 (80.5%) had more contact than those who had only stayed at one address since arrival in the UK ($\chi^2 = 7.7$, df =1, p<0.006). A greater proportion of those granted permission to stay in the UK had moved at least once compared to those who stayed at one address ($\chi^2 = 4$, df =1, p < 0.047). No associations were noted between the mobility variables and khat use, age group or study areas (East and South London).

Table 12: Differences of socio-demographic variables and Mobility

Variables (N)	Categories	Not Moved	Moved	χ^2	Df	P-value
Gender (143)	Male Female	23 (65.7) 12 (34.3)	48 (44.4) 60 (55.6)	4.8	1	0.03
Age group (143)	18 – 25 26 - 35 < 36	14 (40.0) 13 (37.1) 8 (22.9)	25 (23.1) 44 (40.7) 39 (36.2)	4.3	2	0.12
Location (143)	East South	17 (48.6) 18 (51.4)	56 (51.9) 52 (48.1)	0.1	1	0.74
Sample source (site) (143)	Community GP sample	29 (82.9) 6 (17.1)	71 (65.7) 37 (34.3)	3.7	1	0.055
Period in the UK (143)	< 2 years ≥ 2 years	26 (74.3) 9 (25.7)	44 (40.7) 64 (59.3)	12.0	1	0.001
GP contact in the last 6 months (143)	Yes No	20 (57.1) 15 (42.9)	87 (80.6) 21 (19.4)	7.7	1	0.006
Insult (143)	Yes No	6 (17.1) 29 (82.9)	41 (38.0) 67 (62.0)	5.2	1	0.02
Tenure (142)	Temporary Permanent	29 (85.3) 5 (14.7)	69 (63.9) 39 (36.1)	5.5	1	0.02
Confiding & Emotional support (143)	Low High	17 (48.6) 18 (51.4)	40 (37.0) 68 (63.0)	1.5	1	0.2
Negative aspects of close relations (143)	Low High	24 (68.6) 11 (31.4)	78 (72.2) 30 (27.8)	0.8	1	0.7
Relatives Network (143)	Low High	20 (57.1) 15 (42.9)	52 (48.1) 56 (51.9)	0.9	1	0.4
Friends Network (143)	Low High	16 (45.7) 19 (54.3)	44 (40.7) 64 (59.3)	0.3	1	0.6
Network beyond household (143)	Low High	22 (62.9) 13 (37.1)	57 (52.8) 51 (47.2)	1.1	1	0.3
Khat use (103)	Yes No	20 (80.0) 5 (20.0)	66 (84.6) 12 (15.4)	0.3	1	0.6
Legal Status (143)	Pending Resolved	10 (28.6) 25 (71.4)	15 (13.9) 93 (86.1)	4.0	1	0.047
Aggregated Mental Disorder (143)	Yes No	8 (22.9) 27 (77.1)	46 (42.6) 62 (57.4)	4.4	1	0.04
Common Mental Disorder (143)	Yes No	8 (22.9) 27 (77.1)	41 (38.0) 67 (62.0)	2.7	1	0.1
PTSD	Yes No	3 (8.6) 32 (91.4)	17 (15.7) 91 (84.3)	1.1	1	0.3

Socio-demographic variables and categorised mobility

In Table 13, more male participants 23/35 (65.7%) reported to have stayed at one address whereas more females were associated with higher frequency of residential changes ($\chi^2 = 5.5$, $df = 2$, $p < 0.06$). Percentage of participants who received income support increased with frequency of moves ($\chi^2 = 8.3$, $df = 2$, $p < 0.02$) and majority of those moved 3 to 6 times were not claiming job seekers allowance ($\chi^2 = 9.4$, $df = 2$, $p < 0.009$). Permanently re-housed subjects increased with number of moves ($\chi^2 = 7$, $df = 2$, $p < 0.03$) as did contact with General Practitioner ($\chi^2 = 7.7$, $df = 2$, $p < 0.02$) and more significantly with the longer periods of stay in the UK ($\chi^2 = 16$, $df = 2$, $p < 0.0001$).

Moving 3 to 6 times was strongly associated with insult because of race, colour or religion ($\chi^2 = 12.2$, $df = 2$, $p < 0.002$). High levels of friends' network ($\chi^2 = 6.3$, $df = 2$, $p < 0.04$), high levels of relatives' network ($\chi^2 = 9.4$, $df = 2$, $p < 0.02$) and high levels of networks beyond household ($\chi^2 = 7.2$, $df = 2$, $p < 0.03$) were also found to have an association with residential mobility (categorised). Those living in highly deprived areas had a greater frequency of moves compared to those living in less deprived areas. However, their differences did not reach statistical significance. Similarly, older age-groups (26 - 35 and 36 - 65) seemed to have moved more compared to younger participants.

Table13: Socio-demographic variables and categorised mobility

Variables (N)	Categories	No Move (%)	Upto 2 Moves (%)	3 to 6 Moves (%)	χ^2	DF	P-Value
Gender (143)	Male	23 (65.7)	35 (47.3)	13 (38.2)	5.5	2	0.06
	Female	12 (34.3)	39 (52.7)	21 (61.8)			
Age groups (143)	18 – 25	14 (40)	17 (23)	8 (23.5)	5.4	4	0.2
	26 – 35	13 (37.1)	28 (37.8)	16 (47.1)			
	≥ 36	8 (22.9)	29 (39.2)	10 (29.4)			
Physical attack (143)	Yes	1 (2.9)	9 (12.2)	2 (5.9)	3	2	0.2
	No	34 (97.1)	65 (87.8)	32 (94.1)			
Insult (143)	Yes	6 (17.1)	22 (29.7)	19 (55.9)	12.4	2	0.002
	No	29 (82.9)	52 (70.3)	15 (44.1)			
Income support (143)	Yes	7 (20.0)	20 (27.0)	17 (50.0)	8.3	2	0.02
	No	28 (80.0)	54 (73.0)	17 (50.0)			
Job seekers Allowance (143)	Yes	9 (25.7)	39 (52.7)	10 (29.4)	9.4	2	0.009
	No	26 (74.3)	35 (47.3)	24 (70.6)			
emotional support (143)	Low	17 (48.6)	31 (41.9)	9 (26.5)	3.8	2	0.15
	High	18 (51.4)	43 (58.1)	25 (73.5)			
Friends network (143)	Low	16 (45.7)	36 (48.6)	8 (23.5)	6.3	2	0.04
	High	19 (54.3)	38 (51.4)	26 (76.5)			
Negative aspect (143)	Low	24 (68.6)	54 (73)	24 (70.6)	0.2	2	0.9
	High	11 (31.4)	20 (27)	10 (29.4)			
Relatives network (143)	Low	20 (57.1)	42 (56.8)	10 (29.4)	7.8	2	0.02
	High	15 (42.9)	32 (43.2)	24 (70.6)			
Network beyond household (143)	Low	22 (62.9)	45 (60.8)	12 (35.3)	7.2	2	0.03
	High	13 (37.1)	29 (39.2)	22 (64.7)			
Deprivation score (143)	< 56.5	18 (51.4)	41 (55.4)	13 (38.2)	2.8	2	0.2
	≥ 56.5	17 (48.6)	33 (44.6)	21 (61.8)			
Tertiled deprivation score (143)	High	11 (31.4)	18 (24.4)	8 (23.5)	2.2	4	0.7
	Medium	15 (42.9)	32 (43.2)	12 (35.3)			
	Low	9 (25.7)	24 (32.4)	14 (41.2)			
Employment in UK (143)	Unemployed	32 (91.4)	68 (91.9)	28 (82.4)	2.4	2	0.3
	Employed	3 (8.6)	6 (8.1)	6 (17.6)			
GP contact, last six months (143)	Yes	20 (57.1)	60 (81.1)	27 (79.4)	7.7	2	0.02
	No	15 (42.9)	14 (18.9)	7 (20.6)			
Legal status (143)	Pending	10 (28.6)	11 (14.9)	4 (11.8)	4.1	2	0.1
	Resolved	25 (71.4)	63 (85.1)	30 (88.2)			
Location (143)	East	17 (48.6)	34 (45.9)	22 (64.7)	3.4	2	0.2
	South	18 (51.4)	40 (54.1)	12 (35.3)			
Marital status (143)	Married	17 (48.6)	37 (50)	18 (52.9)	0.1	2	0.9
	Not married	18 (51.4)	37 (50)	16 (47.1)			
Period of stay in the UK (143)	< 2 years	26 (74.3)	35 (47.3)	9 (26.5)	16	2	0.0001
	≥ 2 years	9 (25.7)	39 (52.7)	25 (73.5)			
Sample source (143)	Community	29 (82.9)	51 (68.9)	20 (58.8)	4.8	2	0.09
	GP sample	6 (17.1)	23 (31.1)	14 (41.2)			
Tenure current (142)	Temporary	29 (85.3)	50 (67.6)	19 (55.9)	7	2	0.030
	Permanent	5 (14.7)	24 (32.4)	15 (44.1)			

Residential Mobility and Mental Health

As can be seen from the table below, change in accommodation ($\chi^2 = 4.4$, $df = 1$, $p < 0.04$), movement within and across PCT boundaries ($\chi^2 = 7.1.1$, $df = 2$, $p < 0.03$), choice over house move ($\chi^2 = 9.1$, $df = 2$, $p < 0.01$), distance of the most recent move (MRM) ($\chi^2 = 12$, $df = 2$, $p < 0.003$) and the total distances moved (TDM). ($\chi^2 = 7.5$, $df = 2$, $p < 0.02$) were all significantly related to Aggregated Mental Disorders (AMD). Diagnosis of AMD was also associated with patterns of movements in the deprived areas ($\chi^2 = 7.5$, $df = 2$, $p < 0.02$)

Table 14: Differences of mobility, choice, distance and AMD

Variables (N)	Categories	Cases (%)	Non-cases (%)	χ^2	Df	P-value
Mobility (143)	Not moved Moved	8 (14.8) 46 (85.2)	27 (30.3) 62 (69.7)	4.4	1	0.04
Types of PCT movements (140)	Not moved Within PCT Across PCT	8 (14.8) 10 (18.5) 36 (66.7)	26 (30.2) 22 (25.6) 38 (44.2)	7.1	2	0.03
choice of house move (141)	Not moved Own choice Others choice	8 (14.8) 9 (19.6) 37 (80.4)	26 (29.9) 24 (39.3) 37 (60.7)	9.1	2	0.01
Distance of Most Recent move* (129)	Not moved < 3.75 km* ≥ 3.75 km*	8 (16.3) 13 (26.5) 28 (57.1)	27 (33.8) 31 (38.8) 22 (27.5)	12	2	0.003
Total distance moved (129)	Not moved < 10.2km ≥ 10.2km	8 (16.3) 17 (34.7) 24 (49.0)	27 (33.8) 31 (38.8) 22 (27.5)	7.5	2	0.02
Types of moves in deprived areas (94)	High to Low Low to High Low to Low	21 (51.2) 14 (34.1) 6 (14.6)	26 (49.1) 8 (15.1) 19 (35.8)	7.5	2	0.02

*Median score

STRATIFIED ANALYSIS

Gender, Residential Mobility and Aggregated Mental Disorders

Among those moved, males were significantly more likely to be cases than females ($\chi^2 = 8.6$, $df = 1$, $p < 0.003$). When further tested differences on the frequency of moves, males who were cases were again found to have moved significantly more than females ($\chi^2 = 10.3$, $df = 2$, $p < 0.006$). Men who crossed PCT boundaries ($\chi^2 = 10.8$, $df = 2$, $p < 0.004$), were also moved against their wishes ($\chi^2 = 10.7$, $df = 2$, $p < 0.005$). There were very significant difference between males and females with regard to most recent move ($\chi^2 = 13.6$, $df = 2$, $p < 0.001$) and total distance moved ($\chi^2 = 14$, $df = 2$, $p < 0.001$). These results have not been adjusted for other potential variables.

Table 15: Gender differences in relation to residential mobility and Aggregated Mental Disorders (AMD)

		Aggregated Mental Disorders			
		Men		Women	
Risk Factor (N)		Cases N (%)	Non-cases N (%)	Cases N (%)	Non-cases N (%)
Mobility (143)	Not moved	4 (13.3)	19 (46.3)	4 (16.7)	8 (16.7)
	Moved	26 (86.7)**	22 (53.7)	20 (83.3)	40 (83.3)
Tertiled Mobility (143)	Not moved	4 (13.3)	19 (46.3)	4 (16.7)	8 (16.7)
	Upto 2 moves	17 (56.7)	18 (43.9)	14 (58.3)	25 (52.1)
	3 – 6 Moves	9 (30.0)**	4 (9.8)	6 (25.0)	16 (31.3)
PCT moves (140)	Not moved	4 (13.3)	18 (45.0)	4 (16.7)	8 (17.4)
	Within PCT	4 (13.3)	8 (20.0)	6 (25.0)	14 (30.4)
	Across PCT	22(73.3)**	14 (35.0)	14 (58.3)	24 (52.2)
Choice to move (141)	Not moved	4 (13.3)	18 (45.0)	4 (16.7)	8 (17.0)
	Own choice	6 (20.0)	10 (25.0)	3 (12.5)	14 (29.8)
	Others choice	20 (66.7)**	12 (30.0)	17 (70.8)	25 (53.2)
Most Recent (129) Move (MRM)	Not moved	4 (13.8)	19 (48.7)	4 (20.0)	8 (19.5)
	< 3.75km ^Δ	5 (17.2)	10 (25.6)	8 (40.0)	21 (51.2)
	> 3.75km ^Δ	20 (69.0)***	10 (25.6)	8 (40.0)	12 (29.3)
Total distances (94) Moved (TDM)	Not moved	4 (13.8)	19 (48.7)	4 (20.0)	8 (19.5)
	< 10.2km ^Δ	7 (24.1)	12 (30.8)	10 (50.0)	19 (46.3)
	> 10.2km ^Δ	18 (62.1)***	8 (20.5)	6 (30.0)	14 (34.1)

^ΔMedian

*P-value ≤ 0.05, **P-value ≤ 0.01, ***P-value ≤ 0.001

Social support, Residential Mobility and Aggregated Mental Disorders

Table 16 shows the levels of social support in relation to residential mobility and AMD. Cases that were on the move had lower social support than those who have not moved ($\chi^2 = 4.3$, $df = 1$, $p < 0.04$). Similarly, when I sub-categorised mobility, more cases who moved up to two times had reported low social support ($\chi^2 = 6.1$, $df = 1$, $p < 0.05$). Cases who moved against their wish were found to have low levels of social support ($\chi^2 = 6$, $df = 2$, $p < 0.05$). While cases with low social support and moving across the PCT boundaries were just outside the significant level ($\chi^2 = 5.4$, $df = 2$, $p < 0.07$). Cases who in their most recent move involved longer distance than 3.75 km were found to have high social support ($\chi^2 = 6.4$, $df = 1$, $p < 0.01$). However, total distance moved in all addresses resided was not related to levels of social support.

Table 16: Social Support differences in relation to residential mobility and aggregated mental disorders (AMD)

Risk Factor (N)		Low Social Support		High Social support	
		Cases	Non-cases	Cases	Non-cases
		N (%)		N (%)	
Mobility (143)	Not moved	7 (17.5)	15 (38.5)	1 (7.1)	12 (24.0)
	Moved	33 (82.5)*	24 (61.5)	13 (92.9)	38 (76.0)
Tertiled Mobility (143)	No move	7 (17.5)	15 (38.5)	1 (7.1)	12 (24.0)
	Upto 2 moves	24 (60.0)*	21 (53.8)	7 (50.0)	22 (44.0)
	3 – 6 Moves	9 (22.5)	3 (7.7)	6 (42.9)	16 (32.0)
PCT moves (140)	No move	7 (17.5)	15 (39.5)	1 (7.1)	11 (22.9)
	Within PCT	8 (20.0)	9 (21.0)	2 (14.3)	14 (29.2)
	Across PCT	25 (62.5)	15 (39.5)	11 (78.6)	23 (47.9)
Choice of move (141)	No move	7 (17.5)	15 (38.5)	1 (7.1)	11 (22.9)
	Own choice	6 (15.0)	8 (22.5)	3 (21.4)	16 (33.3)
	Others' choice	27 (67.5)*	16 (41.0)	10 (71.4)	21 (43.8)
Most Recent (94) Move (MRM)	3.75km & less ^Δ	12 (40.0)	12 (57.1)	2 (18.2)	20 (62.5)
	3.75km & above ^Δ	18 (60.0)	12 (42.9)	9 (81.8)*	12 (37.5)
Total distances (94) Moved (TDM)	10.2km & less ^Δ	14 (46.7)	12 (57.1)	3 (27.3)	19(59.4)
	10.2km & above ^Δ	16 (53.3)	9 (42.9)	8 (72.7)	13 (40.6)

^ΔMedian

*P-value ≤ 0.05, **P-value ≤ 0.01, ***P-value ≤ 0.001

Area Deprivation, Residential Mobility and Aggregated Mental Disorders

In **table 17**, More cases that had crossed the PCT boundaries were resident in deprived areas with a score of less than 56.5^a ($\chi^2 = 7.7$, $df = 2$, $p < 0.02$). More cases that lived in highly deprived areas (> 56.5 on the deprivation score) were found to have moved distance that was greater than 3.75 km in their most recent move ($\chi^2 = 4.1$, $df = 1$, $P < 0.04$). Total distances moved did not also show any difference with regard to deprivation score. Though not significant, however, cases who reported to have been moved against their choice were living more in highly deprived areas (> 56.5 on the deprivation score) compared to those moved on their own choice.

^aMedian

Table 17: Differences of the area of deprivation in relation to residential mobility and aggregated mental disorders

Risk Factor (N)		Area of deprivation Score			
		< 55 ^Δ		>55 ^Δ	
		Cases N (%)	Non-cases	Cases N (%)	Non-cases
Mobility (143)	Not moved	5 (16.1)	13 (31.7)	3 (13.0)	14 (29.2)
	Moved	26 (83.9)	28 (68.3)	20 (87.0)	34 (70.8)
Mobility (143)	No move	5 (16.1)	13 (31.7)	3 (13.0)	14 (29.2)
	Upto 2 moves	19 (61.3)	22 (53.7)	12 (52.2)	21 (43.8)
	3 – 6 Moves	7 (22.6)	6 (14.6)	8 (34.8)	13 (27.1)
PCT moves (140)	No move	5 (16.1)	12 (31.6)	3 (13.0)	14 (29.2)
	Within PCT	5 (16.1)	13 (34.2)	5 (21.7)	9 (18.8)
	Across PCT	21 (67.7)*	13 (34.2)	15 (65.2)	25 (52.0)
Choice of move (141)	No move	5 (16.1)	12 (30.8)	3 (13.0)	14 (29.2)
	Own choice	5 (16.1)	9 (23.1)	4 (17.4)	15 (31.2)
	Others' choice	21 (67.7)	18 (46.2)	16 (69.6)	19(39.6)
Most Recent (94) Move (MRM)	3.75km & less ^Δ	6 (27.3)	10 (45.5)	8 (42.1)	22 (71.0)
	3.75km & above ^Δ	16 (72.7)	12(54.5)	11(57.9)*	9 (29.0)
Total distances (94) Moved (TDM)	10.2km & less ^Δ	8 (36.4)	8 (36.4)	9 (47.4)	23 (74.2)
	10.2km & above ^Δ	14 (63.6)	14 (63.6)	10 (52.6)*	8 (25.8)

^ΔMedian

*P-value ≤ 0.05, **P-value ≤ 0.01, ***P-value ≤ 0.001

Logistic Regression

Residential mobility & aggregated mental disorder (AMD)

The stratified and tabulated descriptive analyses show wide confidence intervals and so power may be limited in such analyses. Regression modelling was therefore employed to adjust for age and gender and other explanatory and confounding factors to investigate independent relationships between mobility and mental health outcome. These models were stratified by gender to show differential effects by gender suggested in the stratified analyses.

In the unadjusted model (Table 18), I found that residential mobility was associated with AMD [Odds Ratio (OR) = 2.5; Confidence Interval (CI) = 1.0 – 6.0; $p = 0.04$]. When adjusted for age and gender (model 1) the effect still stayed the same. Adding marital status and social network beyond household (model 2), my analysis showed increased risk of mental disorder (OR = 3.5; CI = 1.3 - 9.2; $p = 0.01$). However, when further adjusted for insult because of race, colour or religion, legality of the participants' stay in the UK, tenure current and the duration of stay in the UK (model 3), the risk of AMD diagnosis stayed the same (OR = 3.5; CI = 1.2 – 9.9; $p = 0.02$). When stratified by gender, men with AMD were more likely to change address (OR, 4.9; CI: 1.3 – 19; $p < 0.02$) than women (OR, 2.0; CI: 0.5 - 11.1; $p < 0.2$) even after adjusting for all possible confounding variables in model 3.

Table 18: Relationship between residential mobility and aggregated mental disorders (AMD)

Predictor		Unadjusted OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
Residential Mobility					
All (N = 143)					
Not moved	35	1	1	1	1
Moved	108	2.5 (1.0 to 6.0)*	2.7 (1.1 to 6.8)*	3.5 (1.3 to 9.3)**	3.5 (1.2 to 9.9)*
Men (N = 71)					
Not moved	23	1	1	1	1
Moved	48	5.6 (1.66 to 19.0)**	5.4 (1.6 to 18.6)**	5.7 (1.6 to 21.0)**	4.9 (1.3 to 19)*
Women (N = 72)					
Not moved	12	1	1	1	1
Moved	60	1.0 (0.3 to 3.7)	1.0 (0.3 to 3.9)	1.8 (0.4 to 7.80)	2.0 (0.4 to 11.1)

*P-value ≤ 0.05, **P-value ≤ 0.01, ***P-value ≤ 0.001

Model 1: controlled for age and gender

Model 2: further controlled for marital status and network beyond household.

Model 3: also adjusted for Legal status insult, tenure current and period of stay in the UK.

Movement within and across PCT boundaries and AMD

In crude logistic regression, those crossing the primary care trust (PCT) boundaries were more likely to have diagnosis of AMD (OR = 3.1; CI = 1.2 – 7.7; p = 0.02) than those moving within the PCT boundary (OR = 1.5; CI = 0.5 – 4.4; p= 0.48). However, when similarly adjusted for explanatory variables such as age, gender, marital status and social network beyond household (model 2), the effect size became even bigger (OR = 4.3; CI = 1.6 – 11.6; p = 0.004) compared to those moving within PCT boundaries (OR = 2; CI = 0.7 – 8.5; p = 0.3). The OR's between crossing the PCT boundaries and AMD remained stronger when further adjusted (model 3) for insults, legal status, tenure current and period of stay in the UK (OR = 4.0; CI = 1.4 – 11.5; p = 0.005).

Similarly, regression analysis showed that there is significant gender difference. In all models (unadjusted, 1, 2, 3), men who crossed the PCT boundaries when changing address were 6 times more likely to be diagnosed with AMD (table 19) than their female counterparts.

Table 19: Relationship between Primary Care Trust (PCT) movements and Aggregated Mental Disorders (AMD)

Predictor		Unadjusted OR (95% CI)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
PCT movements					
All	(N=140)				
Not moved	34	1	1	1	1
Within PCT moves	32	1.5 (0.5 to 4.4)	1.5 (0.50 to 4.72)	2.0 (0.62 to 6.70)	2.4 (0.67 to 8.5)
Across PCT moves	74	3.1 (1.2 to 7.7)*	3.2 (1.30 to 8.20)*	4.3 (1.60 to 11.6)**	4.0 (1.4 to 11.5)**
Men	(N = 70)				
Not moved	22	1	1	1	1
Within PCT moves	12	2.3 (0.4 to 11.3)	2.2 (0.42 to 11.1)	2.3 (0.44 to 12)	2.2 (0.3 to 14.5)
Across PCT moves	36	7.1 (2.0 to 25.1)**	7.0 (2.0 to 25.4)**	7.6 (2.0 to 29.3)**	6.2 (1.5 to 25.5)**
Women	(N = 70)				
Not moved	12	1	1	1	1
Within PCT moves	20	0.9 (0.2 to 4.0)	0.7 (0.15 to 3.90)	1.6 (0.30 to 9.60)	1.8 (0.3 to 12.5)
Across PCT moves	38	1.2 (0.3 to 4.6)	1.1 (0.30 to 4.43)	2.0 (0.42 to 9.60)	4.2 (0.4 to 12.2)

*P-value ≤ 0.05, **P-value ≤ 0.01, ***P-value ≤ 0.001

Model 1: controlled for age and gender

Model 2: further controlled for marital status and network beyond household.

Model 3: also adjusted for Legal status insult, tenure current and period of stay in the UK.

Choice over move and AMD

Table 20, shows the effect of choice over move* or lack of it on the mental health of the study participants. Compared to own choice (OR = 2.1; CI = 0.6 – 7.4; p = 0.3), the risk of mental disorders was 2 to 3 times more in others choice after adjusting for all potential variables (OR = 4.3; CI = 1.5 – 12.4; p = 0.008). When stratified by gender, male participants, who reported that they were moved against their choice, were found to have increased risk of becoming mentally ill (OR = 4.3; CI = 1.5 – 12.4; p = 0.008) compared to females (OR = 2.7; CI = 0.5 – 15.4; p = 0.3).

*Choice over move is categorised into three categories:

- **Not moved:** Those who did not move and stayed at their current accommodation.
- **Own choice:** those who moved to an accommodation of their choice or at least were happy with the move.
- **Others choice:** those who had no choice and moved to another accommodation against their will.

Table 20: Relationship between choice over move and Aggregated Mental Disorders (AMD)

Predictor		Unadjusted	Model 1	Model 2	Model 3	
		<u>OR (95% CI)</u>	<u>OR (95% CI)</u>	<u>OR (95% CI)</u>	<u>OR (95% CI)</u>	
Choice to move						
All	(N=141)					
	Not moved	34	1	1	1	
	Own choice	33	1.2 (0.4 to 3.7)	1.3 (0.4 to 3.9)	1.8 (0.5 to 5.8)	2.1 (0.6 to 7.4)
	Others choice	74	3.3 (1.3 to 8.1)**	3.6 (1.4 to 9.4)**	4.5(1.6 to 12)**	4.3 (1.5 to 12)**
Men	(N=70)					
	Not moved	22	1	1	1	
	Own choice	16	2.7 (0.6 to 12)	2.6 (0.6 to 12)	2.5 (0.5 to 12)	2.6 (0.5 to 14)
	Others choice	32	7.5 (2.0 to 27)**	7.4 (2.0 to 27)**	7.7 (2.0 to 30)**	6.7 (1.6 to 28)**
Women	(N=71)					
	Not moved	12	1	1	1	
	Own choice	17	0.4 (0.1 to 2.4)	0.4 (0.07 to 2.5)	0.8 (0.1 to 5.3)	0.9 (0.1 to 7.3)
	Others choice	42	1.4 (0.4 to 5.2)	1.3 (0.3 to 5.3)	2.4 (0.5 to 11)	2.7 (0.5 to 15.4)

*P-value ≤ 0.05, **P-value ≤ 0.01, ***P-value ≤ 0.001

Model 1: controlled for age and gender

Model 2: further controlled for marital status and network beyond household.

Model 3: also adjusted for Legal status insult, tenure current and period of stay in the UK.

Most Recent Move and AMD

Table 21 shows the findings of the distances moved (measured in kilometers) from the previous address to the address that the participant resided at the time of the interview. I also measured the total distance moved for all participants who made one address change. In both measurements, the median (< or > 3.75 km) was taken as a cut-off point. The crude odds ratio of the Most Recent Move (MRM) was significantly associated with Aggregated Mental Disorders (AMD) (OR = 4.3; CI = 1.6 – 11, $p = 0.003$). However, when further adjusted for more possible confounders variables in Model 3, the association still remained highly significant (OR = 5.1; CI = 1.6 – 16.1; $p = 0.005$). Gender difference was once again evident in the models constructed. The odds of moving distance that was greater than 3.75 km in the most recent move was over 10 times higher for men in the third model (OR = 10.5; CI = 2.2 – 49; $p = 0.003$) than females.

Table 21: Relationship between Most Recent Move (MRM) and Aggregated Mental Disorders (AMD)

Predictors		Unadjusted	Model 1	Model 2	Model 3
		<u>OR (95% CI)</u>	<u>OR (95% CI)</u>	<u>OR (95% CI)</u>	<u>OR (95% CI)</u>
Most Recent Move					
All (N=129)					
Not moved	35	1	1	1	1
< 3.75 km [§]	44	1.4 (0.5 to 3.9)	1.4 (0.5 to 4.4)	1.9 (0.6 to 6.0)	1.9 (0.5 to 6.0)
≥ 3.75 km [§]	50	4.3 (1.6 to 11)**	4.2 (1.6 to 11)**	5.7 (2.0 to 16)***	5.2 (1.7 to 16)**
Men (N=68)					
Not moved	23	1	1	1	1
< 3.75 km	15	2.3 (0.5 to 10.8)	2.2 (0.5 to 10)	2.6 (0.5 to 13)	2.0 (0.4 to 12)
≥ 3.75 km	30	9.5 (2.5 to 35)***	9.8 (2.6 to 37)***	12 (2.8 51.3)***	10.5 (2.2 to 49)**
Women (N=61)					
Not moved	12	1	1	1	1
< 3.75 km	29	0.8 (0.2 to 3.2)	0.7 (0.2 to 3.3)	1.8 (0.3 to 10)	2.0 (0.3 to 14)
≥ 3.75 km	20	1.3 (0.3 to 6.0)	1.2 (0.3 to 6.0)	1.7 (0.3 to 10)	1.6 (0.2 to 11)

*P-value ≤ 0.05, **P-value ≤ 0.01, ***P-value ≤ 0.001

[§] Median Score

Model 1: controlled for age and gender

Model 2: further controlled for marital status and network beyond household.

Model 3: also adjusted for Legal status, insult, tenure current and period of stay in the UK.

Total Distance Moved and AMD

The unadjusted OR for the total distance that is greater than 10.2km during subjects' stay in the UK was associated with aggregated mental disorders (AMD) (OR = 3.7; CI = 1.3 – 9.7; p = 0.009). Although the confidence interval was getting wider (model 3), the results remained significant when adjusted for all potential variables (OR = 4.6; CI = 1.4 – 15; p = 0.01). As my other variable of interest, the analysis showed significant gender difference with men scoring higher odds in model 3 (OR = 12; CI = 2.3 – 61; p = 0.003).

Table 22: Adjusted regression models for the Total Distance Moved (TDM) with Aggregated Mental Disorders (AMD) as the outcome variable.

Predictors		Unadjusted	Model 1	Model 2	Model 3
		OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Total Distances Moved					
All (N=129)					
Not moved	35	1	1	1	1
< 10.2 km [§]	44	1.8 (0.7 to 4.9)	2.0 (0.7 to 5.6)	2.5 (0.8 to 7.5)	2.7 (0.8 to 8.8)
≥ 10.2 km [§]	50	3.7 (1.3 to 9.7)**	3.8 (1.4 to 10.3)**	5.2 (1.8 to 15.3)**	4.6 (1.4 to 15)**
Men (N=68)					
Not moved	23	1	1	1	1
< 10.2 km	19	2.8 (0.7 to 11)	2.8 (0.6 to 11)	3.0 (0.7 to 13)	2.9 (0.6 to 14)
≥ 10.2 km	26	10 (2.7 to 42)***	10 (2.7 to 41)***	14 (3.1 to 67)***	12 (2.3 to 61)**
Women (N=61)					
Not moved	12	1	1	1	1
< 10.2 km	29	1.0 (0.3 to 4.4)	1.0 (0.2 to 4.5)	2.6(0.4 to 15)	3.1 (0.4 to 23)
≥ 10.2 km	20	0.8 (0.2 to 4.0)	0.8 (0.2 to 4.0)	1.2 (0.2 to 7.1)	0.8 (0.1 to 7.0)

*P-value ≤ 0.05, **P-value ≤ 0.01, ***P-value ≤ 0.001

[§] Median Score

Model 1: Adjusted for age and gender

Model 2: further adjusted for marital status and network beyond household.

Model 3: also adjusted for Legal status, insult, tenure current and period of stay in the UK.

Discussion

Summary of the principle findings

To date, this is the first study that investigated the relationship between residential mobility and mental disorders of Somali refugees in two of the poorest boroughs in London. Initial analyses showed that residential mobility is associated with aggregated mental disorders and after adjusting for all possible explanatory and confounding variables, the risk of becoming mentally ill is three times higher in those who changed their residential address compared to those who did not.

Those crossing primary care trust (PCT) boundaries are four times more likely to be diagnosed with mental disorder than those who only moved within one PCT. Lack of choice during residential relocation process is associated with the risk of developing mental disorders compared to those who were happy with the relocation decision.

Moving greater than 3.75km in the most recent residential move is associated with mental disorder. This association remained when further explored the relationship between mental disorder and total distances moved (that is greater than 10.2km) during the preceding five and half years.

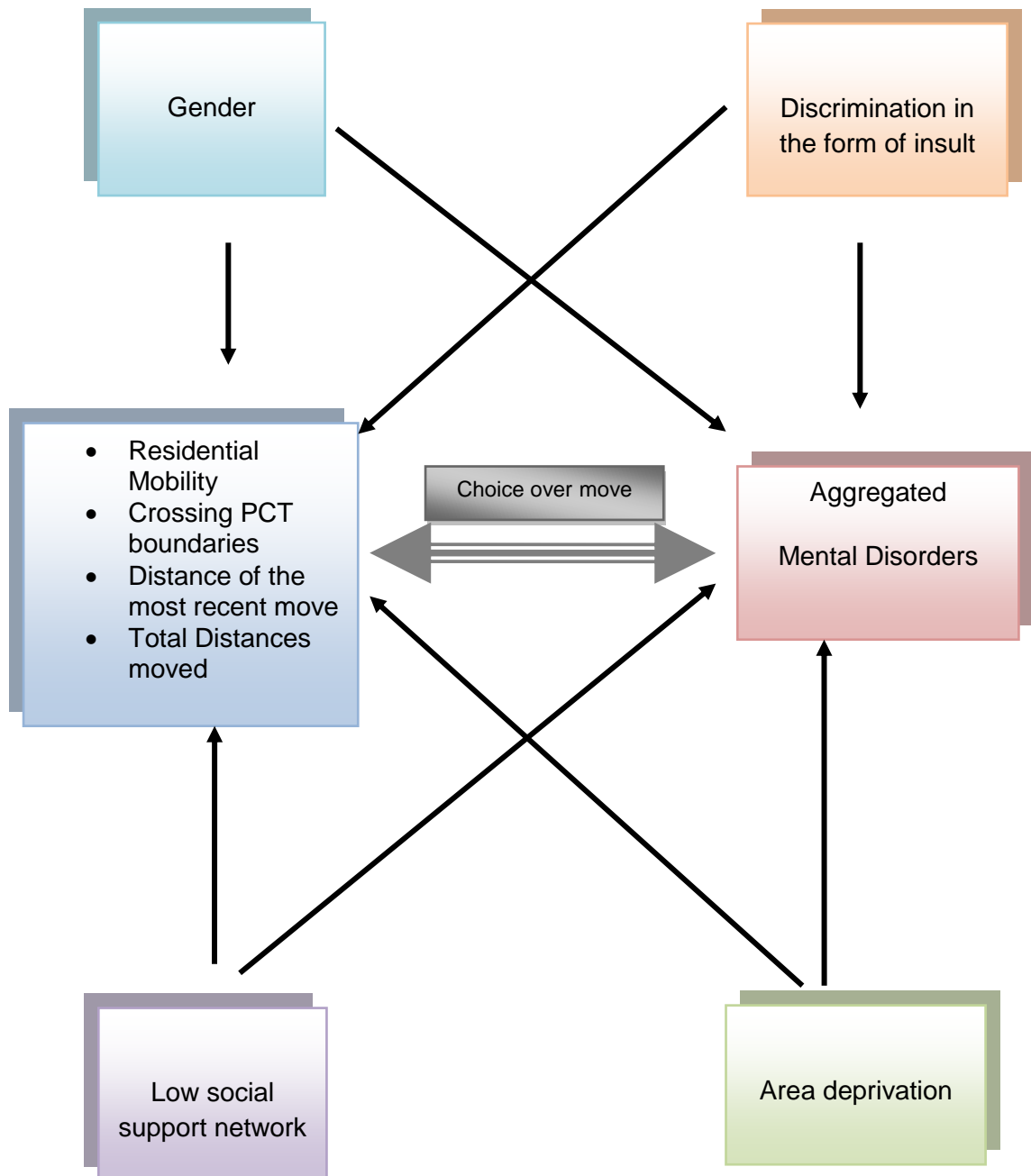
There was no gender difference in the rates of common mental disorder, post-traumatic stress disorder and aggregated mental disorders. However, there is a gender difference in relation to residential mobility and mental disorder. Regression models also showed that males who are cases are more likely to cross the PCT boundaries, not given choice over move and score significantly higher odds in their most recent move and the total distances moved.

Initial results showed an association between social support network beyond household and aggregated mental disorders but not residential mobility and social support. However, after more refined analyses, it was evident that an association does exist between the two variables.

Discrimination (in the form of insult because of race, colour or religion) is independently associated with residential mobility, crossing PCT boundaries, lack of choice over move, distances moved and mental disorders. This study did not find any relationship between physical attack and mobility.

Finally, data showed higher percentage of males have moved from lowly deprived areas to highly deprived areas. This study also found that high percentage of subjects with mental disorders drifted to highly deprived areas while non cases with stronger social networks either moved to similar socio-economic or slightly better areas.

Figure 4: Principle findings presented as a model diagram



Residential Mobility & Socio-economic variables

Before testing the study hypotheses, the present study explored the independent influences that socio-economic characteristics have on the residential mobility and mental health. This initial work was important to better understand the inter-relationships of social capital, residential mobility and mental health. The study found that 75.5% of the participants did change address in their first five and half years with females moving compared to males. There are number of potential reasons to why women participants moved more. One possible explanation was that re-housing chances were better particularly in the East End of the city of London where there were organised women's groups that helped new arrivals. This argument is supported by a finding from another study that found women were better in help seeking behaviour compared to men. Another factor which may partly explain is the fact that women who were on the move had higher levels of relatives' network than men. This kind of network is a commonly practiced culture in the Somali community which may allow some women to move from one relative's house to another without much difficulty.

As expected, new arrivals are sheltered in temporary accommodation in which this study also confirmed but surprisingly, 28% of the participants still lived in temporary accommodation after staying more than two years in the UK. Leave to remain in the UK and duration of stay were found to have association with residential mobility. The longer participants stayed, the more likely that they make at least one move. Significantly higher proportion of the movers had a contact with their general

practitioners in the last six months. One possible explanation could be the use of the accident and emergency (A & E) in place of primary care and hence mix up the two care setting. This kind of scenario was reported from Somali refugees in Minneapolis (DeShaw, 2006) and other minority groups in the US (Kleinman, *et al*; 1981) where they used the emergency department for routine care.

Residential Mobility and Mental health

This study demonstrated that a significantly increased risk for mental disorders is associated with residential mobility. This effect stayed after adjusting for age and gender in the first model and marital status, overall social support network beyond household, legal status, discrimination, tenure current and period of stay in the UK in subsequent models. This finding is consistent with broader literature that found positive relationship between residential mobility and mental disorder. For example, Lamont (2000) reported that a greater number of hospital days were associated with increased residential mobility among non refugees in inner city residents in London while Larson (2004) and Lix (2006) have both found similar trends among Australians and Canadians respectively.

The results further revealed that men who were cases were more likely to change their residential address compared to female participants. The trend remained strong after similar adjustments for possible explanatory and confounding factors. The findings disagreed with some earlier studies (Magdol, 2002; Larson *et al*, 2004) that reported stress associated with residential mobility was only significant for

women. They argued that the events leading to the actual move may have had significant psychological stress on the women as they prepare the household items for relocation. However, sample characteristics in this study were different from those in the above studies in at least two aspects. This study looked at refugee subjects with little or no options and secondly, house moves were managed by third party that may not consult with the mover.

The effect of social capital, especially in the form of social networks, on the participants' mental well-being was evident in this study. A recent refugee study (Lamba and Krahn, 2003) highlighted the value of such social capital and its protective effects in the resettlement process. Disrupting such an important asset could be detrimental to the refugees' mental wellbeing. Number of other studies also found that change of residence is a burden to most people and may disrupt their familiar environment, lead to psychological distress as well as a breakdown of the social support network (Pettit, B., 2004; Stack, S., 1980; South, S. J. & Haynie, D.L., 2004; Tucker, C. J. et al., 1998).

Choice over move and mental health

Lack of choice over residential moves is associated with the risk of mental disorder in the study subjects even after adjusting for all potential variables. However, refugees may share frequency of house moves with local populations and the circumstances that propel their residential changes are very much different from that of the host populations. While local individuals and households may move in response to their socio-economic, urban and economic needs (Kan, K; 1999),

refugees and asylum seekers are mainly in the hands of the homeless agencies, Local Authorities' housing sector or private landlords.

Although re-housing procedure has now changed to bidding system introduced by the local authorities in London, it made little difference to the aspect of choice for those who have higher points. However, for families with more than three children and single homeless people, who may have the lowest points, are still facing extreme difficulties in securing council or housing association properties. Several studies have suggested ways in which relocation stress may be minimized (Adshead *et al*, 1991). A qualitative study reported patients' suggestions for improving relocation procedures may include visits to the new location and introductions to the new staff and residents before the move (Osborne *et al*, 1990). This is the case in London boroughs' recently introduced bidding system where those short listed are invited to view the property.

Area deprivation, social support and discrimination

Variance at the level of deprivation scores among the participants was low in most analyses as they were recruited from places that have same socio-economic profiles. However, the few analyses that showed an association between deprivation scores and mental disorders were consistent with larger literature (Boyle *et al*, 2001; Boydell, J. 2001, Kruger, D. J. 2007). These studies reported people in poorer neighbourhoods are generally less healthy and are concentrated in inner city areas close to town centres. Researchers (DeVerteuil *et al*, 2007; Lamont, *et al*, 2000)

argue that schizophrenic patients change their address more often and are more likely to move into deprived neighbourhoods.

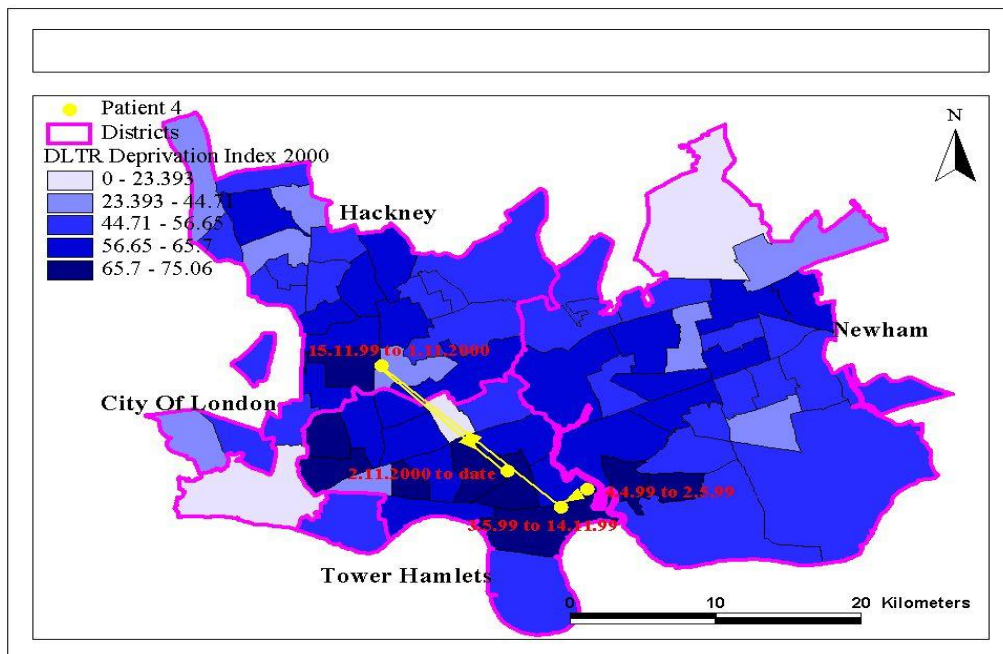
However, there could be number of other reasons to why mentally ill and socially disadvantaged populations tend to move into deprived neighbourhoods. One possible explanation may be the perceived high levels of social support (pull factor) which has been linked to good health in socially disadvantaged populations across the globe (Fone, D. *et al* 2007; Stafford *et al* 2003). Being part of a community enhances the likelihood of better social bonding (Boydell, J. *et al*, 2001 & Xue, Y., 2005), which in turn increases trust, attachment to the place, confidence or respect for others and practical support. These factors will eventually lead to low levels of mental disorders.

The finding that study subjects who were on the move had experienced verbal abuse because of their colour or religion had higher levels Aggregated Mental Disorder is consistent with other research studies carried out among Somali refugees in London (Warfa *et al*, 2006) and in Canada (Young, 1996). This perceived discrimination was also reported in other refugee groups (Noh, S. *et al*, 1999; Laban, C.J. *et al*, 2005). However, residential segregation may play significant role in creating an environment that may not be suitable for migrants and refugees thereby acting like push factor.

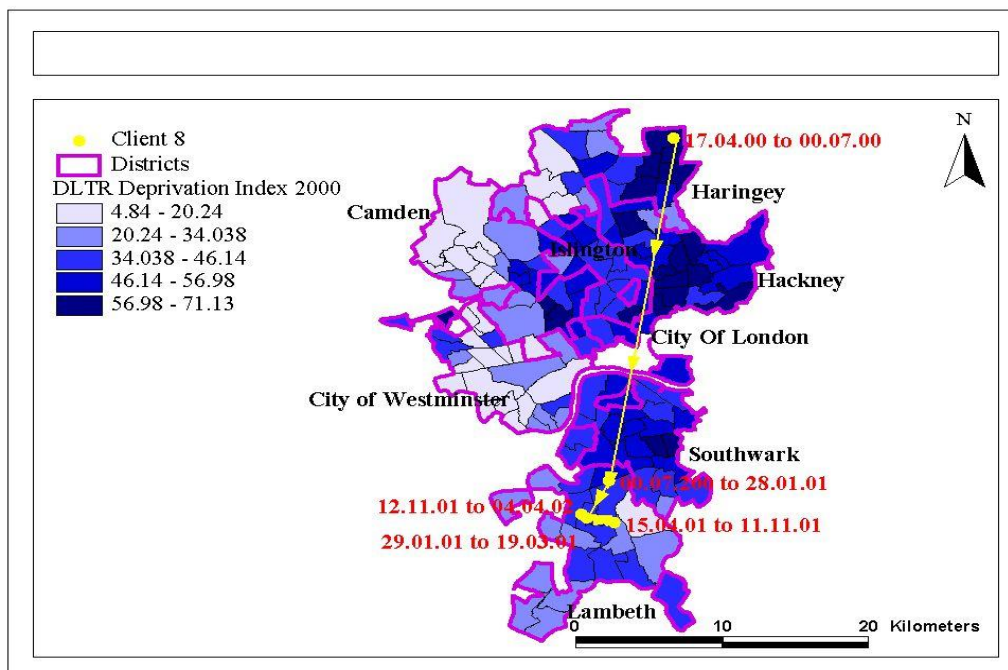
Crowder, K. (1999, 2001) in the US reported that West Indians were largely confined by the housing authorities to areas of large black concentrations while on the other hand they themselves appeared to have preferred to live somewhat separate

residential areas. South and Crowder (1997) also found that ethnic minorities particularly blacks were less likely than whites to be able to move out of poor areas and when they do so were more likely to move back into poorer areas. These findings indicated that housing policies may also influence downward social mobility while at the same time increasing the level of perceived discrimination between the poor and the affluent neighbourhoods.

Map 5a and b show examples of the participants' residential mobility and areas involved.



Map 5b

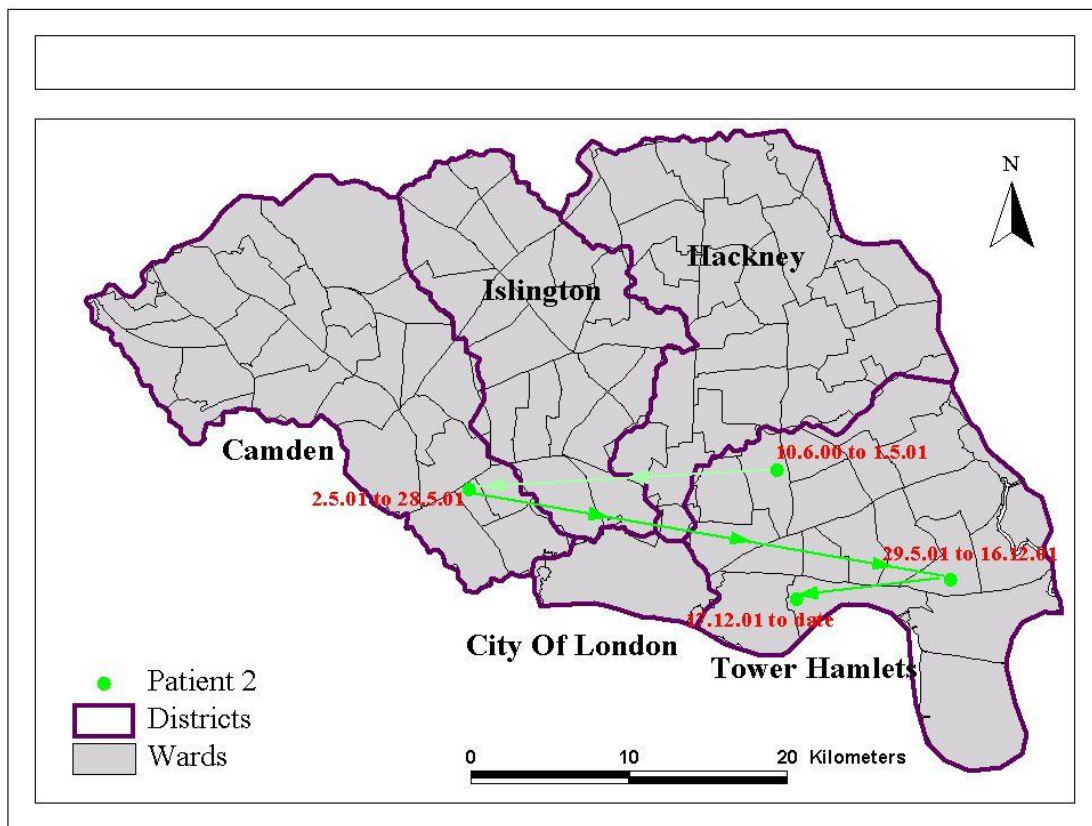


PCT moves and Mental Health

Crossing Primary Care Trust (PCT) boundaries is associated with aggregated mental disorders compared to participants who moved within the PCT boundaries. Despite this strong association, very few of the study subjects had contact with psychiatric care, psychological and social services. This finding agreed with a separate report (McCrone, *et al*, 2005) of the same study group and McColl & Johnson (2006) who studied refugees in London both reported that high levels of unmet needs and low level of service use. However, other studies (Fowler *et al*, 1993, Duchon *et al*, 1999) of minority and black population also found that family and poor mothers' residential mobility was related to lack of regular medical care. They also suggested that although residential instability increases the likelihood of lack of regular care, cultural and linguistic difficulties may also play mediating role in the relationship between residential mobility and lower levels of service use.

Similar to whether or not participants changed their address, findings show significant gender difference. In all models, men who crossed the PCT boundaries were more likely to be diagnosed with mental disorder than their female counterparts.

Map 6 : shows one subject's movement within and across primary care trust movement



Most Recent Moves and Total Distances moved

My third hypothesis was that there would be significant association between aggregated mental disorder and distances of the most recent move. This association remained significant even after adjusting for possible confounding factors. This also confirmed that men with mental disorders were more likely to move longer distances than women after similarly controlling for confounding factors. This finding is consistent with Larson, *et al* (2004), who studied residential mobility in Australian women and found that females with multiple visits to a medical specialist were significantly associated with shorter moves. However, moving to a new place of residence, particularly when it involves longer distances, can be a stressful

experience even for healthy adults. For Homeless and other vulnerable persons with already stressed lives (Fowler, et al; 1993), distances moved may further worsen symptoms and increase the likelihood of lack of regular primary care use in the short term.

Strengths of the study

- ❖ The objectives of this study have been to add to the growing literature on the refugees' post-migration live events by focusing directly on the influence of residential mobility on the mental well-being of Somali refugees in London. Some of the strengths of this study stems from the mapping strategies that involved setting up unique protocols for a novel method to engage with highly mobile populations in which, most studies struggled to sample.

- ❖ Unlike convenience and clinical sampling methods used in refugees research, participants in this study were recruited from General Practice registers and community venues that included internet cafes, restaurants, community training centres etc using culturally and scientifically acceptable recruitment methods that included conducting interviews in subjects' homes and in the case of women participants, public areas were always preferred than private places.

- ❖ Contrary to previous studies conducted among Somali migrants and refugees (Silveira & Ebrahim, 1995), this study succeeded to recruit almost equal

numbers of men and women to produce findings that could be as close to as the general population.

- ❖ Though it was extremely challenging, I used variety of methods to obtain correct six digit residential post codes which enabled me to trace residential mobility and create databases area of deprivation scores. As far I know this kind of database is the first in the UK to trace and measure the movement of socially excluded populations and understand reasons and patterns of their movements.

- ❖ Another important strength of this study is the translation and validation of the study questionnaires that included the Mini Neuro-psychiatric Interview (Bhui *et al*; 2006).

Limitations

In interpreting these findings, certain limitations of the present study design should be considered.

1. Despite employing number of strategies to increase the sampling frame, there were number of factors that slowed down the recruitment drive from both conventional and non-conventional venues. First, Somali civil war started in 1991 exactly the year UK population census was carried out. Majority of the

Somali refugees and asylum seekers thus arrived in the UK after the 1991 census. Secondly, the 2001 census coincided with the beginning of this study and thirdly, other potential sources such as general practice registers did not have up-to-date contact details that could have enabled us to contact potential participants. Lack of interest in research participation and having more important issues such as state welfare and securing some sort of shelter were also encountered during the recruitment period. These methodological difficulties were reported in previous studies conducted among refugees during data collection. Past studies also found number of other important factors which included suspicions and fear of the immigration authorities (Silove, *et al*; 1997; Spring *et al*; 2003) particularly among those who were waiting a decision from the Immigration Authorities. With this in mind, I did not consider Immigration and Nationality Directorate (IND) of the UK department of Home Office as a potential source of recruitment hence not approached.

2. This study relied on cross-sectional data based solely on the information obtained from the participants thereby restricting the ability to determine the causal directions of the observed associations. For example, the associations between residential mobility, crossing primary care trust boundaries, distances moved and mental disorders in the study subjects may have been due to prior mental illness which may have increased the propensity to move or vice versa. These associations can only be ascertained by carrying out longitudinal study that follows same participants for a specific period of time.

3. There was no comparison from the same ethnic group. However, study consistency was checked against the published studies of other refugees and non-refugee groups.

4. Despite GPs providing lists, it was difficult to reach out to most of the listed people because of incorrect and outdated telephone numbers, contact addresses and on most occasions name similarities with other Muslim ethnic populations. Substantial numbers from the non-conventional venues have either been dispersed through Home Office schemes or turned down the invitation to be included in the study. Because of that, potential participants may have been excluded.

5. Failure to find association in some variables could be due to the lack of variability among the study participants, majority of who had same socio-economic background. For example, almost all participants lived and moved within highly deprived areas, had poor educational levels and majority were unemployed.

Future directions

This study highlighted the effect of residential mobility on refugees' mental health. To build on this baseline data, future research that measures mental health effect of refugee families and children on the move will be necessary to further understand the interrelationships between residential mobility and mental health, the magnitude that these residential changes have on the continuation of care and the level of social support disruption that refugees face while on the move. Secondly, how these residential changes influence future opportunities of the individuals involved and thirdly, apart from conventional elements of unemployment, poor educational backgrounds and health status, there is a need for greater understanding of the roles that social support networks and racism play in the process of drifting new migrants into inner city areas.

This kind of work may only be accomplished by conducting prospective study that follows these refugees for number of years thereby informing policy makers of the areas that need to be tackled upon refugee's arrival. The findings suggest that service providers should respond to refugees needs for treatment of a range of psychiatric disorders including common mental disorders, khat use, post traumatic stress disorders and major depression. There is a need for multidimensional intervention involving strictly supervised pharmacological based treatment, psychotherapy and counselling programmes by trained and culturally competent community mental health workers and fully exploiting the existing support mechanisms available from the family and wider community members.

These findings have also implications for both the national and international refugee resettlement policies and further underline the importance of scientific research to support observations of health professionals and social care workers within this field. Other salient issues arising from this study include sections recording residential change history in order to bridge the gaps in assessing the physical and mental health of highly mobile populations. There is a need to specifically collect full postal address which should contain the house number, correct street name, city and postal code. Additional information that is vital for follow up studies on such populations include: contact address and telephone number of at least two people preferably a relative and friend in case the subject moves on.

CONCLUSION

The present study adds to the growing literature on the association of post-migration difficulties and particularly residential mobility and mental disorders. Although residential mobility can be of beneficial and improvement in terms of moving into better accommodation for the individuals concerned, this study established that the high degree of residential mobility, moving across primary care trust boundaries, lack of choice over move, distances between the last and most recent move and the total distances moved are predictors of mental disorders among the Somali refugees in London.

This study also identified the role that neighbourhood characteristics, perceived discrimination and the individuals' social capital may play in mediating the relationships between downward residential mobility and mental disorders. The patterns and mechanisms of residential changes identified in the study and their associations with mental disorders did highlight the growing difficulties that refugees and asylum seekers face in the host country and the impact that this have on their mental status. However, as this is a cross-sectional study, it is hard to distinguish whether frequent change of residence was a causal risk factor or just an intermediate variable of other risk factors for mental disorder. The findings from this study suggest the importance of safeguarding the psychological and social well-being of the movers by ensuring properly managed resettlement programmes. The need for effective housing programme coupled with culturally appropriate mental health intervention, is warranted.

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Measuring Mental Health and Social Outcomes in Mobile Populations Barts & The Royal London & Queen Mary College

Information and invitation to Participate in a Research Project

- We invite you to take part in a research study which we think may be important. The information which follows tells you about it. It is important that you understand what is in this leaflet. It says what will happen if you take part and what the risks might be. Try to make sure you know what will happen to you if you decide to take part. Whether or not you do take part is entirely your choice. Please ask any questions you want to about the research and we will try our best to answer them.

- You have been identified as a suitable person to participate in the research as you are of Somali origin. This research is aiming to talk to Somali people about their experience of health services and also what their healthcare needs are, with particular emphasis on emotional issues and the difficulties of entry into the UK. If you agree to participate, I will ask you some questions. The interview will last no more than one hour. There are no special treatments or investigations so the research is simply a survey about your healthcare needs and use of health services. The research will not be of immediate or direct benefit to you but will benefit the community. We know very little of the health and social care needs of the Somali refugees. This study will help us plan for future treatment needs and also include your opinions in how services might develop in the future. We are asking people aged between 18 and 65 and of Somali origin to participate.

- Your confidentiality will be protected although we have your name written down now this will not be used in any electronic information. The information will only be accessible by the research team and will be kept locked in research offices. This will not be made available to any one who asks for it unless they are directly involved in the research. If you agree to take part in this study, subject to your permission, we might need to validate your interview data against your medical records. For further information you can contact any member of the research team on 020 7882 7729. Or you can contact the team leader Dr K Bhui on 020 7882 7727.

- You don't have to join the study. You are free to drop out at any time. If you decide not to be in the study, or drop out, this will not put at risk your ordinary medical care.

Participant consent form

Title of project:

MEASURING MENTAL HEALTH AND SOCIAL OUTCOMES IN MOBILE POPULATION. Developing a methodology to engage Somali refugees and assess their health, social status, service use and mobility across PCG boundaries.

The participant should complete the whole of this sheet *himself/Herself/Other
*(**please delete as necessary**)

Have you been asked to consent for yourself or on behalf of someone else? SELF/OTHER

If your answer to the above is “ other “, please give the name of the person for whom you are consenting

Have you received enough information about this study? YES / NO

Have you read the information sheet for participants? YES / NO

Have you had an opportunity to ask questions about the study? YES / NO

Have you received satisfactory answer to all of your questions? YES / NO

Have you specifically been explained that we might need to validate your Interview data against your GP's and other health care sites' records? YES / NO

Who have you spoken to? Dr/Mr/Ms.....

Do you understand that you are free to withdraw from the study at any time, Without having to give a reason for withdrawing and without affecting your future medical care? YES / NO

Do you agree to take part in this study? YES / NO

Signed..... Date.....

(NAME IN BLOCK LETTERS).....

Sample letter to General Practitioners

Dear

Date.....

Re: Somali Mobility and Mental Health Research

We are pleased to inform you that the Department of Psychiatry, Queen Mary has been carrying out the above project since April last year. We have been interviewing refugees and asylum seekers from Somalia who are aged 18 – 65, currently living in Tower Hamlets and came to this country in the last 5½ years. The recruitment has been taking place at both non-conventional sites, such as community centres, cafes, mosques, khat houses etc, and conventional sites such as general practitioner surgeries. In total we planned to interview 75 people of whom 50 have already been recruited from the non-conventional sites. The remaining 25 are to be recruited from the GP surgeries.

On the recommendation of a senior Somali health advocate, we have identified six potential GPs, among the 42 surgeries currently operating in Tower Hamlets, as our recruitment sites. These are Jubilee Street Practice (JSP), Albian Health Centre (AHC), Lime House Practice (Gill St), Bromley by Bow Health Centre (BBHC), St Stephens Health Centre (SHC) and Tredegar Practice (TP). This study has been approved by the East London and The City Health Authority.

Basically, we would request you to give us the names and addresses of the potential patients so we can contact them to seek their permission to be interviewed. If they agree, then we would ask them to sign a consent form, which will enable us to carry out triangulation (double-checking of the information they give against their GP records) pending your consent. So far JSP agreed to work with us and we started interviewing some of their patients.

We would be very grateful if you could help us get these lists as soon as it is practical. I would be willing to meet you at your practice at the earliest opportunity. If you need further information, please do not hesitate to contact me on 020 7882 7729.

Yours sincerely

Salaad Mohamud
Researcher SOMMER Project

**Somali Mobility and Mental Health Research
Queen Mary's School of Medicine & Dentistry
University of London**

Dear colleague,

Please list all potential participants who have come to UK in the **last five years**, currently living in **Tower Hamlets** or **Lambeth** and aged between **18 and 65**.

Participant's name : _____

Address : _____

Tel: _____

Participant's name : _____

Address : _____

Tel: _____

Participant's name : _____

Address : _____

Tel: _____

Participant's name : _____

Address : _____

Tel: _____

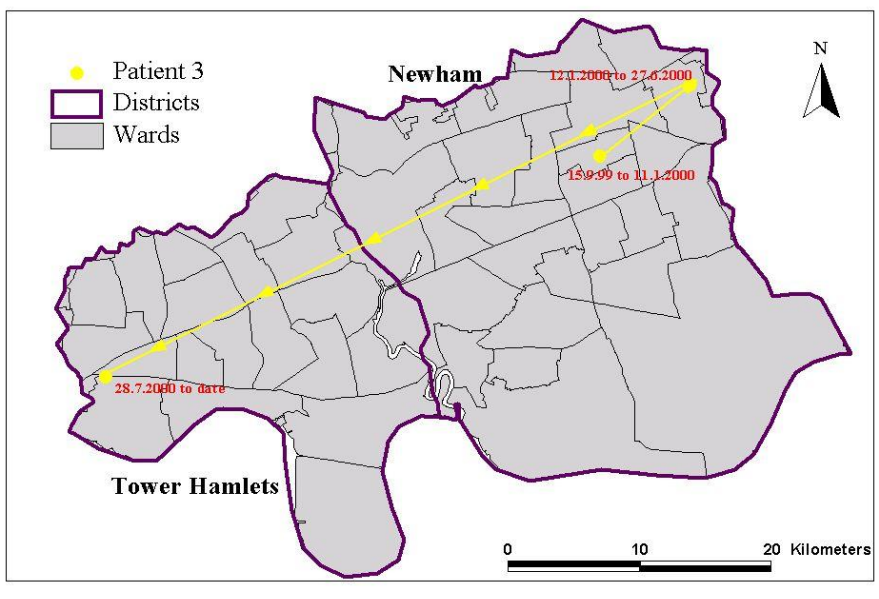
Participant's post codes that enabled me to generate

ID	move 1	move 2	move 3	move 4	move 5	move 6	move 7
1	SW9 7NG	SW9 8DA					
2	SW9 9ES	SE26 5ET	W12 7AQ				
3	SW9 9ES						Correct codes
4	SW9 9ES	SW16 6ER	SW17 0RN			Black =	proxy codes
5	SW9 9ES	SE27 9AH	SE5 8DL			Blue =	Incomplete
6	MISSING	MISSING	MISSING			Green =	Missing
7	SW4 6QU	SW2 4QY				Red =	
8	SE11 5HY	SW16 5RU					
9	SW8 2BX	HA0 4UZ					
10	SW8 2BX	NW4 2RX					
11	SW8 2BX						
12	SW8 2BX	SW9 9NN					
13	SW8 2BX	E13 9EG					
14	SW8 2BX	UB1 3JT					
15	SW2 4LA	SW9 6SN					
16	SW11 5NW	SE5 7NG	SW17 8LB	SW16 5LG			
17	SW8 2BX						
18	SW8 2BX	E5 0BS	N15 5LT				
19	SW6 5DW	SW2 5DL	SE27 9PY	SW16 6ER			
20	SW16 2NL	SW4 9DG	SW16 1QL				
21	SW16 2JG						
22	SW8 2BX						
23	SE1 4JW						
24	SW8 2BX						
25	SW8 2BX	E15 1QE					
26	SW8 2BX						
27	SE17 3AW	SE5 8DG	SE11 4QU				
28	SW9 7SH	SE24 9DL	SW9 0AA	SW12 9DU			
29	MISSING	MISSING	MISSING				
30	SW12 8HR						
31	SW4 6RZ	W12 7RW	HA0 4TH				
32	SW8 1BB	SW2 4QG					
33	SW16 2JG	SE1 6AD					
34	SW16 2UL	UB1 3JP					
35	SW9 8UB	SE11 6DU	INCOMPLETE				
36	SW2 2EX						
37	MISSING						
38	SW11 2SE	SW16 6QX					
39	SE11 6UF	SW2 5LT					
40	SW17 0EJ						
41	SW8 4EP	SW6 6PG	W14 8TR				
42	SW16 2DY	W12 9PZ					
43	SE4 1UE						
44	SW4 0AB	SW16 5AG	E13 0NF				
45	INCOMPLETE	INCOMPLETE	MISSING	MISSING			

46	SE11 6NA	SW9 6BE	MK14 7DL	LE2 0UW	SW9 9ES	N1 9PR		
47	SE11 6NA	HA2 6LB	E17 4HA					
48	SW8 1HA	SW4 9DJ	M40 7WE	M40 2RA	CT9 2HS	INCOMPLETE		
49	SW9 0RH	INCOMPLETE	SW16 3HG	SW16 1PR				
50	SW9 8TP							
51	SW2 4LZ	MISSING	SW16 2DY					
52	SW16 2NN							
53	SW16 2NN	SW16 2RN	W1U 5LL					
54	SW9 8LN	SW16 2SS	SW4 9BW					
55	SW9 8TB	SW16 5XU	SW12 0ND					
56	INCOMPLETE	INCOMPLETE	INCOMPLETE	INCOMPLETE				
57	SW2 4PH	INCOMPLETE	MISSING					
58	SW9 7NU	W10 5XX						
59	SW8 2BX							
60	SW9 7NG	SW9 8SD						
61	SW8 2BX	MISSING	E1 1DW	MISSING				
62	SW2 3AL	SW9 9ES						
63	SW16 3NW	SE22 0JT	SE11 5NS	SW16 2NX				
64	SW9 8TN	SW16 2EJ	SW16 5RY					
65	SW9 7TA	SW16 5RD	W14 9ES	INCOMPLETE				
66	INCOMPLETE	MISSING	SW12 0BP	SW8 2BX	MISSING	INCOMPLETE		
67	SW8 1QE	SW2 1DT	NW10 8DG					
68	SE11 4SJ							
69	SW8 4EB							
70	SW2 1HY	SE24 9DL	SW2 2BS	SW9 8RR	N17 0TS			
101	E16 4LF	E13 0HL	N16 5RA	CT9 2HS	E12 6UE	E13 9AD	E1 6SA	
102	E3 3PY	E17 4AZ	E1 3ER	E1 2QQ				
103	E2 6AX	E1 1SP						
104	E2 6HW	W1U 5LL	E14 0DG	NW3 4BL	N8 7QB			
105	E14 3NB	E14 0PW	EC1V 8EL					
106	E1 5DX	MISSING	IG1 2TX					
107	E1 4UN	E17 5JN	E12 5JY	W10 4RE	N5 1HP			
108	E1 4UN	SE5 7BQ	SW4 0QW	E10 7JD				
109	E1 4AU	E1 5NG	E1 4SX					
110	E14 6AW							
111	E14 8DY	E2 9QD						
112	E14 0LS	E3 3RL	N21 1DP					
113	E3 3HD							
114	E3 4AP	E14 6DU						
115	E14 7QN	E17 3AX	E1 1LP					
116	E12 5RG	E7 8QH						
117	E3 3RZ							
118	E3 3RW	E9 7QZ	E14 0HR	HA0 4TH	E14 0JB			
119	E14 6DY							
120	E3 4BB							
121	E3 5TB	MISSING	IG4 5AW	SE16 2AE				
122	E14 0AY	E1 5NG	W3 6EX					
123	E1 5QU	E16 3NN						
124	E1 5NG	E7 0AD	MISSING	M60 2RJ	CT9 2HS			
125	E1 5NG	UB2 5TS						

126	E1 4QZ						
127	E14 7AR						
128	E14 0AY	E1 7TF	E1 3ER				
129	E1 5NG	N7 7NG					
130	E3 4BB	E3 2AD	N4 1DQ	E3 3PF			
131	E1 4QU						
132	E1 4SS	E12 6HN	E14 6DY				
133	E14 0LS	E3 3RL	N14 4EJ				
134	E14 0DB	E3 4LT					
135	E15 3QT						
136	E3 5LW						
137	E1 5ER	E15 2TE					
138	E2 0QZ	E1 0HF					
139	E1 5ER	E1 5QU					
140	E1 5RF	S6 3GB	S10 3GD	E2 0QZ			
141	E1 3LW						
142	E1 3LJ	N8 0EE	E3 4EL				
143	E3 5LA						
144	E2 6LH						
145	E1 0NB	E8 3NR	E2 6BU				
146	E14 6QG	WC1H 9HB	E1 5DX	IG1 2TX			
147	E14 6QG	WC1H 9HB					
148	E1 5QU	E1 5QU	E1 5QU	E1 4AY			
149	E14 7AB	E1 5NG	HA0 4ED				
150	E1 5QU	E1 5NG	SW9 0AP				
151	E1 5RZ	E1 4AU	E16 3JY	E15 1EX			
152	E1 5QU	E2 6BU	E7 9ND	E13 8HR			
153	E1 3LW	E14 0HR	E1 8HS	E1 0HF			
154	E1 0QJ	INCOMPLETE					
155	E1 3DT	E2 6PD	E1 0RE	IG11 0AY	E8 1NT	E1 0QJ	
156	E1 3DT	E2 6PD	E1 0RE	IG11 0AY	E8 1NT	E1 0QJ	
157	E1 3DT	E2 6PD	E1 0RE	IG11 0AY	E8 1NT	E7 9HQ	
158	E1 0RB	N17 6DN					
159	E1 0AU	E14 6DX	WC1H 9HB	E2 9RN			
160	E1 3BB	E2 7ET	N7 7JR	E14 8JA	E14 8HF		
161	E1 5RF	E15QU	HA0 3EQ	UB2 5TS			
162	E1 5DX	NW10 8EN	MISSING				
163	E1 5RD						
164	E1 2PD	E1 5RN					
165	E14 7RE						
166	E1 6SA	E1 0LN					
167	E14 8ER	MISSING					
168	E14 8BE						
169	E14 8JN	E2 9QR	DN1 3JH	S1 4DA	S1 4BG	MISSING	DN1 3JN
170	E14 8JG	SW17 0QQ	INCOMPLETE				
171	E14 8JG	INCOMPLETE	INCOMPLETE				
172	E3 5DE						
173	E14 8JG	E1 0QJ					

Movement of Patient 3



Movement of Patient 4

