Dissertation titled

PREVALENCE AND FACTORS ASSOCIATED WITH PSYCHIATRIC MORBIDITY AMONG INTERNALLY DISPLACED ELDERLY POPULATION –A CROSS SECTIONAL STUDY

Submitted in partial fulfilment for

M.D. DEGREE EXAMINATION

BRANCH – XVIII (PSYCHIATRY)

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THE TAMILNADU Dr. M.G.R. MEDICAL UNIVERSITY

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TAMILNADU

APRIL 2015

CERTIFICATE

This is to certify that the dissertation titled, "**PREVALENCE AND FACTORS ASSOCIATED WITH PSYCHIATRIC MORBIDITY AMONG INTERNALLY DISPLACED ELDERLY POPULATION –A CROSS SECTIONAL STUDY"** is the bonafide work of **Dr. SRIRAM.P**, in part fulfilment of the requirements for the M.D. Branch – XVIII (Psychiatry) examination of The Tamil Nadu Dr.M.G.R. Medical University, to be held in April 2015.

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DECLARATION

I, **Dr. SRIRAM.P**, solemnly declare that the dissertation titled, **PREVALENCE AND FACTORS ASSOCIATED WITH PSYCHIATRIC MORBIDITY AMONG INTERNALLY DISPLACED ELDERLY POPULATION – A CROSS SECTIONAL STUDY** is a bonafide work done by me at the Madras Medical College, Chennai, under the guidance and supervision of **Dr. JEYAPRAKASH R.** MD, DPM, Professor of Psychiatry, Madras Medical College. The dissertation is submitted to The Tamilnadu Dr. M. G. R. Medical University towards part fulfilment for M.D. Branch XVIII (Psychiatry) examination.

Place:

Date: **Dr. SRIRAM. P**

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Dear Dr. P. Sriram,

The Institutional Ethics Committee has considered your request and approved your study titled "Prevalence and factors associated with psychiatric Morbidity among internally displaced elderly population -a cross sectional study " No. 07082014.

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We approve the proposal to be conducted in its presented form.
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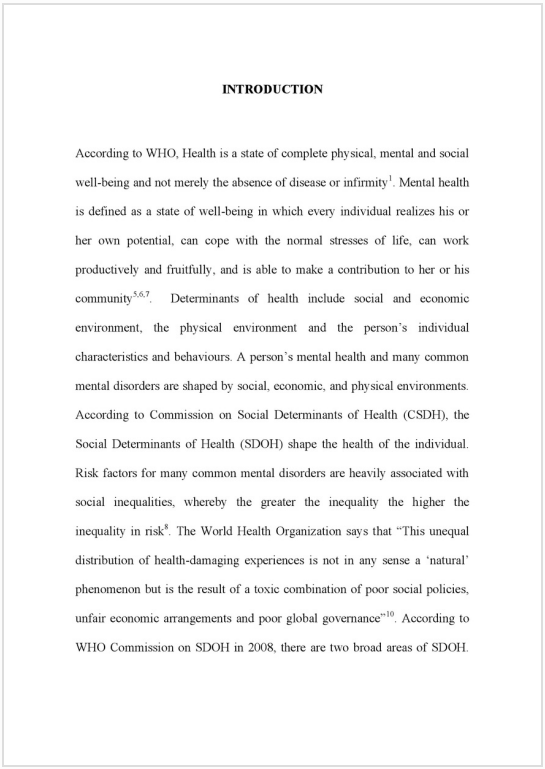
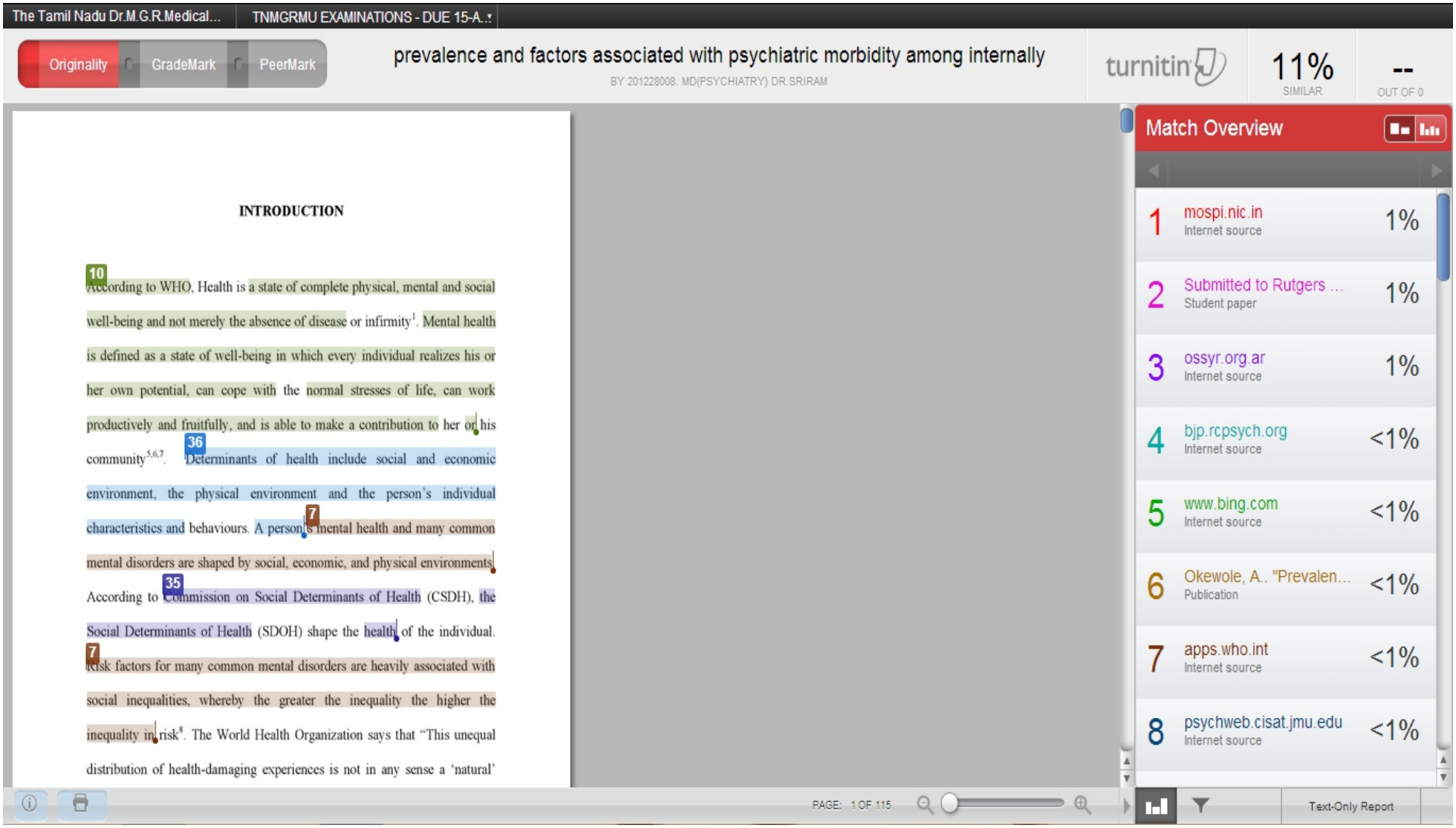


INTRODUCTION

According to WHO, Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity[1]. Mental health is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community[5,6,7]. Determinants of health include social and economic environment, the physical environment and the person's individual characteristics and behaviours. A person's mental health and many common mental disorders are shaped by social, economic, and physical environments. According to Commission on Social Determinants of Health (CSDH), the Social Determinants of Health (SDOH) shape the health of the individual. Risk factors for many common mental disorders are heavily associated with social inequalities, whereby the greater the inequality the higher the inequality in risk[8]. The World Health Organization says that "This unequal distribution of health-damaging experiences is not in any sense a 'natural' phenomenon but is the result of a toxic combination of poor social policies, unfair economic arrangements and poor global governance"[10]. According to WHO Commission on SDOH in 2008, there are two broad areas of SDOH.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CONTENTS

ABBREVIATIONS

SDOH – Social Determinants Of Health

DIDR – Development Induced Displacement and Resettlement

IDP – Internally Displaced People

UN - United Nations

WHO - World Health Organisation

TNSCB – Tamil Nadu Slum Clearance Board

CMWSS – Chennai Metropolitan Water Supply and Sewage Board

FGD – Focussed Group Discussions

ICD-10 – International Classification of Diseases - 10

CSDH – Commission on Social Determinants of Health

ABSTRACT

Background:

According to the WHO Commission on Social Determinants of Health, the Social Determinants of Health (SDOH) affect the health status of the population and hence morbidity and mortality. There are various factors that affect the SDOH. Development Induced Displacement and Resettlement is one among the various factors that affect the SDOH. There has been research indicating increased prevalence of psychiatric morbidity among internally displaced people due to various reasons. The prevalence of psychiatric morbidity among internally displaced people due to Development Induced Development and Resettlement (DIDR) has not been explored.

Aims and Objectives:

To estimate the prevalence of psychiatric morbidity and to identify factors associated with psychiatric morbidity among internally displaced elderly population.

Methodology:

200 Internally displaced elderly people are selected for study by systemic random sampling method from Kannagi Nagar, major resettlement area of people displaced from Chennai. Elderly people who are displaced and resettled at Kannagi Nagar, and those who give informed consent are included. Effect of displacement is assessed based on a questionnaire developed with inputs from literature, in-depth interviews, and focussed group discussion. Psychiatric morbidity is assessed by SCAN.

Results and discussion:

Analysing the socio-demographic profile, it is evident that this population is in need of appropriate job opportunities, health care facilities and appropriate social support. Displacement has led to the worsening of social determinants of health. The prevalence of psychiatric morbidity is high in this internally displaced elderly population considered to the general elderly population. The prevalence of alcohol dependence syndrome and depression is considerably high in the study population. The worsening of occupational and transport factors, decrease in social integration, loss of property has been associated with increased prevalence of psychiatric morbidity. Increased cost of transportation, decreased frequency and difficulty in access to transport facilities, decreased monthly income and increased monthly expenses has been associated with increased prevalence of depression.

Conclusion:

Thus displacement has been a risk factor for development of psychiatric morbidity by affecting SDOH. Psychiatric health care services should be established in the resettlement area. Appropriate measures should be taken during policy decisions regarding displacement to prevent worsening of SDOH and thus preventing psychiatric morbidity.

KEY WORDS:

Social determinants of health, Development induced displacement and resettlement, Displacement, Psychiatric morbidity, kannagi Nagar.

INTRODUCTION

According to WHO, Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity[1]. Mental health is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community[5,6,7]. Determinants of health include social and economic environment, the physical environment and the person's individual characteristics and behaviours.

A person's mental health and many common mental disorders are shaped by social, economic, and physical environments. According to Commission on Social Determinants of Health (CSDH), the Social Determinants of Health(SDOH) shape the health of the individual. Risk factors for many common mental disorders are heavily associated with social inequalities, whereby the greater the inequality the higher the inequality in risk[8]. The World Health Organization says that "This unequal distribution of health-damaging experiences is not in any sense a 'natural' phenomenon but is the result of a toxic combination of poor social policies, unfair economic arrangements and poor global governance"[10]. According to WHO Commission on SDOH in 2008, there are two broad areas of SDOH.

The first area encompasses access to health care, living conditions, social protection, employment and work. The second broad area encompasses equity in gender and health programs, public financing for action on SDOH, inequalities in economy, inequalities in the distribution of power, money and resources, depletion of resources, political empowerment[10]. SDOH are affected by various factors through which those factors affect morbidity and mortality. Internal Displacement is one such factor. “Internally Displaced Persons (IDPs) are those who have been forced to flee their homes of habitual residence, in particular as a result of or in order to avoid the effects of armed conflicts, situations of generalised violence, violation of human rights or natural and man-made disasters and have not crossed the internationally recognised border”[27,28].

Development Induced Displacement and Resettlement (DIDR) is the displacement of people from their homes of habitual residence to other areas within their state or country for the purpose of economic development. Since it is a type of internal displacement all problems intrinsic to IDP can be extrapolated to people affected by DIDR. Approximately 15 million people per year are displaced their homes following big development projects (dams, irrigation projects, highways, urbanization, mining)[29]. According to the World Refugee Survey the total number of IDPs in India are 5,07,000, whereas, the Indian Social Institute

in Delhi and the Global IDP project place it at 21.3 million[32,33]. Unlike the global context where displacements are fuelled by war and armed conflicts, in Indian scenario, it is dominated by development induced displacement and resettlement[34]. The risks intrinsic to displacement are landlessness, joblessness, homelessness, marginalisation, food insecurity, increased morbidity and mortality, loss of access to common property, social disintegration. Cerna[35,36,37,38] reported that DIDR is the largest contributor to involuntary displacement than the others.

The negative consequences of displacement can lead to psychological trauma and thus increased the risk of psychiatric morbidity[29]. There has been reports of increased prevalence of psychiatric morbidity in the displaced population. These studies are done mainly in people displaced due to war, conflicts, violence, natural disasters. Although it is evident that displacement affects SDOH, there has been a lack of research by psychiatrists and psychologists, in assessing the psychiatric morbidity and psychological problems of the people affected due to DIDR[43].

This study is done among the elderly population of Kannagi Nagar, the major resettlement area for the people displaced from Chennai. People have been displaced from various areas of Chennai and resettled here. After displacement, people have to struggle for job opportunities,

have difficulty in transport facilities to work place, they have become separated from their kin in the city, have difficulty in accessing health care services, and have difficulty in accessing government bodies. Displacement has incurred a huge economic burden on them. There have been frequent reports in both print and visual media regarding the problems encountered by this population and a possibility of increased psychiatric morbidity in this community. These reports predict a possibility of increased prevalence of substance abuse, suicide, depressive disorders. Hence assessing the prevalence of psychiatric morbidity in this population gains importance. Also, determining the effect of displacement on SDOH in this population helps us in having a comprehensive understanding, so that the intervention would be wholesome. This study is a first step in this direction. This study is done to assess whether the prevalence of psychiatric morbidity among the internally displaced elderly population of Kannagi Nagar is greater than the usual prevalence of psychiatric morbidity among elderly population in the general community. It also assesses the SDOH affected by displacement that are associated with psychiatric morbidity.

2. LITERATURE REVIEW

HEALTH AND ITS DETERMINANTS

Health is a state which is important for each and every individual. It is a state for which each individual should strive for. Health of an individual has been closely related to the environment, economy, policies, education, lifestyle in a community. According to WHO, Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity[1]. The operational value of this definition is of controversy because of the lack of definition for the word complete. Many research like Alameda County Study[2], Lalonde report[3], series of World Health reports from World Health organisation[4], and many other across world have revealed the close inter-relationship between health and various factors like lifestyle, environment, health care organisations, health care policies. World Health Reports from WHO concentrates particularly on the importance access to public health care in improving public health outcome.

Mental health

According to WHO, mental health is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and

fruitfully, and is able to make a contribution to her or his community[5,6,7]. Mental health is not just the absence of mental illness. According to Hungerford et al. (2012), Mental illness is described as “the spectrum of cognitive, emotional, and behavioural conditions that interfere with social and emotional well-being and the lives and productivity of people. Having a mental illness can seriously impair, temporarily or permanently, the mental functioning of a person”. There is wide debate regarding defining positive mental health.

Social Determinants of health

Determinants of health include are social and economic environment, the physical environment and the person’s individual characteristics and behaviours. A person’s mental health and many common mental disorders are shaped by social, economic, and physical environments. Risk factors for many common mental disorders are heavily associated with social inequalities, whereby the greater the inequality the higher the inequality in risk[8]. The social determinants of health are economic and social conditions and their distribution among the population that influence individual and group differences in health status. It is not the individual factors but the risk factors in the living and working condition of individuals that influence vulnerability to disease.

The World Health Organization says that "This unequal distribution of health-damaging experiences is not in any sense a 'natural' phenomenon but is the result of a combination of poor social policies, unfair economic arrangements [where the already well-off and healthy become even richer and the poor who are already more likely to be ill become even poorer], and poor global governance[10]."

According to WHO the SDOH include

(i)social gradients; (ii)stress; (iii)early childhood development, (iv)social intergration; (v)employment oppurtunities; (vi) social support networks; (vii) availability of healthy food and (viii) availability of healthy transportation[9,10].

SDOH is defined by US centre for disease control as " life-enhancing resources, such as food supply, housing, economic and social relationships, transportation, education, and health care, whose distribution across populations effectively determines length and quality of life"[11].

A report 'Closing the gap in a Generation", put forth by WHO's Commission on SDOH in 2008, states that there are two broad areas of SDOH.

1. The first area encompasses access to health care, living conditions, social protection, employment and work.

2. The second broad area encompasses equity in gender and health programs, public financing for action on SDOH, inequalities inn economy, inequalities in the distribution of power, money and resources, depletion of resources, political empowerment[10].

The Rio Political Declaration of SDOH, which was declared in the World Conference on the SDOH, strongly emphasised the message that health inequalities are unacceptable. It also noted that such inequalities arise from the context of societal conditions, education, employment, decent work, economic status, housing environment, health problems prevention and treatment[12].

The SDOH tend to cluster together. For example people living in poverty also have other adverse social determinants. There are three constructs that explain how SDOH influence health. They are materialist, neo-materialist and psychosocial comparison[13]. The materialist construct deals with living conditions that influence health, the neo-materialist construct deals with how these conditions are formed, psychosocial construct takes it to the individuals in the way that the comparison that the people make with the people of higher economic strata affects their

well-being. However the psychosocial approach is secondary outcome of the conditions analysed in the neo-materialist construct.

Thus SDOH determine health of the individual and community as whole. The equity in the health status among the population is not possible until the SDOH are equally distributed among the populations[11]. But health care delivery systems in various countries across the world, have often left the SDOH from the equation of medical care and thus decreased importance to primodial and primary prevention of morbidity.

The Declaration of Madrid states that psychiatrists "must advocate for fair and equal treatment of the mentally ill, for social justice and equity for all"[14].

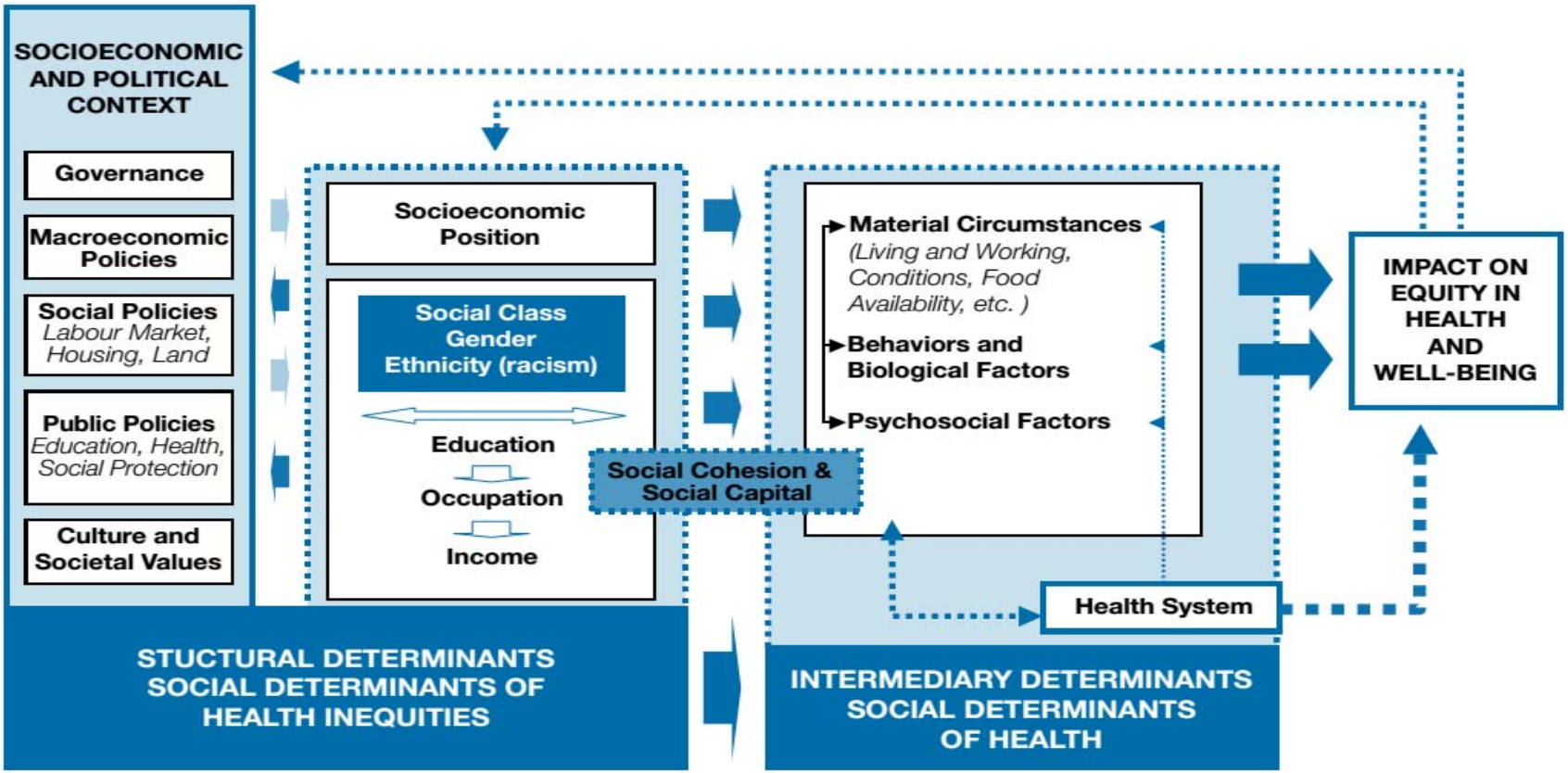
According to Commission on Social Determinants of Health, set up by WHO, “bringing various elements of social determinants of health together, the CSDH framework, summarized in Figure A, shows how social, economic and political mechanisms give rise to a set of socioeconomic positions, where by populations are stratified according to income, education, occupation, gender ,race/ethnicity and other factors; these socioeconomic positions in turn shape specific determinants of health status (intermediary determinants) reflective of people’s place within social hierarchies; based on their respective social status, individuals experience differences in exposure and vulnerability to

health-compromising conditions. Illness can “feed back” on a given individual’s social position, e.g. by compromising employment opportunities and reducing income; certain epidemic diseases can similarly “feedback” to affect the functioning of social, economic and political institutions” [15].

The CSDH, also states that, “The CSDH framework departs from many previous models by conceptualizing the health system itself as a social determinant of health (SDH). The role of the health system becomes particularly relevant through the issue of access, which incorporates differences in exposure and vulnerability, and through intersectoral action led from within the health sector. The health system plays an important role in mediating the differential consequences of illness in people’s life”[15].

The CSDH also states that to tackle these inequalities, the interventions and policies should not limit themselves to intermediary determinants but should also include interventions and policies for structural determinants of social determinants of health[15].

Fig no.1. SOCIAL DETERMINANTS OF HEALTH[15]



GLOBALISATION, SDOH AND MENTAL HEALTH:

According to Labonté and Schrecke[16], globalisation affects SDOH and has given rise to the inequalities in the distribution of SDOH.

According to WHO commission on SDOH[17], globalisation has considerable influence over SDOH. It states that SDOH have not been given sufficient priority in the current system of global governance. Globalisation and the resultant current system of global governance has led to "thicker" governance in certain areas like trade, investment and finance and "thinner" governance in social aspects in general or those related to health.

According to Dinesh Bhugra[18], it is certain that the mental illness can no longer be separated from the global context that influences our lives. Globalisation exacerbates differences in access to and distribution of resources and thus leads to social inequality. Clinicians need to be aware of the influence of globalisation in the context of changing language, idioms of distress, explanatory models and help-seeking behaviour.

According to Howson et al[19] globalisation is likely to have an impact on mental health that should not be underestimated. According to Kirmayer& Minas[20], "globalisation affects psychiatry in three main ways:

through its effect on the forms of individual and collective identity, through the impact of economic inequalities on mental health, and through the shaping and dissemination of psychiatric knowledge itself". The key factor in globalisation is urbanisation.

According to Desjarlais[21] and Bibeau[22], poverty, economic disparity and underdevelopment are linked to mental health. Human right violation, urban crowding, limited education, poor working conditions or underemployment, chronic hunger and gender discrimination are all thought to weaken and devastate individuals and the social supports that could help as buffers against mental health problems. Also, economic factors determine the availability and quality of mental health services.

According to Ahmed Okasha[23], the prevalence of mental disorders is very much related to social, economic and cultural conditions.

According to Saraceno[24], poverty and mental disorders are closely related to each other, one leading to another in a vicious circle. It has to be broken by either the eradication of poverty or by adequate treatment of patients with mental disorders or preferably both.

Kalim Siddiqui[25,26], mentions that globalisation has led to displacement of people. The communities that are seen as impediment to market integration are displaced in favour of the market forces. The land

is acquired from the people by the State and given to corporate sectors for development. Under liberalisation, the international capital which funds urbanisation in developing countries, for profit is favoured.

INTERNALLY DISPLACED PERSONS (IDPS)

Internal displacement is a critical issue in terms of humanitarian aspects. It is one of the widely discussed issues in the international community which is finding it difficult to come to a solution regarding the rehabilitation process of the IDPs. After much discussion and various debates, Francis Deng, the former UN secretary –General's representative on IDPs, coined a definition. It defines "Internally Displaced Persons (IDPs) as those who have been forced to flee their homes of habitual residence, in particular as a result of or in order to avoid the effects of armed conflicts, situations of generalised violence, violation of human rights or natural and man-made disasters and have not crossed the internationally recognised border"[27,28].

DEVELOPMENT INDUCED DISPLACEMENT AND RESETTLEMENT (DIDR):

DIDR is the displacement of people from their homes of habitual residence to other areas within their state or country for the purpose of economic development. Since it is a type of internal displacement all problems intrinsic to IDP can be extrapolated to people affected by DIDR. Displacement stems from various reasons and one among them is displacement due to big developmental projects which are implicated more often as a cause recently.

According to Bogumil Terminski[29] approximately 15 million people per year are displaced their homes following big development projects (dams, irrigation projects, highways, urbanization, mining, conservation of nature, etc.). A similar high estimate is also reported by Anthony Oliver-Smith[30] and Michael M. Cernea[31.]

DIDR is affecting more and more people as countries move from developing to developed nations. The people that face such migration are often helpless, endure huge amount of stress and are at risk for various psychiatric morbidity. When the rehabilitation policies for displaced people are not followed properly, and that they are often compensated only monetarily - without proper mechanisms for addressing their

grievances or political support to improve their livelihoods, the risk is greater[31].

CAUSES OF INTERNAL DISPLACEMENT IN INDIA

There are variations in the estimates of the total number of IDPs in India. According to the World Refugee Survey the total number of IDPs in India are 5,07,000[32], whereas, the Indian Social Institute in Delhi and the Global IDP project place it at 21.3 million[33]. Unlike the global context where displacements are fuelled by war and armed conflicts, in Indian scenario, it is dominated by development induced displacement and resettlement. According to Mahendra Lama[34], Internal Displacement in India takes place due to four broad causes

1. Political causes

2. Identity based autonomy movements

3. Localised violence

4. Environment and development induced displacement

Initially most displacement was due to various conflicts and violence. But over the recent decades, displacement has been due to development induced displacement and also due to natural disaster. Tsunami is one of the reasons for the displacement. Infrastructure

projects for industries, irrigation, transport, power generation and for urbanisation such as widening of roads, construction of flyovers, beautification projects are some of the developmental activities that lead to displacement. These projects are implemented by government involving funding agencies like World Bank and private agencies like construction companies. These projects are needed in this era. They may improve people's lives. But displacement without proper mechanisms for redressal of grievances and community participation cause a major disruption in the lives of displaced people and instead of improving their lives, they end up worse off with which the people find it difficult to cope with. Although it is rationalised that it is for the greater common good, such rationalisation has in turn turned out into a justification of the ill effects and harms caused to the well-being of the displaced people.

RISKS INTRINSIC TO INTERNAL DISPLACEMENT

Michael Cernea[35,36,37,38], a sociologist, is a pioneer in this field who has done an extensive research on the various reasons of displacement and various issues related with displacement. According to him, when people are displaced from their livelihood, it is associated with an increased chance of people becoming poorer. Displaced people who are in need of an effective assistance to re-establish their livelihoods are mostly left without proper rehabilitative measures, which pose certain

risk to the well-being of the displaced. As he states, the onset of impoverishment can be represented through a model of eight interlinked potential risks intrinsic to displacement, which are as follows

1. Landlessness
2. Joblessness
3. Homelessness
4. Marginalisation
5. Food insecurity
6. Increased morbidity and mortality
7. Loss of access to common property
8. Social disintegration

1. Landlessness – During displacement, when the hard earned land or the property owned by the people upon which their livelihood has been built, is often taken over by public agency, without the individual's consent and full compensation, there is loss of both natural and man-made capital. This is a significant cause leading to impoverishment since capital is often vested in property.

2. Joblessness – When people lose their traditional and existing livelihood due to geographic dislocation, it leads to economic instability and a significant stress. It is common in both rural and

urban displacements. It is also difficult to find employment in the new area, or to establish a business in the resettled area. This unemployment or underemployment is long enduring, especially when the rehabilitation measures are not proper and when the geographical location of the resettlement area is not favouring any worthy scopes of employment.

3. Homelessness – Although homelessness is temporary in most displacements and is mainly confined to the transit period, there may be worsening of the living conditions and housing quality in the new settlement. There is , not only a change in the physical structure, but also, in a broader sense, there is a loss of the family's or group's cultural space which might lead to the sense of alienation and deprivation in the resettled area.

4. Marginalisation – Displacement leads to economic, social, and psychological marginalisation in that, people move downward in economic and social status, and have a sense of vulnerability and deprivation partly because of the social and the economic downward movement. Also in certain areas, people are refused employment opportunities and are discriminated because of their belonging to the particular resettled area.

5. Food insecurity – various factors in the resettled area like the availability of necessary and adequate food, purchasing power of the people, the cost of living in the resettled area may be affected that might lead to the temporary or chronic undernourishment. This is closely influenced by the economic factors and this closely influences the health status of the individuals.

6. Increased morbidity and mortality – There is a serious risk of decline in the health level of the individuals due to displacement, since displacement leads to a huge stress and psychological trauma. Hence there is increased risk of psychiatric morbidity and increased chance of physical morbidity due to unfamiliar living conditions in the new living area and loss of access to usual health care facilities.

7. Loss of access to common property – For the displaced people, loss of access to the common public properties like government bodies, recreational facilities(parks, theatres, play grounds), burial grounds result in a sense of alienation and can incur a significant deterioration in the livelihood levels. The impact is lot more on poor people who depend upon state provisions for such facilities. The access to the health systems and educational systems are disrupted when the people are displaced far from the city, or to an area where state sponsored educational and health services are not adequate,

where services provided by private agencies are not affordable. These are avoidable if proper rehabilitative measures have been taken, but on the other hand, have a significant impact on the positive mental health of the individuals.

8. Social Disintegration – One of the most important impacts of displacement on an existing community is its disruption of the patterns of social organisation at many levels. Neighbourhood groups and family systems are often disrupted. Formal and informal associations, trade links are cut off. In total, entire existing social support system is disrupted, which imposes a sense of alienation and helplessness in the individual level and in the family level which they find it difficult to cope up with if proper rehabilitation measures are not provided. There is also a risk of the communal violence between different groups of relocated people because of the possible decreased social readjustment between different groups. Displaced people often lose their political voice because of the disruption of the social support system.

It must also be understood that displacement is not a temporary phenomenon but an on-going and an enduring stressor. Displacement has a significant impact on the well-being of not only the individual and family systems, but the entire community[39].

According to Cernea, although it is the people who are displaced bear the burden, they are benefitted little from the developmental project. Cernea reported that DIDR is the largest contributor to involuntary displacement than the others.

According to Chakrabarti&Dhar[40], DIDR is one of the types of involuntary migration. They report that in India, 75% of the people who were displaced due to various developmental projects since independence live in poverty. Similarly Robinson[41], report that the World Bank estimates that 60% of people who are displaced due to dam projects in China now live in poverty threshold.

National Rehabilitation and Resettlement Policy[42] that states the following:

"There is imperative need to recognise rehabilitation and resettlement issues as intrinsic to the development .process formulated with the active participation of the affected persons, rather than as externally-imposed requirements. Additional benefits beyond monetary compensation have to be provided to the families affected adversely by involuntary displacement. The plight of those who do not have legal or recognised rights over the land on which they are critically dependent for their subsistence is even worse. This calls for a broader concerted effort on the part of the planners to include in the displacement, rehabilitation

and resettlement process framework not only those who directly lose land and other assets but also those who are affected by such acquisition of assets. The displacement process often poses problems that make it difficult for the affected persons to continue their earlier livelihood activities after resettlement. This requires a careful assessment of the economic disadvantages and social impact of displacement. There must also be a holistic effort aimed at improving the all-round living standards of the affected people."

DISPLACAMENT AND MENTAL HEALTH

According to Bogumil Terminski[29], when the displaced people come to know about the irreversible nature of some of the events related to displacement, it can hinder their adaptation to the new environment and produce a sense of alienation that can lead to psychological trauma. The negative consequences of displacement like social disarticulation, joblessness and economic marginalisation can lead to psychological trauma and thus increase the risk of psychiatric morbidity.

As per K.P.Goessling[43], although the above factors are evident there has been a lack of research by psychiatrists and psychologists, in assessing the psychiatric morbidity and psychological problems of the affected people.

According to Fernandes[44], there has been enormously high prevalence of depression, suicide and alcohol addiction among the displaced American Indian reservations in the U.S., thus implying that the mental health effects of displacement are likely to persist for many generations.

Salama et al[45], has reported in a study done in Kosovo, that IDPs when compared to refugees suffered more traumatic events. Also the duration of the effects lasted longer and was associated with higher levels of psychiatric morbidity.

Matthew Porter et al[46] reported that people who are displaced within their own country have increased rates of psychopathology. It is also reported that, people who were older, females, higher pre-displacement socio-economic status and reduced economic opportunity after displacement were associated with adverse outcomes in terms of psychopathology.

Thomas et al[47], reported that IDPs carry long term mental health problems and psychiatric morbidity. Also IDPs who were monitored years after displacement continued to have mental health difficulties and continued experiencing difficulties in adjusting to the main stream society and developing coping skills.

According to Cummings et al[48], psychiatric morbidity associated with forced displacement could take months to years to remit, or at times it would be a life time struggle with symptoms.

In a study conducted among 208 adult Kashmiri migrants living in a migrant camp at Jammu, Banal et al[49] reported that the prevalence of psychiatric morbidity among migrant population was 33.6% compared to non-migrant population in whom it was 26%. Major depressive disorder was the commonest diagnosis. Depression, post-traumatic stress disorder and generalised anxiety disorder were statistically more prevalent among the migrants than in controls. The study also reported that the effect of migration on their cultural and social life needs to be explored. The interventions suggested were improvement of socio-economic status, providing psychiatric services within the camps and improving the psychiatric facility of the overall region.

In a study conducted among the people who are displaced in the Andaman and Nicobar islands following the Indian Ocean tsunami, by Math,John,Girimaji et al[50], the displaced survivors had significantly high psychiatric morbidity of 5.2% when compared to the non-displaced population in whom prevalence was 2.8%. Adjustment disorder was significantly higher in the displaced population. Factors that helped the displaced people to cope with the early stressors were social support,

family systems, cohesive community, religious faith and spirituality and altruistic behaviour of the community leaders. The study also emphasises that psychosocial rehabilitation should be aimed at community empowerment. Psychosocial rehabilitative measures should be started soon after displacement.

A study Solangi et al[51], psychiatric morbidity was considerably higher in the population displaced due to floods in Sindh river. In total 42% of people had psychiatric morbidity, among which 44% had anxiety disorders, 39% had depression and 32% had post-traumatic stress disorder.

Much research has been done in western countries and in India regarding the psychiatric morbidity among the displaced people where the displacement is due to war, communal violence, and ethnic conflicts. However, only limited literature is available regarding the mental health needs and prevalence of psychiatric morbidity among people undergoing Development Induced Displacement. Despite adverse health consequences of project induced displacement, research in DIDR consequences has been dominated by economists and environmentalists.

A study by Hwang et al[52], examines the effect of involuntary migration due to a large dam project in China on mental health consequences of the displaced people. According to the study,

displacement induced migration influences depression both directly and indirectly. Certain factors like positive coping skills, psychosocial resources and physical health were found to be protective. Such migration weakens the psychosocial resources, influences coping and physical health of the displaced people, and thus affecting their mental health indirectly. The study reports that forced migration elevates the risk of depression in a statistically significant way. The study also establishes a causal link between displacement and depression.

Cao et al[53] reported that DIDR has a positive association with depression and negative association with self-rated health measure. By indirectly affecting social integration, socio-economic status and community resources, displacement affects depression. The study also highlights the importance of social integration as a positive factor to prevent the negative consequences of displacement. It also mentions that lack of trust and problems in social interaction may lead to psychological discomforts. It also emphasises that to avoid the negative psychological consequences of displacement, not only economic compensation is sufficient, but also social integration should also receive considerable significance and comprehensive resettlement policy is necessary.

R Larrance[54], reported that, in a study conducted among internally displaced persons in Louisiana and Mississippi Travel Trailer parks, 50%

of the residents met the criteria for major depressive disorder. Suicide rates were 14 times more than pre-displacement rates and suicide attempts were 78 times more than pre-displacement rates.

Negative or stressful life events more generally have been implicated in the development of a range of disorders, including mood and anxiety disorders[69]. The main risks appear to be from a cumulative combination of such experiences over time, although exposure to a single major trauma can sometimes lead to psychopathology. Resilience to such experiences varies, and a person may be resistant to some forms of experience but susceptible to others. Features associated with variations in resilience include genetic vulnerability, temperamental characteristics, cognitive set, coping patterns, and other experiences[70]. Behavioural Shutdown Model (BSM) of depression suggests that depression arises out of an evolved tendency to decrease behavioural expenditure in response to chronic danger, stress, or consistent failure to achieve one's goals. It strongly predicts that depression should be more likely to occur in situations that are chronically dangerous, humiliating, or repeatedly result in failure to achieve one's goals. Consistent with this prediction, situations in which the individual feels chronically trapped or humiliated are most likely to produce symptoms of depression[71,72]. According to object relations theory, depression is caused by problems people have in

developing representations of healthy relationships. Depression is a consequence of an ongoing struggle that depressed people endure in order to try and maintain emotional contact with desired objects[73].

The environmental stressor most often associated with the onset of an episode of depression is the loss of a spouse. Another risk factor is unemployment; persons out of work are three times more likely to report symptoms of an episode of major depression than those who are employed[74].Catastrophic financial loss has been associated with increased prevalence of psychiatric morbidity, especially depression and anxiety disorders[75].

The psychodynamic understanding of depression defined by Sigmund Freud and expanded by Karl Abraham is known as the classic view of depression. That theory involves four key points: (1) disturbances in the infant-mother relationship during the oral phase (the first 10 to 18 months of life)predispose to subsequent vulnerability to depression; (2) depression can be linked to real or imagined object loss; (3) introjection of the departed objects is a defence mechanism invoked to deal with the distress connected with the object's loss; and (4) because the lost object is regarded with a mixture of love and hate, feelings of anger are directed inward at the self. Most theories of mania view manic episodes as a defence against underlying depression. Learned helplessness as applied to

human depression, internal causal explanations are thought to produces loss of self-esteem after adverse external events[74].

To summarise, SDOH determines the level of health of the community. Interventions aimed at improving the SDOH are not given adequate importance in the current system of global health governance. Displacement impairs health through complex interactions with SDOH. Displacement is associated with increased rates of psychiatric morbidity. Big developmental projects which frequently result in displacement are becoming increasingly implicated in DIDR in India. Changes in policy and resettlement strategies can minimise the health impact of displacement.

ELDERLY PEOPLE:

The WHO Health Statistics and Information System states that, "At the moment, there is no United Nations standard numerical criterion, but the UN agreed cut-off is 60+ years to refer to the older population".

ELDERLY IN INDIA[55]

The elderly population (aged 60 years or above) account for 7.4% of total population in 2001. For males it was marginally lower at 7.1%, while for females it was 7.8%.Nearly 40% of persons aged 60 years and above (60% of men and 19% of women) were working. In rural areas

66% of elderly men and above 23% of aged women were still participating in economic activity, while in urban areas only 39% of elderly men and about 7% of elderly women were economically active.

Even in 2007-08 only 50% men and 20% of women aged 60 years or more were literate through formal schooling. About 5.4% of elderly in urban areas have hypertension and 5.3% have diabetes mellitus. More than 75% of elderly males and less than 40% of elderly females live with their spouse, which again reflect the differences in their marital status and life span. Less than 20% of aged men and about half of the aged women live with their children. About 2-3% of elderly men live alone while another 3% live with other relations and non-relations. Among elderly women, 7-8% lives alone and another 6-7% reported to live with other relations and non-relations. The life expectancy at birth during 2002-06 was 64.2 for females as against 62.6years for males.

There is an urgent need for the improvement of the geriatric health care services on view of the increasing elderly population in India[56].

PREVALENCE OF PSYCHIATRIC MORBIDITY AMONG ELDERLY IN INDIA:

In India, there have been various studies regarding the prevalence of psychiatric morbidity in the elderly population. There is variation in the prevalence rates reported by various studies.

K.C.Dube[57] in a sample of 329 elderly people reported a prevalence of bipolar affective disorder of 1.26 per 1000 population.

Ramachandran et al[58], in a sample of 861 people above 50 years of age has reported a prevalence of 35% psychiatric morbidity. He also noted 1% of people had schizophrenia, 24% had depression, 2% had anxiety disorder and 0.5% had chronic alcoholism.

Venkoba Rao[59], has reported a prevalence of psychiatric morbidity to be 89 per 1000 population, in which depression was 67%, schizophrenia 5%, anxiety disorders 5% and alcoholism 8%. The study was conducted in a sample of 686 people.

Tiwari et al[60] has reported a prevalence of psychiatric morbidity in the Indian elderly population as 43.32%.

In a study conducted by Goswami et al[61] in the people of age more than 60 years has reported the prevalence of alcohol dependence syndrome to be 16.3%. Tiple et al (2006) has reported that depression has been more common on the elderly population. Chowdry et al[62] reported a prevalence of 49.2% of psychiatric morbidity in people more than 60 years of age. Among them 23.6% had depression, 10.8% had anxiety disorders and 11.6% had dementia. Barua&kar[63] has reported a prevalence of 21.7% of depression in people more than 60 years of age.

Tiwari et al[64] has reported a prevalence of 42.8% of psychiatric morbidity in a sample of 227 elderly in rural India. They also reported a prevalence of 21.8% in urban elderly sample of 1216.

Poongothai et al[65] has reported that prevalence of depression in a urban elderly population was 15.1% in a sample of 26,001 people.

Seby et al[66] has done a study to assess the prevalence of various psychiatric disorders in people above 65 years of age. According to the study the prevalence of depression is 16.3%, schizophrenia is 1.5%, anxiety disorders is 6.4%, bipolar affective disorders is 2.5% and alcohol dependence is 4%.

In a study by Tiwari et al[67], the prevalence of psychiatric morbidity I rural elderly population above 60 years of age is 23.7%, with schizophrenia 0.6%, anxiety disorders 2% and alcohol dependence 4%.

Tiwari et al[68] has conducted a study in population more than 55 years of age and has reported that the prevalence of psychiatric morbidity in that population is 11.8%.

Tiwary and Pandey[56] have reviewed the prevalence studies in the Indian elderly population. Based on the recent research conducted by ICMR, they have reported the prevalence of psychiatric morbidity among the Indian elderly population. The present population of older adults was

used to calculate psychiatric morbidity based on the reported epidemiological data. The average prevalence of mental health problems both in rural and urban communities indicates that 20.5% of the older adults are suffering from one or the other problems. [(Urban-17.3%+Rural-23.6%)/2=20.45%, i.e. 20.5%]. They also noted that 5.8% of the urban and 7.2% of the rural older adults primarily suffer from mood (affective) disorders; 2.4% of the urban and 2.1% of the rural older adults are primarily suffering from neurotic, stress-related and somatoform disorders and 0.6% of urban and rural older adults primarily suffer from psychotic disorders.

3. AIMS AND OBJECTIVES

AIM:

To estimate the prevalence of psychiatric morbidity in an internally displaced elderly population and to identify the factors pertaining to displacement associated with psychiatric morbidity in the internally displaced elderly population.

OBJECTIVES:

Primary objective:

To estimate the prevalence of psychiatric morbidity in a internally displaced elderly population.

Secondary objective:

To identify the factors pertaining to displacement associated with psychiatric morbidity in the internally displaced elderly population.

4. NULL HYPOTHESIS

1. There is no difference in the prevalence of psychiatric morbidity between the internally displaced elderly population and general elderly population.

2. Specific factors pertaining to internal displacement are not associated with psychiatric morbidity in the internally displaced elderly population.

3. METHODOLOGY

DESIGN OF THE STUDY

Cross sectional community based descriptive study.

SETTINGAND POPULATION OF STUDY:

The study was in Kannagi Nagar, Okkiyum, Thoraipakkam, Sholinganallur taluk, Kanchipuram district of Tamil Nadu.

Kannagi Nagar is considered as the largest resettlement area of Chennai. The houses have been constructed by TNSCB that was originally set up by the government for clearance and improvement of the slum areas in Chennai.

The people of Kannagi Nagar are from various places of Chennai. They have been resettled here under various programmes in a phased manner. The various programmes include Flood Alleviation Programme, Tenth Finance Commission Programme, Chennai Metropolitan Area Infrastructure Development Plan, and Tsunami Rehabilitation Programme.

There is limited data available about the population distribution in the resettlement area. People's Union for Civil Liberties, Chennai (PUCL, 2010) undertook a fact finding survey in 2010. It reports that there are

14,500 occupied houses out of 15,656 constructed houses. The total population in this Kannagi Nagar relocation settlement as per the panchayat records is 76,750. Data pertaining to the total number of elderly population is absent. However, according to the Ministry of Statistics and Programme Implementation, Government of India, the percentage of elderly in Indian population is 7.4%. extrapolation of this percentage to the population of Kannagi Nagar, yielded an estimated number of 5679 elderly individuals..

SUBJECT SELECTION:

INCLUSION CRITERIA:

1. People who have been displaced from other areas in Chennai resettled in Kannagi Nagar due to various development projects.

2. People of age greater than 60 years.

3. Giving informed consent

EXCLUSION CRITERIA:

1. People who are resident in Kannagi Nagar secondary to voluntary migration and not due to resettlement programmes.
2. Age younger than 60 years.
3. People not giving informed consent.

SAMPLE SIZE:

The prevalence of psychiatric morbidity in general elderly population is 20.5%[56]. When sample size is calculated considering the prevalence of 20.5% using SPSS 20.0 a sample size of 200 is required for statistical analysis. Hence the sample size for this study is set at 200.

SAMPLING TECHNIQUE:

Systemic random sampling method was used. Each house was considered as a unit. Every fifth house was taken for the study until the required sample size of 200 was reached.

Method	Purpose
STEP 1: DESIGN OF INSTRUMENTS	
Observation	Demography of the area was observed. Various facilities were noted
In-depth interviews	To identify problems at individual level
Focussed group discussions (FGDs)	To identify the problems at individual and community level.
STEP 2: DATA COLLECTION	
Data collection from study subjects 1. Socio-demographic data 2. Data about displacement effects 3. Clinical interview and diagnosis	1.To identify socio-demographic, clinical and SDOH before and after displacement 2.To study prevalence and factors associated with psychiatric morbidity

OBSERVATION:

Kannagi Nagar, is located at Okkiyum, Thoraipakkam, in Kanchipuram District. The site is surrounded by private areas in north, west and south and by Buckingham canal in the east. The roads have been well laid. There is a police station, bus terminus, community centre. There is a Government hospital which is a primary care set up. The houses are having been allotted in Hire purchase scheme. The occupants pay monthly instalments and also for the maintenance. The houses are of similar design with a hall cum bedroom with partition for kitchen. The only separate room is a bathroom. There are about 4 play grounds inside and a cemetery near Kannagi Nagar. Water supply is by CMWSS. There The sewage water is seen stagnant in some areas. The nearest post office is at a distance of 3 kilometres. Private health care speciality set ups are available at a distance of around 5 kilometres, but government speciality set ups are at a distance of more than an hour travel. There is no nearby Government psychiatric facility available for this population. They have to travel an hour at least for psychiatric facility.

IN-DEPTH INTERVIEWS:

Initial in-depth interviews were conducted to find out the problems met by the people at individual level as a result of displacement. Interviews were conducted whether the problems mentioned in the

literature as a part of displacement are applicable to this population and to find the problems that have been inherent to this population. Sample of the interviews have been mentioned below:

Mr. M, a 65 year old male, who have resettled here from Royapuram, says that, “I had been working as a carpenter. I have made a livelihood in Royapuram and the job opportunities were better. I was able to make ends meet and was also able to save some money. The resettlement has been hard on us. Our voice was not heard, because it was a policy decision by the State. We had no other go. My savings were lost in the resettlement process. Now my job opportunities are very less. They rarely hire me as I am from Kannagi Nagar. It is very difficult to make ends meet. Health care facilities are not good. We have to travel much distance to go to Government care. In case of emergency we find difficult. We cannot afford the private health care in the neighbouring areas. It has been hard and still have not recovered from the economic difficulties”.

Mrs. F, a 62 year female, who have been resettled from Palavakkam, says that “it is very to get job opportunities here. I had been working as a house maid in Adyar. When I relocated here, I found very difficult to reach Adyar from here and I had to spend a substantial part of my income for transport. Because of the distance I have stopped going to

work. I tried jobs in the I.T. corridor here. But they hire only people below 40 years of age. I had to be dependent on my husband. He was a construction worker. Since the supply of man power has been high in this area, job opportunities with relation to construction have come down. He goes to job occasionally. He had also developed the habit of consuming alcohol and spends his meagre earning on that. We have been separated from our son during displacement since he had preferred to stay in the city. With husband's meagre income and sons support we are able to go on. But the problems due to displacement have been compounded by inflation."

Mr. H, who a priest in the small temple in Kannagi Nagar, says that, "the health problems here are mainly related to substance use. Most of the men use alcohol. Most of them have started the habit recently. Mainly for the elderly people the job opportunities are dried up and they are taken for various political meetings as audiences, for which they are paid. They have somehow learnt the habit and it has become really problematic here. Since the families have been separated by displacement there has been no proper family support to correct their behaviour. With alcohol related problems on the rising side there has been no medical treatment available for the alcohol related problems nor there has been

campaigns to create awareness among people. Most people are unaware that there is treatment available for this alcohol use".

FOCUSSED GROUP DISCUSSIONS:

FGD was conducted to obtain the benefit of group processes in understanding the various problems faced by the population because of displacement. Thus various factors related to displacement that can have a possible association with the psychiatric morbidity could be identified and also it could be verified whether the problems related to the internal displacement mentioned in the research literature[35,36,37,38] can be applied to this population. It is also economical and less time consuming. Four FGD were conducted, each with separate groups. Each group consisted of 5 to 7 individuals. Each FGD lasted approximately from 1 hour to 1.15 hours. Each FGD was conducted under supervision and direction of the researcher who moderated the sessions, promoted discussion and ensured that the discussion was on the topic of research. The theme was based on the literature[35,36,37,38] describing effects of displacement. Semi-structured open ended questions were used by the researcher to promote discussion. Though the focus was on the topic, the discussions were flexible and were in conversational style.

In each FGD, researcher asked the participants to discuss about the problems they have met due to displacement and to make a list of the problems. They were also asked to group their problems into common themes if possible. They were also asked to give weightage for the problems if possible. Each FGD was conducted till a consensus was reached among the participants. The problems that were enlisted by the groups were highly comparable. The problems due to displacement enlisted by each group have been tabulated below.

Problems enlisted by FGD – 1		
NO	**THEME**	**COMPONENTS**
1	Difficulties in occupation	Decreased opportunities, increased time to reach work place, decreased pay
2	Transport facilities	Cost , frequency
3	Health care	Cost of health care, unavailability of affordable health care facilities
4	Social resources	Difficulty in accessing community resources
5	Family support	Family disruption due to displacement
6	Economic conditions	Decreased family income, property loss, and financial loss due to displacement.

Problems enlisted by FGD – 2		
NO	**THEME**	**COMPONENTS**
1	Difficulties in occupation	Decreased opportunities, increased time to reach work place, decreased pay, decreased transport facilities to work place.
2	Transport facilities	Cost , frequency, accessibility
3	Health care	Cost of health care, unavailability of affordable health care facilities, decreased transport facilities to health care facilities
4	Family disruption	decreased family gatherings, Disruption of family due to displacement
5	Housing	Problems in sanitation, electricity and water supply
6	Economic conditions	Decreased family income, financial loss due to displacement.

Problems enlisted by FGD – 3		
NO	**THEME**	**COMPONENTS**
1	Difficulties in occupation	Decreased opportunities, increased time to reach work place, decreased pay, decreased transport to work place
2	Transport facilities	Cost , frequency, accessibility
3	Health care	Cost of health care, unavailability of affordable health care facilities, decreased transport facilities to health care facilities
4	Social integration	Difficulty in access to recreational facilities, Decreased Social gatherings, decreased family gatherings, Disruption of family due to displacement, difficulty in accessing government bodies
5	Housing	Problems in sanitation, electricity and water supply, ease of access to neighbourhood
6	Economic conditions	Decreased family income, property loss, and financial loss due to displacement, increased monthly expenses.

Problems enlisted by FGD – 4		
NO	**THEME**	**COMPONENTS**
1	Difficulties in occupation	Decreased opportunities, increased time to reach work place, decreased pay, decreased transport to work place, decreased opportunities due to discrimination.
2	Transport facilities	Cost , frequency, accessibility
3	Health care	Cost of health care, unavailability of affordable health care facilities
4	Social integration	Difficulty in access to recreational facilities, Decreased Social gatherings, decreased family gatherings, Disruption of family due to displacement, difficulty in accessing government bodies
5	Housing	Problems in sanitation, electricity and water supply, ease of access to neighbourhood
6	Economic conditions	Decreased family income, property loss, and financial loss due to displacement, increased monthly expenses.

INSTRUMENTS USED:

1. Semi-structured proforma for socio-demographic profile (annexure no.1)
2. A scale to assess effect of displacement on social determinants of health (annexure no.2)
3. Psychiatric morbidity is assessed using SCAN (Schedules for Clinical Assessment in Neuropsychiatry)

The scale to assess displacement effects was prepared regarding the problems encountered by the people due to displacement based on the literature[35,36,37,38], in-depth interviews and FGD. All problems enlisted were given due importance and included in the questionnaire. The domains were based on the themes, which were constructed with consensus from FGD. All the domains were given equal importance in FGD and the scoring was based on the number of components under each theme. Each component was divided into sub components which was based on in-depth interviews and FGD, and were rated in unison based on the number of subcomponents. The components which were also present in the Kuppusamy's Socio-economic scale were scored according the scale.

A pilot test was done in a sample of 30 people form the sample population. Inter-rater reliability, correlation with Kuppusamy's socio-

economic scale[76,77,78,79,80], correlation with subjective satisfaction scale were done. The results are discussed as follows.

1. INTER-RATER RELIABILITY:

Inter-rater reliability is a measure used to examine the agreement between two interviewers in respect to the results when a questionnaire or instrument is applied. The questionnaire was applied in a sample of 30 people from the sample population by two interviewers and the results are tabulated.

INTER RATER RELIABILITY – KAPPA VALUES

Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Measure of Agreement	Kappa	.894	.058	20.035	.000
N of Valid Cases		30			

The results of the inter-rater analysis are Kappa = 0.894 with $p < 0.001$. This measure of agreement, while statistically significant, is also in almost perfect agreement since Kappa value is more than 0.81.

2. COMPARISON WITH KUPPUSWAMY'S SOCIO-ECONOMIC SCALE:

Since the questionnaire involves questions related to socio-economic conditions, Kuppuswamy's Socio-economic scale which is also related to socio-economic profile was taken for comparison. A correlation analysis was done in a sample of 30 people from the sample population, using change in the scores between pre-displacement and post-displacement in the Kuppuswamy's socio-economic scale and the questionnaire developed. The results obtained through correlation analysis gives a correlation co-efficient of 0.916 with $p<0.001$, hence representing a positive correlation and a strong association which is statistically significant.

3. COMPARISON WITH SUBJECTIVE SATISFACTION SCALE:

The sample of 30 people from the sample population were asked to rate their subjective satisfaction of life on a ten point likhert scale, before and after displacement and the change in scores were compared with the change between the pre and the post-displacement in the questionnaire. Correlation analysis was used to find out the association. The results obtained through correlation analysis gives a correlation co-efficient of 0.896 with $p<0.001$, hence representing a positive correlation and a strong association which is statistically significant.

The questionnaire was used in the sample of 200 people to assess the various problems related to displacement that might have association with psychiatric morbidity. The presence of psychiatric disorder was assessed by the researcher through SCAN (Schedules for Clinical Assessment in Neuropsychiatry)

Schedules for Clinical Assessment in Neuropsychiatry (SCAN) are a manuals created by the World Health Organization (WHO) for assessing, measuring and classifying the mental illnesses. It can be used in variety of settings like the clinical and research settings. Its stability and validity has been proven by various studies. SCAN is a semi structured standardized clinical interview with provision for cross examination of the subject. There is no fixed order of the flow of the interview which makes this instrument flexible and versatile. Each section of the schedules starts with the important questions about the symptoms pertaining to that section. If these questions are answered positively, then the questions below the cut-off point are also asked to the patient.

STASTICAL ANALYSIS: The data collected was analysed with Software Package for Statistical Analysis version 20 (SPSS 20.0) under the following areas.

1. Descriptive statistics for depiction of socio-demographic profile, displacement effects and psychiatric morbidity.

2. Tests of significance to analyse for significant differences and associations.

3. Logistic regression analysis of the factors pertaining to displacement and associated with psychiatric morbidity..

4. Post-hoc test analyse for significant factors relating to specific psychiatric diagnoses.

RESULTS AND OBSERVATIONS

The results and observations are discussed under following headings:

I. Socio-demographic profile

II. Prevalence of psychiatric morbidity

III. Effect of displacement on study population

IV. Factors associated with psychiatric morbidity

V. Factors associated with alcohol dependence in males

VI. Factors associated with depression in females

RESULTS AND OBSERVATIONS

I

SOCIO-DEMOGRAPHIC PROFILE

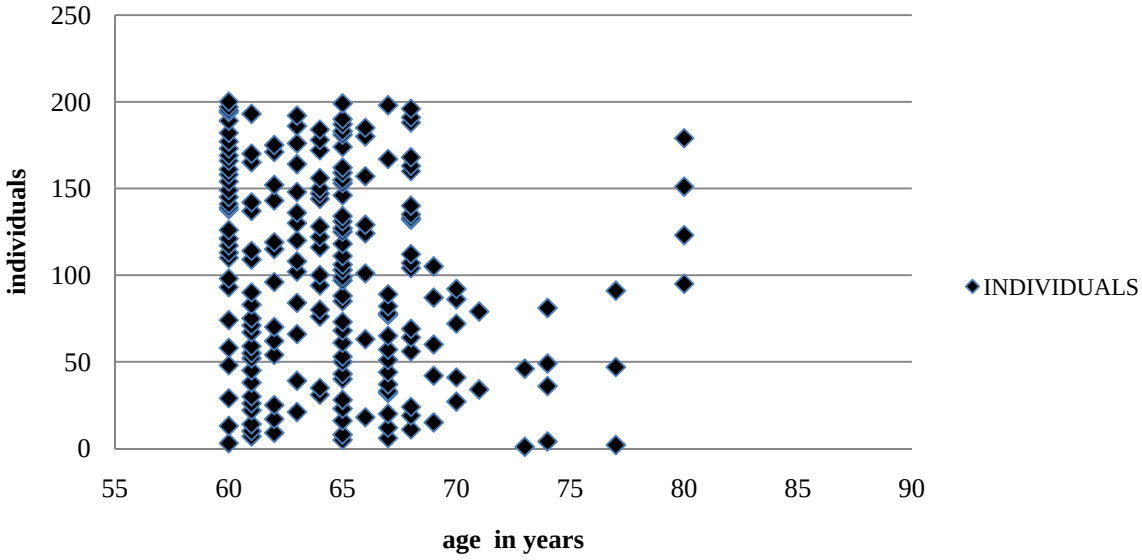
The sample size for this study is 200 (n=200). The socio-demographic profiles of the sample have been described in the following tables and charts.

TABLE NO.1 SOCIO-DEMOGRAPHIC PROFILE	
Variable	Frequency (n=200)
Sex	Males=46% Females=54%
Marital status	Married=92% Widow=8%
Education	High school=3% Middle school=38% Primary school=53% Illiterate=6%

Among the sample of 200, there are 92 males and 108 females. Among the sample of 200, there are 186 people who are married and 16 widows. There are no divorced people or no unmarried people. Among the sample of 200, there 6 people who have had up to high school

education, 76 people who have had up to middle school education, 106 people who have had up to primary school education and 12 people who have not attended school. Among the sample of 200, there are 168 Hindus, 26 Christians and 6 Muslims.

fig.no.2. **AGE DISTRIBUTION**



The above diagram is a scatter plot of the age distribution of the population. Age in years is plotted along the x-axis in the interval of 5 years. X-axis starts from, 55 years since the sample population is elderly. The number of individuals is plotted along the y-axis in the interval of 50 units starting from 0 units. The age group is scattered from 60 to 80 years. Mean age is 64.76 with S.D. = 4.43.

TABLE NO.2 PHYSICAL ILLNESS	
Variable	**Frequency (n=200)**
Hypertension	12.5%
Diabetes mellitus	3%
Hypertension and diabetes	11%
Bronchial asthma	1%

The table no.2 represents the distribution of physical illness among the population taken for study. The findings are based on medical records with the people. Among the sample of 200 people, 145 people have not been diagnosed to have any medical illness. 47 people have been diagnosed to have hypertension. 28 people are diagnosed to have diabetes mellitus. Among the people who have hypertension and diabetes, 22 people have both hypertension and diabetes. 2 people have been diagnosed to have bronchial asthma.

TABLE NO.3 PAST PSYCHAITRIC ILLNESS	
Variable	**Frequency (n=200)**
Alcohol dependence syndrome	6%
BPAD	0.5%
Dementia	0.5%
Psychosis nos	0.5%
Anxiety disorder	0.5%

The table no.3 represents the distribution of the presence of psychiatric illness that has been present since before displacement. The findings are based on the medical records with the people. Among the sample of 200, 12 people have been diagnosed with alcohol dependence syndrome. One person had been diagnosed with bipolar affective disorder, one person with psychosis unspecified and one person with anxiety disorder.

TABLE NO.4 NO OF YEARS AFTER DISPLACEMENT	
Variable	**Frequency (n=200)**
< 1 year	6%
1-5 years	38%
>5 years	56%

The table no.4 represents the distribution of the population with respect to the number of years after displacement. The duration have been categorised into three groups. The first group includes people in whom less than a year has passed after displacement. The second and third group consists of people in whom one to five years have passed and more than five years have passed after displacement respectively. The first group includes 12 people, the second group consists of 76 people and third group consists of 112 people.

TABLE NO.5 EMPLOYMENT STATUS POST DISPLACEMENT	
Variable	**Frequency (n=200)**
Employed	76.2%
Retired	0.2%
Unemployed due to lack of opportunities	13%
Unable to work due to physical illness	0.6%

The table no.5 represents the distribution of the employment status of the population after displacement. Among the sample of 200,164 people have been working prior to displacement. Among the 164 people, after displacement, 125 people are working, 17 people have retired, 21 people have become unemployed due to lack of opportunities and one person have stopped working because of physical condition.

TABLE NO. 6	
Variable	**Frequency (n=200)**
Property loss	10%
Financial loss	61.8%
Family disruption	19.5%
Dependency on others	44.5%

Property loss: 180 people have not encountered any property loss. 20 people have encountered property loss. Among these 20 people, 6 people had lost their shop, 3 people have lost their land, and 11 people have lost their owned house.

Financial loss: 77 people have not encountered any financial loss. 123 people have encountered financial loss. Among these 123 people, 104 people have had a loss of less than Rs.25,000 and 19 people had a loss between Rs.25,000 and Rs.50,000.

Family disruption: It represents the separation of immediate family members who have been living together due to displacement. There has been no disruption in 161 people and there has been disruption in 39 people.

Dependency status: Among the sample of 200, 111 people are self-dependant, 48 people are dependent on spouse, 29 are dependent on son, 8 are dependent on daughter and 4 are dependent on son in law or daughter in law.

Time to get job after displacement: Among the 125 persons who have been working post displacement, the above chart represents the time taken in months to get job after displacement. It has been divided into fourth groups. The first group consists of people for whom it required less than 3 months to get work after displacement. The second, third and fourth group consist of people for whom it took 3 to 6 months, 6 – 12 months and more than 12 months respectively to get job. The first, second and third group consists of 23, 52 and 50 people respectively. No people come under the fourth category.

PREDISPLACEMENT AREA OF THE SAMPLE POPULATION

The table no.7 in the next page represents the various areas from which the people have been displaced to kannagi Nagar. The sample population consists of people who have been displaced from 14 areas.

TABLE NO.7. PREDISPLACEMENT AREA OF THE SAMPLE POPULATION	
Place	**Frequency (n=200)**
Royapuram	10%
Saidapet	12%
Palavakkam	23%
K.K.Nagar	6.5%
Thiruvanmiyur	4.5%
Royapettah	9.5%
Perambur	5%
Taramani	15%
Kanchipuram	3.5%
Adyar	3%
Neelankarai	3.5%
Teynampet	7%
Kottivakkam	4.5%
Triplicane	4.5%

RESULTS AND OBSERVATIONS

II

A.PREVALENCE OF PSYCHIATRIC MORBIDITY

TABLE NO.8 PREVALENCE OF PSYCHIATRIC MORBIDTY AMONG INTERNALLY DISPLACED ELDERLY POPULATION	
Disease	Frequency (n=200)
Total psychiatric morbidity	37%
Alcohol Dependence Syndrome	22%(n=44)
Depression	13%(n=26)
Psychosis NOS	0.5%(n=1)
Bipolar Affective Disorder	0.5%(n=1)
Anxiety Disorder	0.5%(n=1)
Dementia	0.5%(n=1)

The tableno.8 represents the prevalence of psychiatric morbidity in this sample of internally displaced elderly population. Among this 200 people, 44 people have alcohol dependence syndrome, 26 people have depression, 1 person has anxiety disorder, 1 person has bipolar affective disorder, 1 person has dementia and one person has psychosis nos.

TABLE NO.9

COMPARISON OF PREVALENCE OF PSYCHIATRIC MORBIDITY IN ELDERLY DISPLACED POPULATIONvs GENERAL POPULATION

Disease	Study population	General population[56,67]
Total Psychiatric morbidity	37%	20.5%
Mood disorders	13.5%	6.5%
Psychosis NOS	0.5%	0.6%
Alcohol Dependence Syndrome	22%	4%
Neurotic and stress related disorders	0.5%	1.75%
Dementia	0.5%	2.8%

The data of the general population is obtained from previous studies[56,67] of elderly population. The particular study[56] was chosen since it analysed various studies regarding prevalence of psychiatric morbidity in elderly.From the table no.9 it is evident that the prevalence of psychiatric morbidity in the sample population is more than general elderly population. Also the prevalence of mood disorders and alcohol dependence syndrome are more than general population. Prevalence of psychosis is almost equal in both groups. Prevalence of neurotic and stress related disorders and dementia is slightly in the general elderly population.

TABLE NO.10

PREVALENCE OF PSYCHIATRIC MORBIDITY

AMONG MALES AND FEMALES

Disease	Males (n=92)	Females(n=108)
Mood disorders	1	26
Psychosis NOS	-	1
Alcohol Dependence Syndrome	44	-
Neurotic and stress related disorders	-	1
Dementia	1	-

The table no.10 represents the prevalence of psychiatric morbidity among male population in the sample. Among the 92 males, 46 males have psychiatric morbidity. Among whom, 44 males have alcohol dependence syndrome, one male has been diagnosed with BPAD and one male has dementia.

The table no. chart represents the prevalence of psychiatric morbidity among female population in the sample. Among the 108 females, 28 females have psychiatric morbidity. Among them, 26 females have depression, one female has been diagnosed with anxiety disorder and one has psychosis nos.

TABLE NO.11 NEWLY DIAGNOSED PSYCHIATRIC MORBIDITY POST DISPLACEMENT	
Disease	**Frequency (n=200)**
Alcohol Dependence Syndrome	16%(n=32)
Depression	13%(n=26)
Psychosis NOS	-
Bipolar Affective Disorder	-
Anxiety Disorder	-
Dementia	-

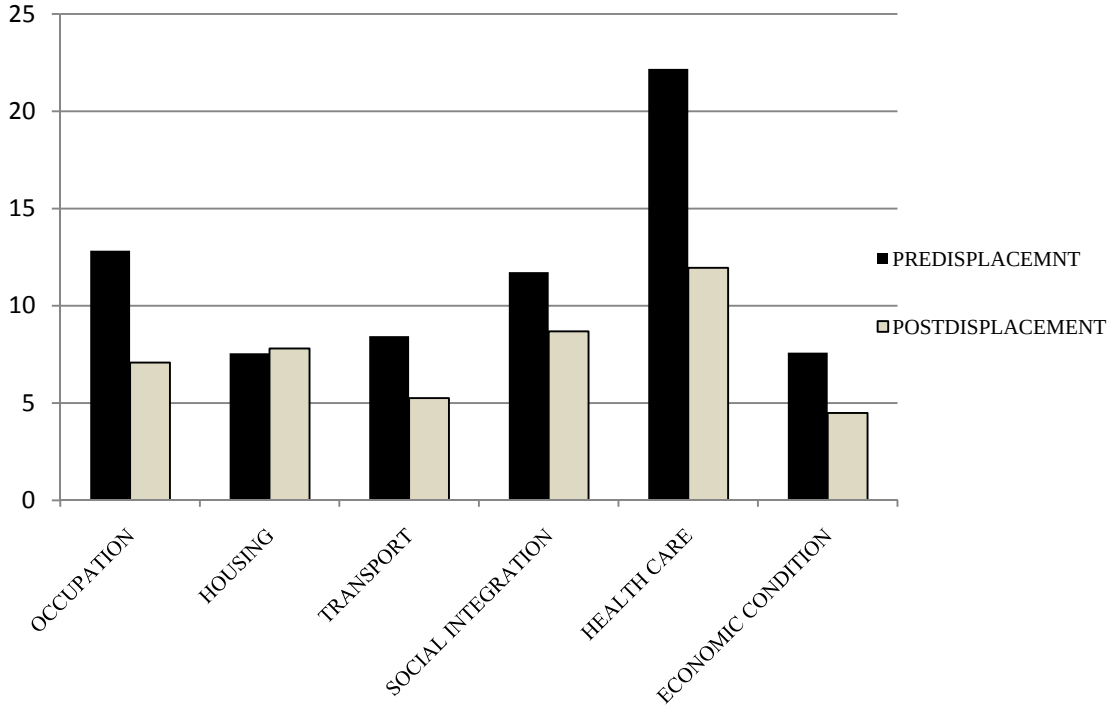
The table no.11 represents the prevalence of psychiatric morbidity that has been newly diagnosed in people post displacement at the time of interview. Among the sample of 200 people, 32 have developed alcohol dependence syndrome after displacement, and 26 people have developed depression after displacement.

RESULTS AND OBERVATIONS

III

A.EFFECTS OF DISPLACEMENT ON STUDY POPULATION

fig.no.3**. EFFECTS OF DISPLACEMENT ON STUDY POPULATION**



The above chart fig.no.3 represents the mean scores of various domains before and after displacement. As noted above there has been decrease in scores from pre-displacement to post displacement levels in domains of occupation, transport, social integration, health care and economic condition, whereas in housing there has been a slight increase in post-displacement status.

TABLE NO:12
PAIRED SAMPLE T TEST TO DETERMINE EFFECT OF DISPLACEMENT ON STUDY POPULATION

Domains	Time	N	Mean	Std. Deviation	Paired sample test			
					mean	S.D.	t	Sig.
Occupation	Pre-displacement	200	12.83	9.145	-5.750	5.081	-16.004	0.000
	Post-displacement	200	7.08	6.237				
Housing	Pre-displacement	200	7.52	1.075	0.250	1.403	2.521	0.012
	Post-displacement	200	7.77	1.055				
Transport	Pre-displacement	200	8.40	.851	-3.170	.936	-47.913	0.000
	Post-displacement	200	5.23	.806				
Social integration	Pre-displacement	200	11.67	.973	-3.030	1.818	-23.568	0.000
	Post-displacement	200	8.64	1.977				
Health care	Pre-displacement	200	22.07	1.872	-10.180	1.870	-77.008	0.000
	Post-displacement	200	11.89	1.616				
Economic condition	Pre-displacement	200	7.55	.807	-3.080	1.433	-30.393	0.000
	Post-displacement	200	4.47	1.480				
Total change	Pre-displacement	200	70.04	10.078	-24.960	8.574	-41.172	0.000
	Post-displacement	200	45.08	7.460				

The table no.12 represents the effect of displacement on the sample population. It represents the paired- t – test analysis of the pre displacement and post displacement scores in each domain. The total sample population is 200.

The observation in each domain has been made before and after displacement, and the factor playing the role is displacement.

From the above table no.12 it is evident that, pre-displacement scores in occupation domain has a mean of 12.83 with a standard deviation of 9.15 and the post displacement scores has a mean of 7.08 with standard deviation of 6.24. When comparing the scores before and after displacement in the occupational domain, the mean difference between the pre and post displacement scores is -5.75, representing mean decrease in scores. The t- value is -16.004 and $p<0.0001$ which indicates the decrease in scores is statistically significant.

In the housing domain, it is evident that, pre-displacement scores have a mean of 7.52 with a standard deviation of 1.075 and the post displacement scores have a mean of 7.77 with standard deviation of 1.055. When comparing the scores before and after displacement in the housing domain, the mean difference between the pre and post displacement scores is 0.25, representing mean increase in scores. The t-

value is 2.52 and $p<0.0125$ which indicates the increase in scores is statistically significant.

In the transport domain, it is evident that, pre-displacement scores have a mean of 8.40 with a standard deviation of 0.851 and the post displacement scores have a mean of 5.21 with standard deviation of 0.806. When comparing the scores before and after displacement, in the transport domain, it is evident that the mean difference between pre and post displacement scores is -3.17, representing mean decrease in scores. The t- value is -47.913 and $p<0.0001$ which indicates the decrease in scores is statistically significant.

It is evident that, pre-displacement scores in social integration domain has a mean of 11.67 with a standard deviation of 0.97 and the post displacement scores has a mean of 8.64 with standard deviation of 1.98. When comparing the scores before and after displacement in the social integration domain, the mean difference between the pre and post displacement scores is -3.03, representing mean decrease in scores. The t-value is -23.57 and $p<0.0001$ which indicates the decrease in scores is statistically significant.

In the health care domain, it is evident that, pre-displacement scores have a mean of 22.07 with a standard deviation of 1.87 and the post displacement scores have a mean of 11.89 with standard deviation of 1.61. When comparing the scores before and after displacement in the

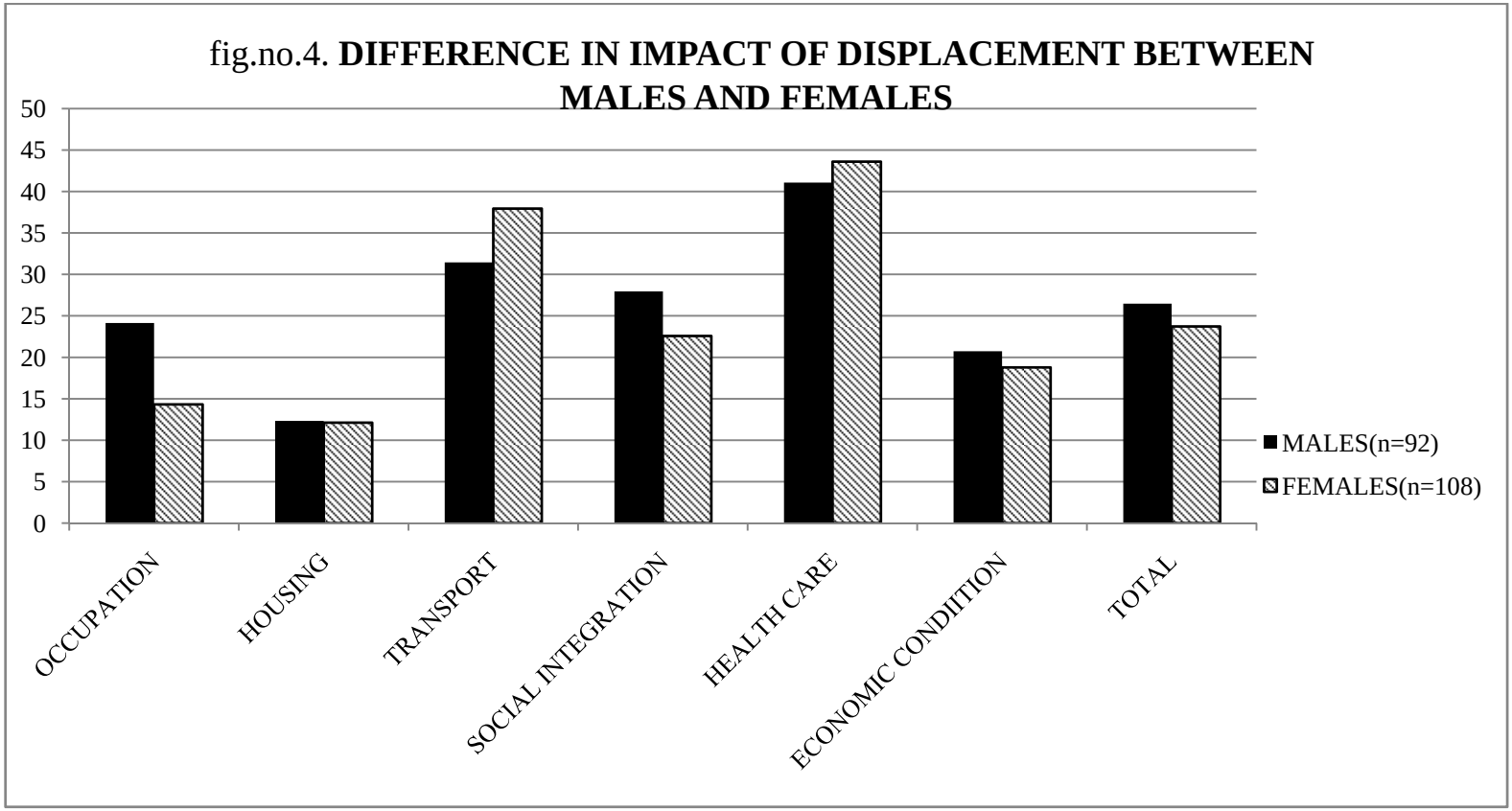
health care domain, it is evident from the above table that, the mean difference between the pre and post displacement scores is -10.18, representing mean decrease in scores. The t- value is -77.008 and $p<0.0001$ which indicates the decrease in scores is statistically significant.

In the economic conditions domain, it is evident that, pre-displacement scores have a mean of 7.55 with a standard deviation of 0.81 and the post displacement scores have a mean of 4.47 with standard deviation of 1.48. When comparing the scores before and after displacement in the domain of economic conditions, it is evident that, the mean difference between the pre and post displacement scores is -3.1, representing mean decrease in scores. The t- value is -30.393 and $p<0.0001$ which indicates the decrease in scores is statistically significant.

In total, it is evident that, pre-displacement scores have a mean of 70.04 with a standard deviation of 10.07 and the post displacement scores have a mean of 45.08 with standard deviation of 7.46. When comparing the scores before and after displacement in the domain of economic conditions, it is evident that, the mean difference between the pre and post displacement scores is -24.96, representing mean decrease in scores. The t- value is -41.172 and $p<0.0001$ which indicates the decrease in scores is statistically significant.

RESULTS AND OBSERVATIONS

fig.no.4. **DIFFERENCE IN IMPACT OF DISPLACEMENT BETWEEN MALES AND FEMALES**



RESULTS AND OBERVATIONS

III

B.DIFFERENCE IN IMPACT OF DISPLACEMENT BETWEEN MALES AND FEMALES

The graph in the previous page fig.no.4.denotes the differences in the domain changes between males and females. It represents the difference in the effect of displacement between males and females. There is more change from the pre-displacement to post-displacement status in males with respect to occupation, housing, social integration and economic domains when compared with females. Whereas in females, the change is more in transport and health care domain when compare with males.

To find whether these changes are significant, independent sample t test is used and the results are tabulated in table no 13

TABLE NO:13
INDEPENDENT SAMPLE T TEST TO FIND THE IMPACT OF DISPLACEMNT ON MALES AND FEMALES

Domains	Sex	N	Mean	Standard deviation	Mean Difference	Levene's test for equality of variance	
						F	p value
Change in Occupation domain	Males	92	24.13	14.768	9.806	.222	.638
	Females	108	14.32	15.934			
Change in Housing domain	Males	92	12.32	8.908	.195	3.228	.074
	Females	108	12.12	10.521			
Change in Transport domain	Males	92	31.45	7.919	-6.490	17.591	.000
	Females	108	37.94	11.414			
Change in Social integration domain	Males	92	27.95	9.775	5.362	33.360	.000
	Females	108	22.58	18.272			
Change in Health care domain	Males	92	41.08	7.385	-2.535	.090	.765
	Females	108	43.61	7.944			
Change in Economic status domain	Males	92	20.74	9.134	1.952	2.746	.099
	Females	108	18.79	8.183			
Total change	Males	92	26.48	8.420	2.756	.521	.471
	Females	108	23.72	8.780			

The change between the pre and post displacement scores in each domain has been converted to percentage to ensure comparability between domains.

With respect to the occupational domain, the mean change between the pre and post displacement scores in case of males is 24.13 and in females it is 14.32. The mean difference between males and females in the occupational domain is 9.806, which denotes the change is more in males in this domain and p-value is 0.638, hence the difference is not statistically significant.

In the housing domain, the mean change between the pre and post displacement scores in case of males is 12.32 and in females it is 12.12. The mean difference between males and females in the housing domain is 0.195, which denotes the change is more in males in this domain and p-value is 0.74, hence the difference is not statistically significant.

With respect to transport domain, the mean change between the pre and post displacement scores in case of males is 31.45 and in females it is 37.94. The mean difference between males and females in the transport domain is -6.490, which denotes the change is more in females in this domain and p-value is <0.001, hence the difference is statistically significant.

In the social integration domain, the mean change between the pre and post displacement scores in case of males is 27.95 and in females it is

22.58. The mean difference between males and females in the social integration domain is 5.362, which denotes the change is more in males in this domain and p-value is <0.001, hence the difference is statistically significant.

With respect to health care domain, the mean change between the pre and post displacement scores in case of males is 41.08 and in females it is 43.61. The mean difference between males and females in the health care domain is –2.535, which denotes the change is more in females in this domain and p-value is 0.765, hence the difference is not statistically significant.

In the economic domain, the mean change between the pre and post displacement scores in case of males is 20.74 and in females it is 18.79. The mean difference between males and females in the economic domain is 1.952, which denotes the change is more in males in this domain and p-value is 0.099, hence the difference is not statistically significant.

In the total, the mean change between the pre and post displacement scores in case of males is 26.48 and in females it is 23.72. The mean difference between males and females in the total is 2.756, which denotes the change is more in males in this domain and p-value is 0.471, hence the difference is not statistically significant.

RESULTS AND OBSERVATIONS

IV

A.FACTORS ASSOCIATED WITH PSYCHIATRIC MORBIDITY

This section presents the results for the analysis of the factors associated with psychiatric morbidity in the sample population. In the sample population of 200 (n=200), 16 people have psychiatric morbidity prior to the displacement process. It includes 12 people with alcohol dependence, one each with psychosis, bipolar affective disorder and dementia. These 16 people have been excluded from the analysis, since they have had onset of illness prior to displacement and hence displacement would not have any effects on the onset of disorder. In this section, people with onset of psychiatric illness following displacement have been taken for the analysis. They constitute a sample of 184 people (n=184).

TABLE NO: 14 CHI-SQUARE TEST TO ASSESS FACTORS ASSOCIATED WITH PSYCHIATRIC MORBIDITY			
Variables	**n**	**chi-square test**	
		value	**p-value**
Sex	184	5.67	**0.017**
Education	184	9.89	**0.02**
Physical illness	184	0.394	0.53
Duration of living	184	11.74	**0.03**
Dependency	184	13.514	**0.009**
Property loss	184	9.824	**0.002**
Financial loss	184	7.169	**0.007**
Family disruption	184	21.722	**<0.001**

The table no.14 presents the results of the chi-square test between psychiatric morbidity and various factors. The chi-square test has been used to find out the presence of relationship if any, between categorical variables, here between psychiatric morbidity and various factors associated with socio-demographic and displacement.

The factors analysed here include sex of the individual, educational status, presence of physical illness, and duration of living in the resettlement area, dependency, and presence of property loss, financial loss and family disruption.

In chi-square test comparing the sex of the population and psychiatric morbidity, the p-value is 0.017(<0.05), which indicates that relationship is statistically significant. There is significant statistical difference between males and females with respect to presence of psychiatric morbidity.

When comparing educational status and psychiatric morbidity using chi-square test, p-value is 0.02, which indicates the relationship is statistically significant. There is significant statistical difference between educational statuses with respect to presence of psychiatric morbidity.

The results indicate that that the relationship between physical illness and psychiatric morbidity is not statistically significant since p value is 0.53.

When comparing duration of living and psychiatric morbidity using chi-square test, p-value is 0.03, which indicates the relationship is statistically significant.

The results also indicate a statistically significant relationship between property loss and presence of psychiatric morbidity since the p-value is 0.002.

In chi-square test comparing the presence of financial loss and psychiatric morbidity, the p-value is 0.007(<0.05), which indicates that relationship is statistically significant. There is significant statistical difference between individuals with and without property loss with respect to the presence of psychiatric morbidity.

The results also indicate a statistically significant relationship between family disruption and psychiatric morbidity since the p value is <0.001.

B.EFFECT OF DISPLACEMENT ON PSYCHIATRIC MORBIDITY

The following graphfig.no.5 represents the changes from the pre-displacement to the post-displacement status in each domain in people with and without psychiatric morbidity. The change is more in people with psychiatric morbidity in occupation, transport, social integration, health care, economic domains. Whereas in the housing domain the change is more in people without psychiatric morbidity.The total change from the pre-displacement to post- displacement status is more in people

with psychiatric morbidity. Independent sample t test has been used to find if the changes due to displacement between people with and without psychiatric morbidity is statistically significant and results are tabulated in table no 15.

fig.no.5. **DIFFERENCE IN EFFECT OF DISPLACEMENT BETWEEN PEOPLE WITH AND WITHOUT PSYCHIATRIC MORBIDITY**

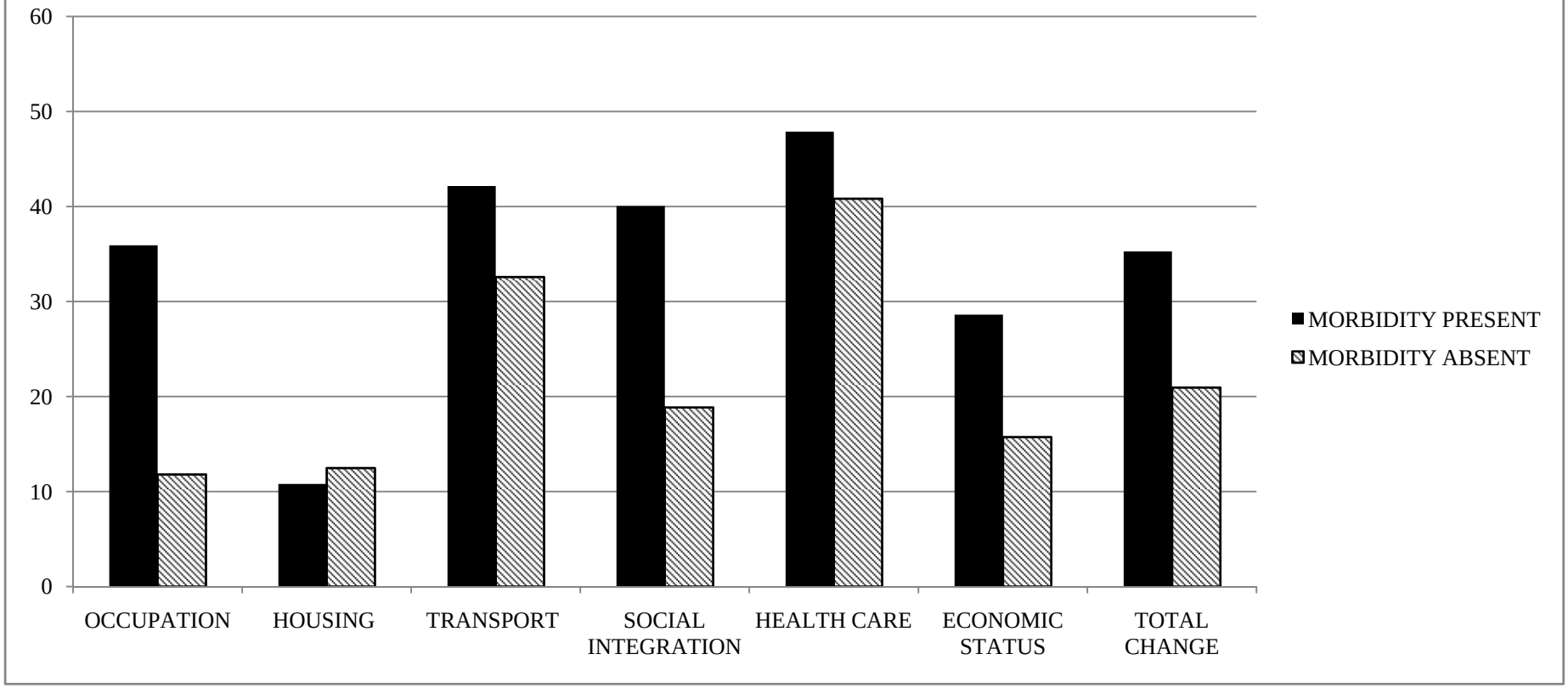


TABLE NO:15

INDEPENDENT SAMPLE T TEST TO FIND THE EFFECT OF DISPLACEMENT ON PSYCHIATRIC MORBIDITY

Domains	Psychiatric morbidity	N	Mean	Std. Deviation	Mean difference	Levene's test for equality of variance	
						F	p value
Change in Occupation domain	Present	58	35.91	15.425	24.104	5.733	.018
	Absent	126	11.81	10.584			
Change in Housing domain	Present	58	10.81	7.844	-1.674	4.609	.033
	Absent	126	12.48	10.445			
Change in Transport domain	Present	58	42.16	10.509	9.576	4.087	.045
	Absent	126	32.58	8.552			
Change in Social integration domain	Present	58	40.05	12.973	21.195	3.986	.047
	Absent	126	18.86	11.380			
Change in Health care domain	Present	58	47.88	6.130	7.602	.005	.941
	Absent	126	40.82	6.093			
Change in Economic status domain	Present	58	28.62	4.043	12.883	27.1028	.000
	Absent	126	15.74	7.120			
Total change	Present	58	35.28	4.514	14.323	2.928	.089
	Absent	126	20.95	5.941			

The change between the pre and post displacement scores in each domain has been converted to percentage to ensure comparability between domains.

With respect to the occupational domain, the mean change from the pre-displacement to the post-displacement scores in case of people with psychiatric morbidity is 35.91 and in people without psychiatric morbidity, it is 11.81. The mean difference in change between people with and without psychiatric morbidity in the occupational domain is 24.104, which denotes the change is more in people with psychiatric morbidity in this domain and p-value is 0.018, hence the difference is statistically significant.

In the housing domain, the mean change from the pre-displacement to the post-displacement scores in case of people with psychiatric morbidity is 10.81 and in people without psychiatric morbidity, it is 12.48. The mean difference between people with and without psychiatric morbidity in the housing domain is -1.674, which denotes the change is more in people without psychiatric morbidity in this domain and p-value is 0.033, hence the difference is statistically significant.

With respect to transport domain, the mean change from the pre-displacement to the post-displacement scores in case of people with psychiatric morbidity is 42.16 and in people without psychiatric

morbidity, it is 32.58. The mean difference between people with and without psychiatric morbidity in the transport domain is 9.576, which denotes the change is more in people with psychiatric morbidity and p-value is 0.045, hence the difference is statistically significant.

In the social integration domain, the mean change from the pre-displacement to the post-displacement scores in case of people with psychiatric morbidity is 40.05 and in people without psychiatric morbidity, it is 18.86. The mean difference between people with and without psychiatric morbidity in the social integration domain is 21.195, which denotes the change is more in people with psychiatric morbidity and p-value is 0.047, hence the difference is statistically significant.

With respect to health care domain, the mean change from the pre-displacement to the post-displacement scores in case of people with psychiatric morbidity is 47.88 and in people without psychiatric morbidity, it is 40.82 The mean difference between people with and without psychiatric morbidity in the health care domain is 7.062, which denotes the change is more in people with psychiatric morbidity and p-value is 0.941, hence the difference is not statistically significant.

In the economic domain, the mean change from the pre-displacement to the post-displacement scores in case of people with psychiatric morbidity is 28.62 and in people without psychiatric

morbidity, it is 15.74. The mean difference between people with and without psychiatric morbidity in the economic domain is 12.883, which denotes the change is more in people with psychiatric morbidity in this domain and p-value is <0.001, hence the difference is statistically significant.

In the total, the mean change between the pre and post displacement scores in case of people with psychiatric morbidity is 35.28 and in people without psychiatric morbidity, it is 20.95. The mean difference between people with and without psychiatric morbidity in the total is 14.323, which denotes the change is more in people with psychiatric morbidity in this domain and p-value is 0.089, hence the difference is not statistically significant.

From the table no.12 it is evident that change in occupational, transport, social integration, health care and economic domains represent a decrease in status from the pre-displacement to post-displacement, where as in housing there is increase in status. Hence, extrapolating it to these findings, decrease in scores in occupational, transport, social integration and economic domain is significantly associated with presence of psychiatric morbidity. Also the increase in scores in the housing domain is significantly associated with absence of psychiatric morbidity in bivariate analysis.

C.MULTIVARIATE ANALYSIS TO FIND FACTORS OF DISPLACEMENT ASSOCIATED WITH PRESENCE OF PSYCIATRIC MORBIDITY:

The displacement factors those were significantly associated with psychiatric morbidity in bivariate analysis have been taken for multivariate analysis. The table no.16 represents the logistic regression analysis of the displacement factors significantly associated with psychiatric morbidity in the displaced people. From the table it is evident that, changes in occupation domain, transport domain, social integration domain and property loss are significantly associated with psychiatric morbidity.

From the table no.16 it is evident that change in occupational, transport, social integration domains represent a decrease in status from the pre-displacement to post-displacement. Hence, extrapolating it to these findings, decrease in scores in occupational, transport, social integration significantly associated with presence of psychiatric morbidity.

TABLE NO:16

BINARY LOGISTIC REGRESSION TO FIND FACTORS ASSOCIATED WITH PSYCHIATRIC MORBIDITY

VARIABLES	SIGNIFICANCE	Exp(B)
Change in Occupational domain	.008	1.446
Change in Housing domain	.386	1.053
Change in Transport domain	.018	1.288
Change in Social integration domain	.007	1.488
Change in Economic domain	.744	.963
Property loss	.028	53.650
Financial loss	.098	21.341
Family disruption	.377	2.422

It also represents that each unit decrease in status from pre-displacement to post-displacement in occupational domain, the people displaced are 1.5 times more likely to have psychiatric morbidity. Similarly for each unit decrease in status from pre-displacement to post-displacement in transport domain, the people displaced are 1.3 times more likely to have psychiatric morbidity. Also, for each unit decrease in status from pre-displacement to post-displacement in social integration domain, the people displaced are 1.5 times more likely to have psychiatric morbidity. It also represents that, people with property loss are 53.7 times more likely to have psychiatric morbidity.

RESULTS AND OBSERVATIONS

V

A.FACTORS ASSOCIATED WITH ALCOHOL DEPENDANCE SYNDROME IN MALES

This section presents the results for the analysis of the factors associated with alcohol dependence in males. In the sample population of 200 (n=200), males constitute 92 people. Out of 92 people, 44 people have alcohol dependence syndrome, one each have dementia and bipolar affective disorder. Of the 44 males with alcohol dependence, 32 have developed alcohol dependence after the displacement. The other 12 males with alcohol dependence syndrome, one each with BPAD and dementia have been excluded from the analysis, since they have had onset of illness prior to displacement and hence displacement would not have any effects on the onset of disorder. Hence after excluding the people with psychiatric morbidity prior to displacement, total male population taken for analysis for association of displacement with alcohol dependence in males is 78.

TABLE NO 17

CHI-SQUARE TEST TO ASSESS FACTORS ASSOCIATED WITH ALCOHOL DEPENDANCE SYNDROME IN MALES

Variables	n	chi-square test	
		value	p-value
Education	78	5.11	0.078
Physical illness	78	6.15	0.013
Duration of living	78	7.92	0.019
Dependency	78	6.20	0.013
Property loss	78	10.49	0.001
Financial loss	78	6.06	0.014
Family disruption	78	0.33	0.567

From the table no 17 it is evident that, presence of physical illness, property loss, financial loss, duration of living have a statistically significant association with alcohol dependence syndrome in males since the p-value is <0.05.

B.EFFECT OF DISPLACAEMENT ON ALCOHOL DEPENDANCE SYNDROME IN MALES

The following graph fig no.6 represents the changes form the pre-displacement to post-displacement status in each domain in males with and without alcohol dependence syndrome. The change is more in males with alcohol dependence syndrome in occupation, transport, social integration, health care, economic domains. Whereas in the housing domain, the change is more in males without alcohol dependence syndrome. The total change in various domains due to displacement is more in males with alcohol dependence syndrome. Independent sample t test has been used to find if the difference in the domain changes between males with and without alcohol dependence is significant and results are tabulated in table no 18

fig.no.6. **DIFFERENCE IN EFFECT OF DISPLACEMENT BETWEEN MALES WITH AND WITHOUT ALCOHOL DEPENDANCE SYNDROME**

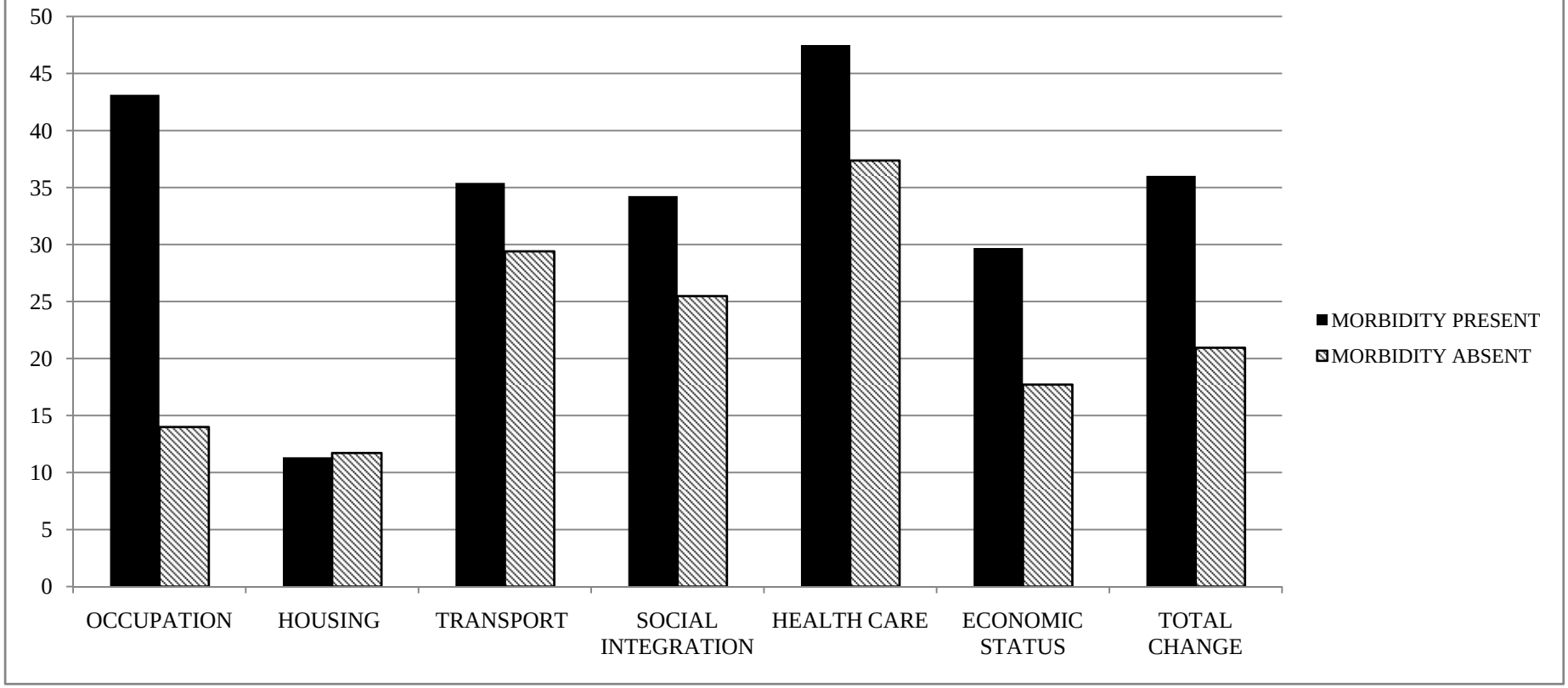


TABLE NO:18INDEPENDENT SAMPLE T TEST TO FIND EFFECT OF DISPLACEMENT ON ALCOHOL DEPENDANCE SYNDROME IN MALES

Domains	Psychiatric morbidity	N	Mean	Std. Deviation	Mean difference	Levene's test for equality of variance	
						F	p value
Change in Occupation domain	Present	32	43.13	3.309	29.13	2.302	.133
	Absent	46	14.00	6.236			
Change in Housing domain	Present	32	11.34	8.138	-0.374	.379	.540
	Absent	46	11.72	8.801			
Change in Transport domain	Present	32	35.41	8.257	5.99	2.096	.152
	Absent	46	29.41	6.581			
Change in Social integration domain	Present	32	34.25	5.249	8.77	23.045	.000
	Absent	46	25.48	10.147			
Change in Health care domain	Present	32	47.50	4.846	10.13	.039	.845
	Absent	46	37.37	5.127			
Change in Economic status domain	Present	32	29.69	2.520	14.97	41.809	.000
	Absent	46	14.72	7.467			
Total change	Present	32	36.03	2.192	14.66	9.465	.003
	Absent	46	21.37	5.740			

The change between the pre and post displacement scores in each domain has been converted to percentage to ensure comparability between domains.

As per the table no.18, p-value for change is social integration, economic domain and the total change due to displacement is <0.001 and thus change in these domains in males have a statistically significant association with presence of alcohol dependence syndrome.

From the table no.12 it is evident that change in occupational, transport, social integration, health care, economic domains and the total change due to displacement represent a decrease in status from the pre-displacement to post-displacement, where as in housing there is increase in status. Hence, extrapolating it to these findings, decrease in scores in social integration and economic domain, and a total decrease in the status from pre-displacement to post-displacement is significantly associated with presence of psychiatric morbidity.

When the displacement factors those were significantly associated with psychiatric morbidity in Bivariate analysis were subjected to multivariate analysis by logistic regression analysis, no statistically significant association was found between factors of displacement and alcohol dependence syndrome in males.

RESULTS AND OBSERVATIONS

VI

A.FACTORS ASSOCIATED WITH DEPRESSION IN FEMALES

This section presents the results for the analysis of the factors associated with depression in females. In the sample population of 200 (n=200), females constitute 108 people. Out of 108 people, 26 people have alcohol dependence syndrome, one each have psychosis nos and anxiety disorder. The females with psychosis and anxiety disorder have been excluded from the analysis, since they have had onset of illness prior to displacement and hence displacement would not have any effects on the onset of disorder. Hence after excluding the people with psychiatric morbidity prior to displacement, total female population taken for analysis for association of displacement with depression in females is 106.

TABLE NO :19. CHI-SQUARE TEST TO ASSESS FACTORS ASSOCIATED WITH DEPRESSION IN FEMALES			
Variables	**n**	**chi-square test**	
		Value	**p-value**
Education	106	4.95	0.084
Physical illness	106	0.73	0.392
Duration of living	106	0.23	0.636
Dependency	106	7.975	0.092
Property loss	106	0.07	0.797
Financial loss	106	8.8	**0.003**
Family disruption	106	37.03	**<0.001**

From the above table no.19 it is evident that, presence of financial loss and family disruption have a statistically significant association with depression in females since the p-value is <0.05.

B. EFFECT OF DISPLACAEMENT ON DEPRESSION IN FEMALES

The following graphfig.no.7 represents the changes form the pre-displacement to post-displacement status in each domain in females with and without depression. The change is more in females with depression in occupation, transport, social integration, health care, economic domains. Whereas in the housing domain, the change is more in females without depression. The total change in various domains due to displacement is more in females with depression. Independent sample t test has been used to find if the difference in the domain changes between females with and without depression is significant and results are tabulated in table no 21.

fig.no.7. **DIFFERENCE IN EFFECT OF DISPLACEMENT BETWEEN FEMALES WITH AND WITHOUT DEPRESSION**

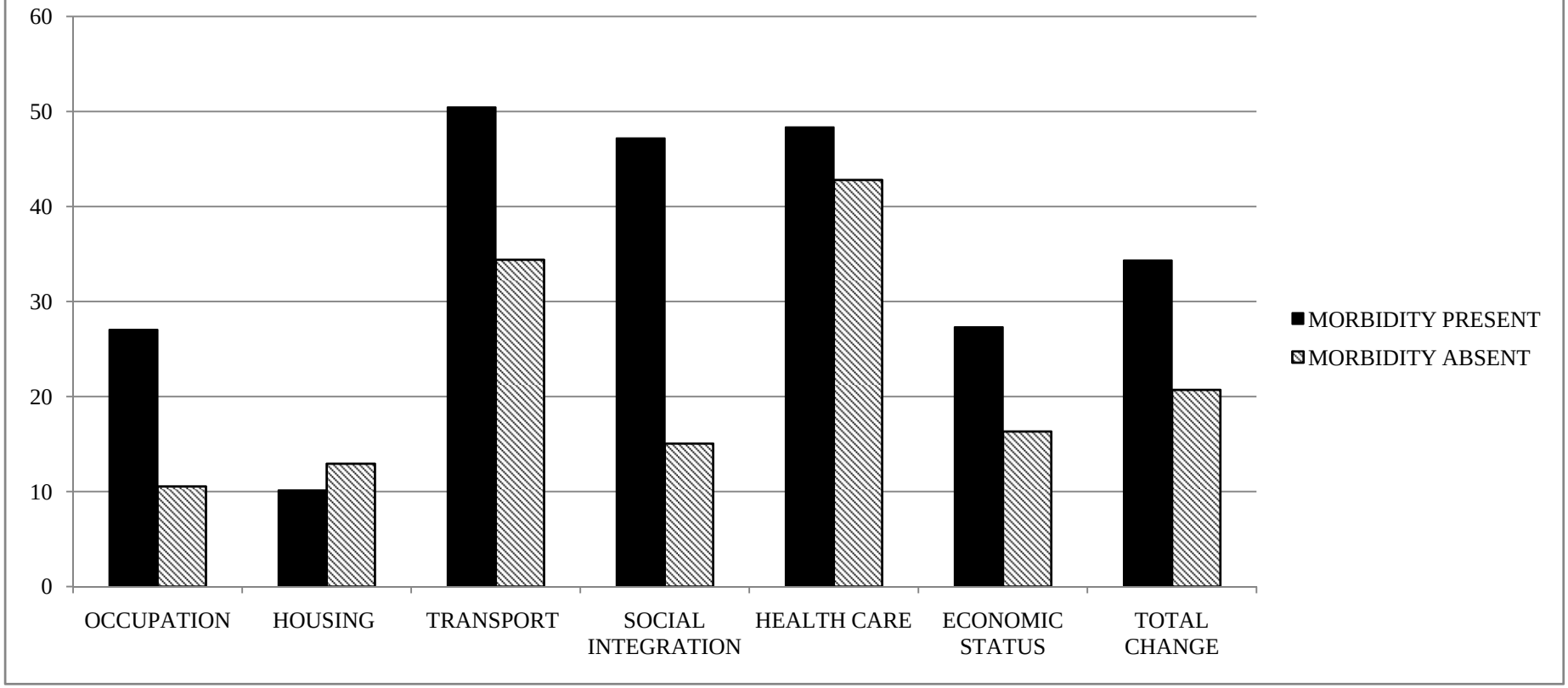


TABLE NO:20. INDEPENDENT SAMPLE T TEST TO FIND THE EFFECT OF DISPLACEMENT ON DEPRESSION IN FEMALES

Domains	Psychiatric morbidity	N	Mean	Std. Deviation	Mean difference	Levene's test for equality of variance	
						F	p value
Change in Occupation domain	Present	26	27.04	19.505	16.49	35.122	.000
	Absent	80	10.55	12.275			
Change in Housing domain	Present	26	10.15	7.572	-2.77	7.110	.009
	Absent	80	12.93	11.312			
Change in Transport domain	Present	26	50.46	6.101	16.06	1.715	.193
	Absent	80	34.40	9.048			
Change in Social integration domain	Present	26	47.19	15.920	32.14	10.038	.002
	Absent	80	15.05	10.299			
Change in Health care domain	Present	26	48.35	7.494	5.55	3.639	.059
	Absent	80	42.80	5.733			
Change in Economic status domain	Present	26	27.31	5.113	10.98	5.975	.016
	Absent	80	16.33	6.891			
Total change	Present	26	34.35	6.235	13.63	.674	.413
	Absent	80	20.71	6.076			

The change between the pre and post displacement scores in each domain has been converted to percentage to ensure comparability between domains.

As table no.20, p-value for change is occupational, economic domain and social integration domain is <0.001 and thus change in these domains in females have a statistically significant association with presence of depression.

From the table no.12 it is evident that change in occupational, transport, social integration, health care, economic domains and the total change due to displacement represent a decrease in status from the pre-displacement to post-displacement, where as in housing there is increase in status. Hence, extrapolating it to these findings, decrease in scores in occupational, social integration and economic domain from pre-displacement to post-displacement, is significantly associated with presence of psychiatric morbidity.

C.MULTIVARIATE ANALYSIS TO FIND FACTORS OF DISPLACEMENT ASSOCIATED WITH PRESENCE OF DEPRESSION:

The displacement factors those were significantly associated with depression in females in bivariate analysis have been taken for

multivariate analysis. The table no 21 represents the logistic regression analysis of the displacement factors significantly associated with depression in the displaced females. From the table no.21 it is evident that, changes in transport domain and economic domain are significantly associated with depression in females.

TABLE NO:21. BINARY LOGISTIC REGRESSION TO FIND FACTORS ASSOCIATED WITH DEPRESSION IN FEMALES

VARIABLES	SIGNIFICANCE	Exp(B)
Change in Occupational domain	.581	1.020
Change in Transport domain	.011	1.471
Change in Economic domain	.015	1.322
Financial loss	.228	5.969
Family disruption	.064	.001

From the table no.18 it is evident that change in transport, economic domains represents a decrease in status from the pre-displacement to post-displacement. Hence, extrapolating it to these findings, decrease in scores in transport and economic domains are significantly associated with presence of depression in females.

It also represents that each unit decrease in status from pre-displacement to post-displacement in transport domain, the females displaced are 1.5 times more likely to have depression. Similarly for each unit decrease in status from pre-displacement to post-displacement in economic domain, the females displaced are 1.3 times more likely to have depression.

DISCUSSION

The study was done with two objectives. First, to find out whether the prevalence of psychiatric morbidity in the internally displaced elderly population is more than the general elderly population. Second, to assess whether there are any factors pertaining to displacement are associated with psychiatric morbidity.

The results will be discussed in the following sections

1. Socio-demographic profile of the population
2. Prevalence of psychiatric morbidity
3. Effect of displacement on the displaced population.
4. Factors associated with psychiatric morbidity.
5. Factors associated with alcohol dependence syndrome in males
6. Factors associated with depression in females

Socio-demographic profile of the population:

In the present study, the sample population is from Kannagi Nagar, major resettlement area of the people displaced from Chennai. In the sample population, most of the people are between 60 to 70 years of age, which is in line with the life expectancy of the Indian population which is

68.8 years. The population consists of almost equal number of males (n=92) and females (n=108). Hence the two groups are almost equally represented. In the sample population, almost 93 %(n=186) live with their spouse which is very high when compared to general elderly population where 57.5% of the elderly live with their spouses. It may represent the presence of an immediate family member to look out for during the displacement. On the other hand, it may also pose an additional stress when the other member is not economically productive. Also when the spouse is abusing alcohol it becomes an enduring stress, since there have been no treatment options available in the sample community where they can be treated.

In the sample population 23.5% have hypertension, compared to 5.4% in the general elderly population. The percentage of people having diabetes is 14% when compared to 5.3% of the general elderly population. This represents the increased health care needs of the population that has to be taken into account during resettlement. But the people have reported a significant decrease I n the health care facilities after displacement.

In the present study 56% have been displaced before 5 years and other 38% have been displaced before one year. It may represent that the immediate effects of displacement have passed and people are

experiencing the enduring stress due to displacement which has not been represented much in research regarding internally displaced population.

In the population taken for study, 62.5% are working which is high compared general elderly population where 39% are employed. Also 55% are not dependant on others when compared to 39% in general elderly population. The discrepancy may be due to the relatively underprivileged nature of the sample population which makes working in the old age imperative to meet their daily needs. Hence, they are very much affected when displacement has decreased the job opportunities, represented by a significant decrease in the occupational domain.

In sample population, 10% of people have encountered a property loss and 61.8% have suffered financial loss due to displacement. The property and economic status has been product of the working all through their life. In this population which represents a majority of people in the low socio economic status, such loss significantly affect their process of re-establishing their livelihood and regaining a stable economic condition.

In this population, there has been disruption of family for 19.5% of the population due to displacement. Where 20.5% have been dependant on people other than their spouses, separation from son, daughter and

other family members, have a considerable effect in the social and economic aspects of their life.

Hence the socio-demographic profile represents the needs of this population that have to be taken into account during displacement, to prevent the worsening in the status of SDOH, which determine he health status of the population and which are affected by displacement.

2. Prevalence of psychiatric morbidity:

From this study, it is known that, the prevalence of psychiatric morbidity in the internally displaced elderly population (37%) is higher than the prevalence in general population (20.5%)[56]. Hence the hypothesis that the prevalence of psychiatric morbidity in the internally displaced elderly population is more than the general elderly population is proved. Since displacement is the factor that has affected the SDOH of this population, the next step in the analysis is to determine whether displacement has association with the increased prevalence of psychiatric morbidity in this population.

When individual disorders are taken into consideration, the prevalence of alcohol dependence syndrome (22% vs 4%[(67)]) and mood disorders particularly depression (13.5% vs 6.5%[(56)]) are considerably higher than the general population. Also their prevalence has

considerably increased post displacement. Hence this warrants individual analysis of the effect of displacement on alcohol dependence syndrome and depression. The results are discussed in the following sections.

3. Effect of displacement on internally displaced population:

From the results, it is evident that, Displacement has affected the population significantly. Displacement has caused the worsening of the social determinants of health in this displaced population and the effect is significant. There has been a significant decrease in the job opportunities, increase in distance to work place, loss of job, increased cost of transportation, decreased frequency and difficulty in access to transport facilities, difficulty in access to government bodies, difficulty in access to recreational facilities, family disruption, decreased social and family gatherings, difficulty in accessing primary and speciality health care, increased health care costs, decreased monthly income and increased monthly expenses, loss of property and financial loss due to displacement.

There has been difference in the effect of displacement between males and females. Females have been affected significantly more than males due to increased cost of transportation, decreased frequency and difficulty in access to transport facilities. Males have been affected

significantly more than females due to difficulty in access to government bodies, difficulty in access to recreational facilities, family disruption, decreased social and family gatherings. There is no significant difference in the effect of displacement between males and females in other areas. This is reflective culturally mediated difference in gender roles in our society where men ride vehicles on their own and women are dependant on public transport and men are more active in social and political life.

4. Factors associated with psychiatric morbidity:

When the factors affected by displacement are analysed individually, the job opportunities, increase in distance to work place, loss of job, increased cost of transportation, decreased frequency and difficulty in access to transport facilities, difficulty in access to government bodies, difficulty in access to recreational facilities, family disruption, decreased social and family gatherings, decreased monthly income and increased monthly expenses, loss of property and financial loss are associated with presence of psychiatric morbidity in the internally displaced people.

When these factors are play at the same time, as in the natural setting, then the job opportunities, increase in distance to work place, loss of job, increased cost of transportation, decreased frequency and

difficulty in access to transport facilities, difficulty in access to government bodies, difficulty in access to recreational facilities, decreased social and family gatherings and loss of property are significantly associated with presence of psychiatric morbidity in the internally displaced people. For each unit worsening of the occupational factors, the people displaced are 1.5 times more likely to have psychiatric morbidity. Similarly for each unit worsening of transport related factors and social integration related factors, the people displaced are 1.3 and 1.5 times more likely to have psychiatric morbidity. It also represents that, people with property loss are 53.7 times more likely to have psychiatric morbidity.

This indicates that development induced displacement affects the social determinants of health and thus poses a risk for psychiatric morbidity in displaced elderly people, which has also been reported in previous studies[43,44,52,53,54].

5. Factors associated with alcohol dependence syndrome in males:

When the factors affected by displacement are analysed individually, physical illness, increased cost of transportation, decreased frequency and difficulty in access to transport facilities, decreased monthly income and increased monthly expenses, loss of property and

financial loss due to displacement are associated with the presence of alcohol dependence syndrome in males.

When these factors have been subjected to multivariate analysis, a significant relationship could not be statistically obtained. It may be because of a limited sample size.

In line with previous studies[43,44,52,53,54], this study indicates that development induced displacement affects the social determinants of health and thus poses a risk for alcohol dependance in displaced elderly males.

6. Factors associated with depression in females:

When the factors affected by displacement are analysed individually, decrease in the job opportunities, increase in distance to work place, loss of job, difficulty in access to government bodies, difficulty in access to recreational facilities, family disruption, decreased social and family gatherings, increased health care costs, decreased monthly income and increased monthly expenses, and financial loss are significantly associated with the presence of depression.

When these factors are play at the same time, as in the natural setting, then , increased cost of transportation, decreased frequency and difficulty in access to transport facilities, decreased monthly income and

increased monthly expenses are significantly associated with the presence of depression in females. For each unit worsening of the transportation factors, the females displaced are 1.5 times more likely to have depression. Similarly for each unit worsening of economic factors, the females displaced are 1.3 times more likely to have depression. Decreased transport facilities can prevent social gatherings, family gathering and hence possible isolation.

In line with previous studies[43,44,52,53,54], this study indicates that development induced displacement affects the social determinants of health and thus poses a risk for depression in displaced elderly females.

Thus the second hypothesis that there are specific factors pertaining to displacement that are associated with psychiatric morbidity is proved. The direction of association has also been evident.

SUMMARY

According to the WHO Commission on Social Determinants of Health, the SDOH affect the health status of the population and hence morbidity and mortality. There are various factors that affect the SDOH. Development Induced Displacement and Resettlement is one among the various factors that affect the SDOH. There has been research indicating increased prevalence of psychiatric morbidity among internally displaced people due to various reasons. The prevalence of psychiatric morbidity among internally displaced people due to DIDR has not been explored. In this study, the prevalence of psychiatric morbidity among internally displaced elderly population in Kannagi Nagar, a major resettlement area for the people from various parts of Chennai, is assessed.

The factors pertaining to displacement that are associated with psychiatric morbidity is also assessed. The sample population consists of people more than 60 years of age who have displaced from various parts of Chennai and resettled in Kannagi Nagar. The sample size is 200 people. Considering the risks due to displacement mentioned by Michael Cernea and through in-depth interviews and FGDs, various factors affected due to displacement are obtained and incorporated into a questionnaire. The questionnaire is validated against a standard validated socio-economic scale and its inter-rater reliability is established

statistically. The sample population is interviewed with the questionnaire to find the effect of displacement in this population. The prevalence of psychiatric morbidity in the sample population is assessed through SCAN. The results are analysed using appropriate statistical methods. Analysing the socio-demographic profile, it is evident that this population is in need of appropriate job opportunities, health care facilities and appropriate social support. Displacement has led to the worsening of social determinants of health.

The prevalence of psychiatric morbidity is higher in this internally displaced elderly population compared to the general elderly population. The prevalence of alcohol dependence syndrome and depression is considerably high in the study population. The worsening of occupational and transport factors, decrease in social integration, loss of property has been associated with increased prevalence of psychiatric morbidity. Increased cost of transportation, decreased frequency and difficulty in access to transport facilities, decreased monthly income and increased monthly expenses has been associated with increased prevalence of depression. This indicates that development induced displacement affects the social determinants of health and thus poses a risk for psychiatric morbidity in displaced elderly people.

CONCLUSION

Displacement has been associated with the worsening of SDOH and thus has been significantly associated with increased prevalence of psychiatric morbidity in the study population. This suggests a possible etiological significance.

From the study it is evident that, by addressing the SDOH during displacement, it is be possible to decrease the prevalence of psychiatric morbidity in the displaced population These findings may have significance on the factors to be considered when making policy decisions regarding DIDR, analysis of the needs of the population before displacement and need for proper rehabilitative measures after displacement to prevent the increased prevalence of psychiatric morbidity.

The results indicate the need for increased health care facilities, transport facilities, increased job opportunities and appropriate working conditions, adequate economic compensation, provision of appropriate social environment in the internally displaced community.

It also represents an immediate need for the establishment of Psychiatric health care services in this community, in an appropriate and accessible way.

LIMITATIONS

Among the various places from which the people have been displaced, the study population represent people displaced from 14 places; hence a stratified random sampling would have been more appropriate. Since the data regarding the demographic distribution of the community was not available, stratified sampling method could not be done.

The past psychiatric illness was determined from past medical records and history collected. Hence there may the possibility of recall bias.

The pre-displacement scores on various demographic and displacement domains were assessed retrospectively and hence could be subjected to recall bias.

The inclusion of a control group from the area from where the people have been displaced would have taken into account of the other confounding factors and thus would have added more significance to this study and obtained a causal relationship.

The study being a dissertation, interviewer was the only person involved in data collection and hence a possibility of observer bias to be considered.

FUTURE DIRECTIONS

This study is an attempt to determine the prevalence of psychiatric morbidity in the internally displaced population due to development. Further studies in the displaced community representing people displaced from various places of Chennai are required. Further studies may include a large sample size and a control group from the area from where these people have been displaced.

In future DIDRs, the effect of displacement on various SDOH has to be taken into account and measures to be taken accordingly along with community participation in policy decisions and rehabilitative measures.

Psychiatric health care services should be established in the DIDR areas and establishment of psychiatric health care services should be considered in areas or during enactment of plans where SDOH are at risk to be affected.

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ANNEXURE:1: SOCIO-DEMOGRAPHIC PROFILE

							score
I1. INFORMANT NAME		I3. INFORMANT ADDRESS:					
I2. INFORMANT ID							
Q1.Age							
Q2. Sex	1.Male	2.female					
Q3.Marital status	1.Single			3.Divorced			
	2.Married			4.Widow			
Q4.Education	1.Professional			5.Middle school			
	2.Graduate or Post Graduate			6.Primary school			
	3.Post high school diploma			7.Illiterate			
	4.High school						
Q5.Religion	1.Hindu		3.Muslim				
	2.Christian		4.others				
			5.do not like to say				
Q6.Psychiatric diagnosis	1.Alcohol dependence syndrome		4.Anxiety disorder				
	2.Depression		5.BPAD				
	3.Psychosis		6.Dementia				
			7.others –specify				
If depression	1.Mild	2.Moderate	3.Severe				
Q6a. duration of illness	1.6m	2.6m – 1 yr	3.1-3 yrs	4.3-5 yrs			
	5.5-10 yrs	6.>10 yrs					
Q7.Presence of Physical illness	1.Yes	2.No					
If yes--- 1.HT 2.DM 3.BA 4.thyroid disorders 5.others							
Q8.Presence of Psychiatric illness	1.Yes	2.No					
If yes--- 1.ADS 2.Dep 3.psychosis 4.anxiety 5.BPAD 6. Dementia 7.others							

ANNEXURE 2 :SCALE TO ASSESS EFFECTS OF DISPLACEMENT ON SOCIAL DETERMINANTS OF HEALTH

I1. INFORMANT NAME		I3. INFORMANT ADDRESS:			score
I2. INFORMANT ID					
DISPLACEMENT FACTORS:					
Q9.Reason for displacement	1.Development	2.Natural disaster			
	3.Others				
Q10.Area from which the person is displaced	1.Royapuram	2.Saidapet	3.Palavakkam		
	4.K K Nagar	5.Thiruvanmiyur	6.Royapettah		
	7.Perambur	8.Taramani	9.Kanchipuram		
	10.Adyar	11.Neelankarai	12.Kottivakkam		
	13.Teynampet	14.Triplicane	Others – specify		
Q11.Mode of displacement	1.Voluntary	2.Involuntary			
Q12.Dependant on:		1.Self			Q
		2.husband			
		3.son			
		4.daughter			
		5.in laws			
		6.others			
Q13.Duration of stay	Pre displacement	Post displacement			
	1.<1 yrs	1.<1 yrs			
	2.1-5 yrs	2.1-5 yrs			Q
	3.>5 yrs	3.>5 yrs			
D1.Occupation	Pre displacement	Post displacement***TOTAL SCORE***			***30***
Q14.Type of occupation	1.Professional	1.Professional			12
	2.Semi-Professional	2.Semi-Professional			10
	3.Clerical/Shop owner/Farmer	3.Clerical/Shop owner/Farmer			8
	4.Skilled worker	4.Skilled worker			6
	5.semi-skilled	5.semi-skilled			4
	6.unskilled	6.unskilled			2
	7.unemployed	7.unemployed			0
Q15.if unemployed - reason		1.no opportunities 2.distance 3.less salary 4.physical illness 5.retired 6.Others			Q
Name of job					
If employed the following questions regarding job to be asked:					
Q16.How soon found job after displacement		< 3 months			Q
		3 – 6 m			
		6 – 12 m			

		>12 m	
Q17.Distance	1.<5 km	1.<5 km	3
	2.5-10 km	2.5-10 km	2
	3.>10 km	3.>10 km	1
Q18.Job opportunities	1.<10 days/month	1.<10 days/month	1
	2.10-20 days/month	2.10-20 days/month	2
	3.>20 days/month	3.>20 days/month	3
Q19.Total working hours per day	1.<6 hrs	1.<6 hrs	1
	2.6 - 12 hrs	2.6 - 12 hrs	2
	3. > 12hrs	3. > 12hrs	3
Transportation facilities to work:			
Q20.Accesibility	1.<1 km	1.<1 km	3
	2.1-3 km	2.1-3 km	2
	3.>3 km	3.>3 km	1
Q21.Frequency	1.once in 15 min	1.once in 15 min	3
	2.15 min to 1 hr	2.15 min to 1 hr	2
	3. once in 1 hr	3. once in 1 hr	1
Q22.Cost	1.<rs.50/day	1.<rs.50/day	1
	2. rs.50-100/day	2. rs.50-100/day	2
	3. >100/day	3. >100/day	3
D2.Housing	Pre displacement	Post displacement***TOTAL SCORE***	***9***
Basic facilities:			
Q23.Water	1.Good	1.Good	2
	2.Poor	2.Poor	1
Q24.Electricity	1.Good	1.Good	2
	2.Poor	2.Poor	1
Q25.Sanitation	1.Good	1.Good	2
	2.Poor	2.Poor	1
Q26.ease of access to neighbourhood in view of location of household.	1.access is easy	1.access is easy	3
	2.accessible(neither easy nor difficult)	2.accessible(neither easy nor difficult)	2
	3.access is difficult(reason)	3.access is difficult(reason)	1
D3.Transportation facilities:		***TOTAL SCORE***	***9***
Q27.Accesibility	1.<1 km	1.<1 km	3
	2.1-3 km	2.1-3 km	2
	3.>3 km	3.>3 km	1
Q28.Frequency	1.once in 15 min	1.once in 15 min	3
	2.15 min to 1 hr	2.15 min to 1 hr	2
	3. once in 1 hr	3. once in 1 hr	1
Q29.Cost	1.<rs.50/day	1.<rs.50/day	1
	2. rs.50-100/day	2. rs.50-100/day	2
	3. >100/day	3. >100/day	3

D4.Social Integration	***Pre displacement***	***Post displacement TOTAL SCORE***	***12***
Q30.Access to recreational facilities	1.<5 km	1.<5 km	3
	2.5-10 km	2.5-10 km	2
	3.>10 km	3.>10 km	1
Q31.Social gatherings	1.once a month	1.once a month	1
	2.once in 6 month	2.once in 6 month	2
	3.>6 months	3.>6 months	3
Q32.Family gatherings	1.once a week	1.once a week	1
	2.once a month	2.once a month	2
	3.more than a month	3.more than a month	3
Q33.Disruption of family post displacement	Not applicable	1.Yes	Q
		2.No	
Q34.Access to government bodies	1.<5 km	1.<5 km	3
	2.5-10 km	2.5-10 km	2
	3.>10 km	3.>10 km	1
D5.Health Factors	***Pre displacement***	***Post displacement TOTAL SCORE***	***24***
Q35.access to primary care – in time	1.<15 min	1.<15 min	4
	2.15-30 min	2.15-30 min	3
	3.30 -60 min	3.30 -60 min	2
	4.>60 min	4.>60 min	1
Q36.access to speciality set up – in time	1.<1/2 hr	1.<1/2 hr	3
	2.1/2 hr – 1 hr	2.1/2 hr – 1 hr	2
	3.>1hr	3.>1hr	1
Q37.access to required medicines – in time	1.<15 min	1.<15 min	4
	2.15-30 min	2.15-30 min	3
	3.30 -60 min	3.30 -60 min	2
	4.>60 min	4.>60 min	1
Q38. Average cost of medical care per month (in rupees)	1.<100	1.<100	4
	2.100-500	2.100-500	3
	3.500-1000	3.500-1000	2
	4.>1000	4.>1000	1
Transportation for health care:			
Q39.Accesibility	1.<1 km	1.<1 km	3
	2.1-3 km	2.1-3 km	2
	3.>3 km	3.>3 km	1
Q40.Frequency	1.once in 15 min	1.once in 15 min	3
	2.15 min to 1 hr	2.15 min to 1 hr	2
	3. once in 1 hr	3. once in 1 hr	1
Q41.Cost	1.<rs.50/visit	1.<rs.50/visit	1
	2. rs.50-100/visit	2. rs.50-100/visit	2
	3. >100/visit	3. >100/visit	3

D6.Economic factors	***Pre displacement***	***Post displacement***	***TOTAL SCORE***	***16***
Q42.source of income	1.self	1.self		Q
	2.rent/others	2.rent/others		
	3.support by family	3.support by family		
	4.government benefits	4.government benefits		
Q.43.Monthly expense (in rupees)	1.<2000	1.<2000		4
	2.2000-5000	2.2000-5000		3
	3.5000-10,000	3.5000-10,000		2
	4.>10,000	4.>10,000		1
Q44.Loss of property	N/A	1.yes 2. No		Q
		if yes----		
		1.shop		
		2.land		
		3.house		
		4.others		
Q45.Financial loss due to displacement (in rupees)	N/A	1.yes 2. No		Q
		if yes----		
		1.<25,000		
		2.25,000-50,000		
		3.>50,000		
Q46.Property loss due to displacement in terms of money(in Rs)	N/A	1.yes 2. No		Q
		if yes----		
		1.<50,000		
		2.50,000-2,00,000		
		3.>2,00,000		
Q47.Average Monthly Income	1.<1589	1.<1589		1
	2.1590-4726	2.1590-4726		2
	3.4727-7877	3.4727-7877		3
	4.7878-11816	4.7878-11816		4
	5.11817-15753	5.11817-15753		6
	6.15754-31506	6.15754-31506		10
	7.>31,507	7.>31,507		12
			Total score	***100***