Health Problems and Health Seeking Behaviour of Migrant Construction Workers in National Capital Region

Thesis submitted to Jawaharlal Nehru University

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DECLARATION

I, MR. Lakhbhadra Singh Naruka, hereby declare that the thesis entitled **"Health Problems and Health Seeking Behaviour of Migrant Construction Workers in National Capital Region"** submitted by me for the award of the degree of Doctor of Philosophy (Ph.D) is my bona fide work. The thesis has not been submitted so far in part or in full, for any degree or diploma of this university or any other university.

Lakhbhadra Singh Naruka

CERTIFICATE

It is hereby recommended that this thesis be placed before the examiners for evaluation.

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CONTENTS

LIST OF TABLES

LIST OF FIGURES AND MAPS

LIST OF ABBREVIATIONS

MCWs	Migrant Construction Workers
CWs	Construction Workers
NCR	National Capital Region
ASHA	Accredited Social Health Activist
CHW	Community Health Worker
GOI	Government of India
GOVT	Government
HSB	Health-Seeking Behaviour
HIV	Human immunodeficiency virus
MDG	Millennium Development Goal(s)
MOHFW	Ministry Of Health and Family Welfare
NFHS	National Family Health Survey
NGOS	Non Governmental Organization
NRHM	National Rural Health Mission
OBC	Other Backward Classes
PHC	Public Health Centre
SC	Schedule Castes
ST	Schedule Tribes
T.B	Tuberculosis
W.H.O.	World Health Organization

CHAPTER I

INTRODUCTION

1.1 : Introduction

In every nation, there are many sub-groups in its population such as children, women, elderly, adults, disabled persons which are observed more vulnerable regarding to their health, migrants are one of them. At present, migration is a universal phenomenon which can be seen in every corner of the world. Migration is a dynamic and complex social interactive process between origin and destination points which has implications for social, cultural, political, religious, demographic and economic change in a society. Migrants are generally considering those people who are involving in the spatial mobility with the change in their residence. In India, according to census, 2001 there were 309 million people who migrated within the country that is around 30 per cent of total population, in which 70.7 per cent were reported as women and 67.2 per cent and 32.8 per cent belongs to rural and urban area respectively *(RGI, 2001)*.

There are many social, cultural, political, economic, personal and natural forces (Push and Pull factors) which motivate people to migrate from their usual place of residence to destination place. In context of the economic phenomenon, people generally change their place of residence due to lack to employment opportunities and migrate to other place where they find better source of income for their livelihood and sustain their life. The migration process have significant impact both at origin place as well as at destination place, therefore, more attention is given to understand the structural and policy factors which explains why the migration has positive effects on development process in some place and negative effects on other places.

Migrants are generally considered as “floating, and invisible” population in between their origin and destination area and always remain outsider in the society of destination place. In India, internal migration always has been provided little attention by policy maker and government. Government has totally failed to provide any kind of legal and social protection to migrant which is most vulnerable group of the society. Whereas, internal migration play a pivotal role both in social life and economic development by filling shortage of labour at the lowest cost and exchange of ideas, cultural values and beliefs in country. Migrant people are

carrying double burden regarding to vulnerability because of, one side, there is absence of effective policy and strategy and other side, they live in unhealthy living and working condition, and unable to access basic social services such as food, shelter, health, and education. These conditions pose great questions for the policy maker and planner for human development and well-being *(UNESCO & UNICEF, 2012).*

1.2: Migration, Health and Development

Migration as a universal phenomenon happens all over the world. Poor people are generally migrate internal area within a country but in developing countries such as India and China it could be long distance, whereas, some poor manage to internal migration. Human Development Report, 2009 stated that the number of internal migrants is about four times than total number of international migrants. Migration has impact not only on individual level and household level but also on community and national level by providing employment opportunities. It contributes to reduction of poverty in various ways *(Siddiqui, 2012).* This indicates migration process directly and indirectly associate with the poverty and human development. Health is a crucial aspect among this process, therefore, it is always considered as assets and ill-health as a liability, so providing and promoting health care always remains a central goal of poverty eradication and human development. To achieve the goals of human development and well-being of the this vulnerable group each nation must follow some basic approaches for migrants' health care such as to avoid disparities in their health status and access to health services, ensures migrant's health rights, intervening to prevent them from mortality and morbidity in disaster and conflict situation and minimize the negative impact of migration process on migrant's health outcomes.

Migration and health has a complex and causal relationship as migration may impact on mental and physical health of individuals and community. Health itself can be a motivation to move or a reason for staying as growing phenomena of "health tourism" and migration have implications on the health of those who move, as well as those who are left behind and host community. On the one hand, migration can reduce poverty amongst migrants through access to better income and employment opportunities, at the same time as, on the other hand, it also impose risk of ill health for deadly diseases, which keeping them or forcing them to back into poverty. The migrant's vulnerability regarding to health problems may result a combination of some factors such as psychological stress at work, lack of social support and discrimination, language barriers at new place and reduced security in their daily life (*Jatrana, et al, 2005)*. There are some myths about migrants that they are diseases carrier and

burden to health system but migrants are not only young and healthy population but also they make a contribute in economic and social development by providing the cheapest labour and sending money at their home, but, at the same time they are also suffering from health vulnerability by migration process and environment conditions at various stages.

Migration is important aspects of social determinant of health. Social determinant of health are the conditions in which people born, grows up and work which are affected by political, social and economic factors. It also has implications for community influences, living and working conditions, socio-economic, cultural and environment conditions by impacting on these factors and affecting itself through all these factors. At international level, migrants are generally denied to their right to health due to inadequate coverage of state health systems, unaffordable health in health insurance, cultural barriers, difficulties accessing information on health services and health related issues. Immigrants not utilize existing health services due to fear of deport without legal entitlements. A number of sources indicate that a major challenges faced by migrants regarding to health are geographical accessibility, availability, affordability, and acceptability of health services *(IOM, 2006)*. Most of the migrants are generally healthy during starting time of migration process but surrounding conditions of migration process and new life in host community can pose health risks and make them vulnerable for ill-health by creating obstacles to accessing health services and providing sub-standard quality of care *(WHO, 2011)*. That's why, it is necessary that migrant's health should be studied and addressed health needs of migrants which improves not only their well-being but also health of host community.

Most of the studies regarding to migration and health have focused in developed world particular regarding to immigrant' health, whereas, in developing world such as in Asian and African countries relationship between migration and health remains absence in research studies mostly due to unavailability of reliable data on migrants and health outcomes *(Jatrana, et al., 2005)*. But migration within boundaries of country makes significant contribution in nation economy through providing cheap labour and improving socioeconomic status at homeland. At the same time differences are observed in migrant and non-migrant's health status and their health seeking behaviour. Any social and development policy can't be successful without addressing the health issue of internal labour migrant because in modern economic era migrant worker is a internal part of a urbanized economy and it becomes very significant to country like India where around 30 per cent population belongs to migrated population.

1.3: Health Seeking Behaviour

The literature (MacKian 2003) suggested that there are two approaches in field of health seeking behaviour. Some studies describe health seeking behaviour as the individual's behaviour which is determined by various socioeconomic and individual factors. In this approach, individual is considered the prime decisive agent for health behaviour. On other side, there are many other studies which are more dynamic and inclusive in regarding to health behaviour as they considered entire factors which affect the dynamics of health among people. *Tapping and Segall (1995)* first tried to differentiate in these two approach of the health seeking behaviour and they said that there are some studies which focus on utilization of healthcare system which comes under the roof of the *health care seeking behaviour*.

The *Moore (1969)* in process of health care seeking behaviour explained that utilization of health care is a behavioural phenomenon which is determine by individual and environmental characteristics, and interaction of these individual and societal factors.

Andersen's behavioural model of healthcare utilization describes that health seeking behaviour in any population is determined by three sets of factors i.e. the predisposing, enabling and need factors. Predisposing factors are individual characteristics such as demographic, social and health beliefs with these some people having more tendencies to use health care services. Enable factors are conditions which permits people to act on use of health care services utilization such as income, health insurance, working hours, and need factors such as illness and injuries are most immediate cause of using health care *(Andersen & Newman, 1973 Andersen 1995)*. Thus according to this approach, healthcare seeking behaviour is determined by various socioeconomic and health system related factors. Major focus in this approach is only at end point (use of healthcare) and identifies barriers to access health care among population.

Another approach of health behaviour focus on *"process of illness reposnse"*of a person. The studies belong to this approach generally comes under the *health seeking behaviour*. MacKian (2003, pp.7) elaborate this as "it rooted especially in psychology, looks at health seeking behaviours more generally; drawing out factors which enable or prevent people from making 'healthy choices', in either their lifestyle behaviours or their use of medical care and treatment". Norman Conner and Norman (1996) developed a social cognition model to assess health behaviour on basis of demographic, social, emotional and cognitive factors,

perceived symptoms, access to care and personality. underline assumption to this model is "health is influenced by behaviour; behaviour is modifiable".

Thus, healh seeking behaviour not only focuses on individual but also emphasis on illness and affecting factor and health beliefs of population. It Basically highlights that decision of the health pattern is generally influence by the environmental circumstances.

1.4: Internal Migration in India

Internal migration is a growing phenomenon in every country but in developing countries like China, India, Bangladesh, Pakistan, sub-Saharan Africa it is growing more than international migration. In south Asia region which includes India also shows mixed pattern with high levels of rural to rural migration by agriculturally poor areas send workers to irrigated area, whereas, rural to urban migration mounting due to urban area provide economic opportunity in agro-processing, urbanization and manufacturing sectors. In India, migration is a result of new push factors such as population pressure, commodity price crashes and drought as well as pull factors created by urbanization and manufacturing sectors. Around one-third of total population in urban area is constituted by migration in India. In recent time some of the studies proved wrong the notion which consider migration as burden on the urban infrastructure and responsible for illegal slums and showed that migration both at international and internal, have great impact on the economic growth and poverty reduction not only in rural area but also in urban area *(Kundu, 2007; Srivastava & Sasikumar, 2003; IOM, 2005*).

Population mobility can increase with improvement in infrastructure and economic development, but in India till the 1991 share of migration contributing in total population decreased at the same time rural to urban migration showing increasing trends over period 1971 to 2001. Indian population composition showed significant growth in internal mobility not only in terms of sex but also for streams of migration after the economic reform *(Lissome & Bhagat, 2006)*. India's urban population is fastest growing where its urban population almost double to reach 600 million within just two decades. Nearly 31 per cent population of India inhabits in urban area. Recent conducted census data (2011 Census) shows rural population declined from 72.19 per cent to 68.84 per cent where urbanization has increased from 27.81 per cent to 31.16 per cent. The urban growth can be happens by net population growth, increasing number of urban town/ cities or migration. The Most of urban growth continues to be due to natural growth of population even in 1991-2001 case. Though, around

one-fifth of the urban growth is accounted by rural to urban net migration. There was a continuous rise in the contribution of net migration to total urban growth since the sixties though between 1991 and 2001 there was slight decline observed in the rate compared to the previous decade. In 2001 gross decadal inflow of rural to urban migrants for urban population was around 7.32 per cent of total urban population (*Kundu, 2007; Mitra, et al, 2008*). According to an estimate of ministry of urban unemployment and poverty alleviation and ministry of urban development in near future India's urban population will increase nearly 40 per cent of total population by 2012. The low growth rate and income uncertainty in agricultural sector, reduction in livelihood opportunities in rural area will lead people to migrate in urban area that will increase urbanization in near future.

In 2001, around 309 million people are internally migrated which is nearly 30 per cent of total population. Till the 1990s a decline trend was observed in Indian population not only for whole population but for both male and female. In 1971 and 1981 nearly 30.6 and 31.2 per cent people migrated out of total population respectively whereas, in 1991 share of migrated people was around only 27.4 per cent. In case of male it declined from 18.1 per cent in 1971 to 14.7 per cent in 1991 and for female in same time period it declined 43.1 per cent to 41.6 per cent. During in last decade of 20^{th} century internal migration showed sign of increasing both for both rural and urban areas and for both male and female. Around 75 per cent of people are migrated for short distance with in district and this short distance migration dominant significantly by women due to marriage and only one-fifth people migrates across boundaries of states. In recent time, three most significant changes are observed in internal mobility of Indian population first, the feminization of migration; second increase in temporary migration and third, emergence of more accumulative kinds of migration which help in reduction of poverty *(IOM, 2005).*

According to 2001 census, around 80 million people were migrated within state boundaries; out of these nearly 60.5 per cent moved from rural to rural, majority of them were female who migrated due to marriage. Only 17.6 per cent moved from rural to urban and for urban to rural was only 6.5 per cent, whereas, 12.3 per cent people who reside in urban area were moved to urban area within their state's boundaries. For inter-state, nearly 16.8 million people were moved; out of this 38 per cent moved rural to urban area and 26.7 per cent from urban to urban this shows people higher mobility towards urban area. In inter-state mobility, rural to urban migration is quit high for male, whereas, for their counterpart female rural to rural still high nearly 32.7 per cent. These statistics shows much of Indian migration is

dominated by females due to marriage in short distance but in the inter-state and out of the country migration mostly preferred by the males *(RGI, 2001; Mitra, A. et al 2008). NSSO (2007-08)* revealed in report on migration in India that migration rate in urban area (35 %) is higher than the rural area (26%), but male migration rate was lower compared to female both in rural and urban area. In terms of the migration stream, rural to rural migration observed most dominated stream which accounting nearly 62 per cent of total internal migration. Around 13 per cent people migrated from urban to urban, whereas, urban to rural, only 6 per cent people moved.

The reason to migration which motivates migration process is an important aspect in internal migration dynamic which determine migration pattern in particular region. 2001 census revealed that marriage is dominated reason for migration in India both in rural and urban area because four out of ten people migrates due to marriage. After that, nearly 21 per cent people are moved with their family or earning members followed by work or employment (14.7%). But, in regards to gender, marriages emerged important reason in female (64.9%) whereas; in males 'Work/Employment' and 'Family moved' are most important reasons for migration both rural and urban area. Work or Employment is the only reason which shows increasing trends during the two census period (1991 and 2001) while all other reasons were showing declining trends in migrants (Table1). NSSO data (2007-08) revealed that employment caused differences in migration process both rural and urban. Most of the male are worked in regular wage/salaried jobs while, small number of migrants works as self-employed or as casual wage workers, both in rural and urban areas. But much of female migrants engaged to work in regular jobs and having higher probability to work as self-employed compared to non-migrant women. According to economic status, around half of the migrants who belongs to the bottom six consumption deciles work as casual wage employed or as self-employed in the informal sector. It indicates poor migrants are generally works low-paid and low-earning jobs, which particular belongs to informal sector.

1.5 Statement of the Problem

In India, most of the migration related studies were focused on migration dynamic such as trends, and pattern of migration, causes of migration and factors which affecting the migration process, only few studies explain junction between migration and health. Migration and health mostly studied in developed world, most of them are related to immigration and health aspects. In developing countries such as India relationship between migration and health always remained absence in studies due to lack of reliable data on health outcomes and

migration process and migrants experiences *(Jatrana, et al., 2005)*. Generally "Migration health" refers to the well-being of migrants, mobile populations, their families, and communities affected by migration. A study on health vulnerability and health seeking behavior of migration becomes significant to country like India where nearly 30 per cent population belongs to migration. In Indian, after adopting economic reform and liberalization, employment or work related migration has increased and a huge influx of people from rural and urban area are migrating to urban areas to get work opportunities. Only employment or work related migration has increased with 2.6 per cent in 1991 to 2001 while a decline trend observed with other motivational reason behind migration *(RGI, 2001)*.

A results of Push factors such as agricultural failure, lack of jobs at native place, low wage rate in agriculture and pull factors e.g. better wages and availability of jobs, many people belongs to lower socio-economic status are migrated to lager city and metropolises city like Delhi, Kolkata, Mumbai and Bangalore where they are mostly absorbed in low-paid jobs in unorganized sector such as manufacturing, construction, services or transport sectors. They are employed as casual labourer head loaders, domestic worker, venders, and rag-pickers, rickshaw pullers and hawkers. National commission on Rural Labour in India *(NCRL, 1991)* indicated that there are large number of seasonal migrant worker who work in agriculture and plantation, brick kilns, quarries, construction sites and fish processing. *Srivastava (1998)* observed in his study that larger number of workers migrated from one state to another states such as Haryana, West Bengal and Assam. Nearly more than 12 lakh labobour inter-state migrant worker engaged in agriculture sectors and 20 lakh in construction work. Similarly around 45 lakh inter-state migrant workers work in different sectors for temporary period.

Migrant Construction Workers

Some of studies *(Srivastava, & Sasikumar, 2003; Deshingkar & Akter 2009; Deshingkar, & Farrington, 2009)* indicates that most of short-term migrated people belongs to socioeconomically deprived groups, such as Scheduled Castes or Scheduled Tribes and having low educational attainment and limited resource who works mostly in informal sectors where India's 92 per cent of labor force is engaged. Construction industry is one of the fastest growing industries in India with second largest employment generator sector after the agriculture. Nearly 44 per cent of all informal sectors worker belongs to this booming construction industry. After the economic reforms, during last two decade various new development activities such as Foreign Direct Investment (FDI) and Public-Private-Partnership (PPP) encourage to build new infrastructure, industries, housing and commercial

complex not only in the metro cities but also in satellite town and small cities. In construction sector worker are engaged in three segment, first one in real estate construction, second infrastructure and third the industrial construction. The real estate construction consisting residential and commercial construction which work out through the nature of work and size of projects adopted by private builders and construction companies such as DLF group, BPTB Ltd, Rahehja Developers Ltd, Ansal API, Tata Husing Development Ltd, ATS Infrastructure Ltd. In this industry, Construction of roads and houses more are labour intensive consisting 60 per cent and 75 per cent of civil construction respectively due to cheap and plenty labour availability. Nearly 33 million labour engaged in construction activities in all over country[1]. The Most of construction workers are skilled and unskilled casual labours and migrated from rural area to urban area *(Srivastava, 2011; Khuntia 2005).*

The Second National Commission on Labour (2002) described condition of unorganized sector such as underground mine, ship breaking fireworks and construction industry as dangerous and full of hazards because in these sector labourer works in adverse environment conditions which impose risk on their health. The Report on Condition of Work and Promotion of Livelihood in Unorganized Sector *(GOI, 2008)* portrayed migrant workers as disadvantaged workers who belong to bottom layer of working class of population. Migrant laborers are vulnerable not only for economic exploitation but also for health and safety, therefore, some legal safeguard and benefits are provided by government. Migrant workers also have been protected through number of acts such as Minimum Wages Act 1948, Contract Labour (Regulation and Abolition) Act 1970, and the Equal Remuneration Act 1976 the Workmen's Compensation Act 1923, the Payment of Wages Act 1936, the Child Labour (Prohibition and Regulation) Act 1986 and the Bonded Labour Act 1976. A separate Inter State Migrant Workmen (Regulation and Condition of Service) Act, 1979 also provide legal safeguard to address specific problems of migrant workers. For construction workers, the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 enact and regulate employment conditions and provide them safety, health and welfare measures *(GOI, 2008).*

In building construction, workers attain construction work in two ways. In first way, they assemble at the *Labour chowks* site (roadside squares) in cities at morning and persons and contactors who need worker come at labour site to get labour and thus they get work in this sector. Mostly locals and neighboring rural areas worker get work in cities through this

[1] See the Indian Construction Industry Overview at http://www.indianconstructionindustry.com/overview.html.

process and they involve in small level construction work such as personal house building and small building projects. In second way, construction worker engage in medium to large scale construction projects of residential and commercial complexes. These kinds of construction projects works needed a large number of labour. Therefore, contractor contract to labour agent or middleman who arrange labour for builder or construction companies[2]. These labour agent recruits these labourer from the labour source areas such as rural and backward region. Sometime they make arrangement for their travel and provide them area to build a dwelling place, usually a small temporary hut made by plastic sheets, mud and bricks at the construction site. Construction worker who live at construction site experiences more exploitation in terms of low wage and long working hours comparative to *Labour* chowk workers. Their migration is the major factor responsible for their exploitation and hazardous living condition *(Jatrana & Sangwan, 2004)*.

This section of worker is vulnerable not only due to their poor socio-economic status and limited education attainment but also due to their long hours works in dirty, dangerous and degrading conditions, and has been exploited through overworked and underpaid by agents and contractors. In terms to health, they are more vulnerable than other category due to works in 3D (dirty, dangerous and degrading) jobs and lack of access to exiting health care service. Even they have limited education attainment and poor socio-economic status that make them more vulnerable to utilize existing healthcare service. Some studies revealed migrant having a different heath seeking behavior. Whenever they fall ill, typically wait and hoping illness will automatic go away or go to small medical store to buy some medicines according to their own knowledge. When this illness becomes unbearable they go to hospital but till disease become very serious which not only harm their health but also effect on their livelihood and work *(Xiang Biao, 2004)*.

Migrants worker particular construction worker are more vulnerable for injuries and infection diseases like malaria, hepatitis, typhoid, respiratory infections etc. due to poor living and working conditions. But major infectious diseases among migrants are malaria, tuberculosis (TB) and HIV/AIDS. *Tiwary and Gangopadhyay (2011)* observed in his study construction workers are suffering with several diseases such as silicosis, lead poisoning, diseases of joints and bones, benzene poisoning, skin disease. The working condition such as high noise, light and heat are major responsible to health impairment among construction worker. *Akram (2014)* revealed in his study nearly 70 per cent migrant construction worker are suffering

[2] See Informal Labour and Dynamics of the Construction Sector in India at http://www.ritimo.org/article-4856.html

from illness or disease and female worker (85%) having more illness compared to male workers (55%). Around one out of three construction worker has some types of injuries. Occupational health problems such as stomach pain, hip pain, pain in the neck, swelling of limbs, skin diseases, injuries, chest pain, eye problems, etc. are common health problems in migrant construction workers. Malaria is most common diseases in construction worker because of their living condition at temporary dwelling and huts which provide favorable place and condition for breeding of mosquitoes. Respiratory infection is second most common disease among the construction workers *(Absul et al., 2011; Gurav et al., 2005*). Migrant workers also have higher probability to suffer from Tuberculosis (T.B.) due to their low nutritional level and smoking problems *(Villarejo and baron, 1999).*

According to National Family Health Survey-III (2005–2006) HIV/AIDS prevalence among migrants observes 0.55 per cent while in non-migrants it is only 0.29 per cent. Migrant workers are more vulnerable regarding to sexual health problems not only for unstable nature of their employment but also for lack of health awareness and poor access to health care *(Akram, 2012).*

Children and women among migrants are more vulnerable in regards to their health issues. The under five mortality rate among urban poor migrants is around 72.7 which is significantly higher than national average of 51.9. Under nutrition and lack of coverage of immunization are also observed among children and women. Nearly 47 per cent migrants children are victim of malnutrition compared to 32.8 per cent urban children in urban areas. Woman migrant workers are more vulnerable to anemia, reproductive tract infections, abuse and violence and low utilization of maternal and child health care due to temporary migration nature (*Borhade 2011; Biswas, et al, 2011; Keshri & Prusty, 2013; NUHM draft 2008).* In case of women, health care accessibility happen to significant because they has limited economic choices and lack of social support destination as well as most of them works as semi-skilled or unskilled low-paying jobs in unorganized sectors.

Migrant people generally have limited access to health care due to language barriers, lack of time, lack of knowledge about the public provisioning of health care etc. Sometime public health care system which should be responsive to needs of migrants but they are unable to fulfill their need due to these system and services are created without considering them as a part of this. Without any legal documents e.g. ration-card, these migrant laborers are not eligible for free/subsidized treatment in government hospitals. If they have to consult a doctor

in a government hospital, they have to give up their work for whole day which they can't afford.

As the migrants generally consider as "outsider" in their destination place and lagging behind in accessing health care and other social services because they don't have any legal status at their destination place. In some place legal status is a precondition to access these health care services. In addition to legal status, availability, accessibility, quality of services also depends on the various factors such as social, economic and cultural, demographic, geographical and system related factors which affect their health status and utilization of healthcare services *(Chatterjee, 2006).* The beliefs and little knowledge and awareness about the health problem and health care services generally prohibit them to utilize these health care services. Migrants are generally not included in development process of the services and never asked to give a feedback on the social services like health care. So these health care and social services are not accepted by them because these are culturally different and having the lack of awareness. Their nature of mobility, working hours and distance to work place also some time become barrier to obtain health care. Some time mobility makes it difficult to take long term treatment regarding to TB, HIV/AIDS and malaria. Generally all the health care services are provided during when migrant people are working and far away from these health care centers. A language is another major obstacle for migrant to access social services such as health care. Due to their lack to language and communication skill they can't communicate with health personnel and unable to understand process to health system. The culture and traditions of migrants are also different form host place which generally create problem for women in accessing sexual and reproductive health care services.

Thus, people's mobility makes them vulnerable to their health. Migrated people also an essential and important not only for economy but also for cultural diversity and integrity in a country like India which has many heterogeneous sub-groups. Present study attempts to exlpore health vulnerability of urban migrant construction workers regard to health problems and their health seeking behavior.

1.6: Objectives

Present study has following objectives:

- To study the migration dynamics among the construction workers.
- To examine the socioeconomic, living and working conditions of migrant construction workers.

- To study the health problems and health status of the migrant construction workers.
- To analyze the availability, accessibility, and affordability of health care services available for migrant construction workers.
- To study the health-seeking behavior of migrant construction workers.
- To identify the determinants of health seeking behavior among migrant construction workers.

1.7: Research Questions

In a research study, it is necessary to explore the answers of some research questions. In present study, the author has tried to explore answers of following questions-

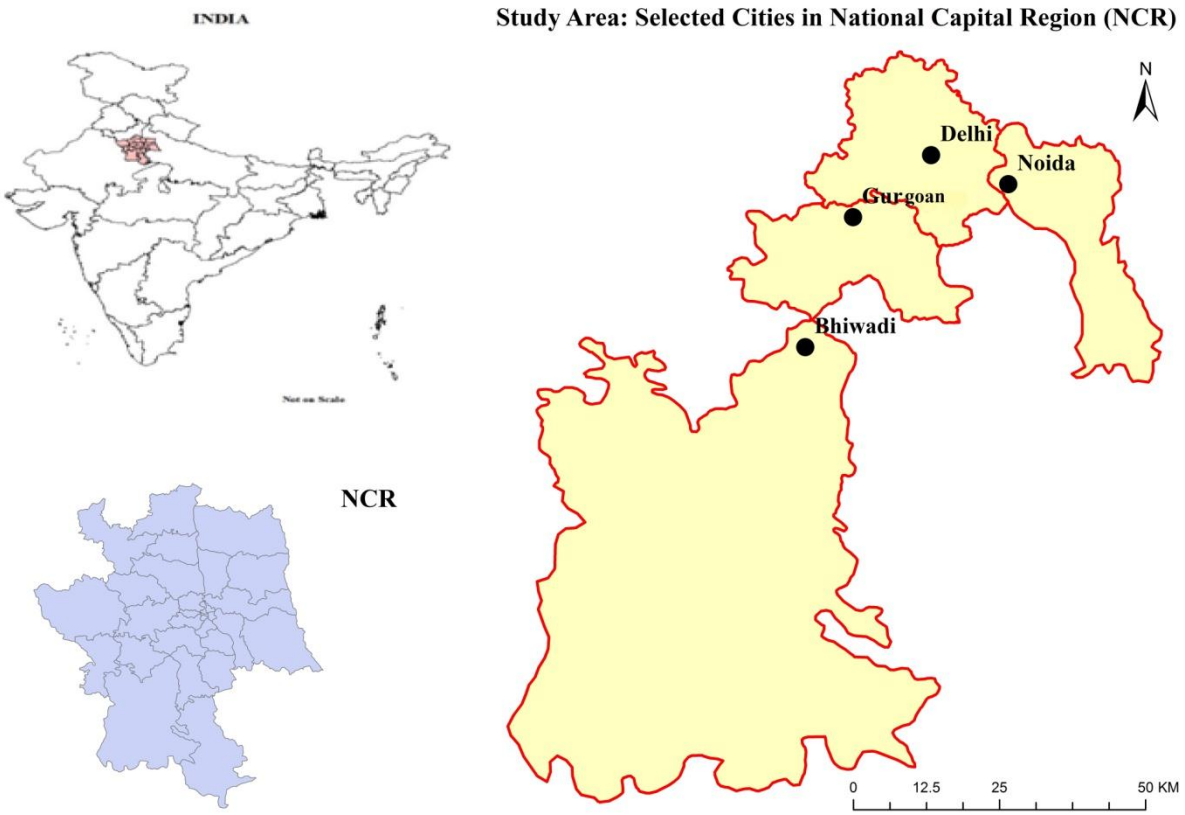
- What kind of migration pattern is observed among the construction worker in?
- In what are the socioeconomic, living and working conditions of migrant construction worker? Whether there are any differences that exist in these characteristics among migrant and non-migrant construction workers, and similar the off-site and on-site worker?
- What kind of health problems are faced by construction workers and whether migration, living and working conditions affect their health status?
- Whether migrant construction workers are aware about the healthcare services available for them?
- What kind of healthcare is utilized by construction worker during the health problem and what are the major sources of health care?
- Is there any different in healthcare utilization among the construction workers according to their socio-economic, work and migration status?
- What are the major barriers to access the health care for construction workers?
- Is there any difference in health-seeking behaviour of on-site and off-site construction?
- What are the major factors which affect the health seeking behaviour of migrant construction worker?

1.8: Study Area: National Capital Region (NCR)

In present study, National capital Region (NCR) as study area to explore health status and behviour of migrant construction workers has been selected. Delhi-National Capital Region (NCR) is world second largest agglomeration and largest in India and with covering 34,144 km^2 area including the Territory of Delhi, Haryana, UP, and Rajasthan and constitutes about 1.60 per cent of the country's land area. The population of NCR has increased from 111 lakh in 1961 to 371 lakh in 2001. The decadal growth has continuously increased from 32.43 per cent in 1961-71 to 37.69 per cent in 1981-91 and slightly reduced to 35.40 per cent during 1991-2001. The NCR Planning Board has also projected population for NCTD which is 179.90 lakh in 2011 and 234.87 lakh in 2021. If in-migration is estimated then its population will be 17.46 lakh in 2001-2011 and 21.83 lakh in 2011-2021. Thus, the projected population of NCR is 641 lakhs and total net migration to NCR in 2011 – 2021 will be around 87 lakhs *(NCRPB, 2008)*. Current migration trend shows Delhi is going to stable in its migration as most of migrant are going to settle in other part of NCR region after development of counter magnets centers but due to growing economic activities in National Capital, lot of people migrate towards Delhi from its neighboring states such as Uttar Pradesh, Haryana, and Bihar. They move toward Delhi in hope of job and work. According to census 2001, in Delhi nearly 2.17 million people approach from other states which accounting around 13 per cent share of total migration in India and with this share Delhi is second largest state for migration after Maharashtra (19.21%). Migration to rest of NCR region within inter-district in NCR region was around 2.45 million. The major reason behind migration in Delhi and NCR region are employment and family movement which account nearly 75 per cent of total migration in Delhi. Economic survey of Delhi, 2013 also shows around 70 per cent migrants come to Delhi in search of employment and better employment opportunities and migration will continue in near future. According to estimation of Technical Committee of Census of India form 2001 to 2021 net migrated population will be nearly 66.49 lakh *(GONCTD, 2013)*. In Delhi, around 67 per cent migrated from rural area and 33 per cent from urban area and out of total migrants from urban area nearly 37 per cent were worker similarly 45.5 per cent worker migrated from rural areas. India's 92 per cent of labour force work in informal sector and 44 per cent of all informal sectors workers engaged in construction sector. It shows a lot of migrant worker employed in construction industry. According to 2001 census, around 6.47 lakh workers were worked in construction in urban area of NCR region. After the economic reforms, new development activities such as Foreign Direct Investment (FDI) and Public-

Map No. 1

Study Area: Selected Cities in National Capital Region (NCR), India



Private-Partnership (PPP) encourage to build new infrastructure, industries, housing and commercial complex in this fastest growing region. In recent time, Delhi NCR region is one of the topmost destinations for real estate industry due favorable condition for this industry. According to draft plan of 2021 to overcome problem of urbanization in Delhi, new urban areas are going to developed in Delhi-NCR region and massive projects of housing and commercial building construction has been taken under construction by government agencies such as DDA, Noida Authority and private builders and companies e.g. DLF group, BPTB Ltd, Rahehja Developers Ltd, Ansal API, Tata Husing Development Ltd, ATS Infrastructure Ltd. A Large number of migrant construction workers are engaged in this sector for their livelihood not only lives and work under the hazardous condition but also often neglected by policy maker in terms of their health and social security. Therefore, in present study, four cities Delhi, Noida Gurgoan and Bhiwadi from each states of the NCR region has been chosen, to observe health vulnerability and health seeking behaviour of migrant construction workers.

1.9: Organization of Study

Present study is organized in the in six chapters in which, first chapter *"Introduction"* provides brief introduction on health and migration, statement of the problem, research questions, objectives and the study areas.

The second chapter *"Literature Review, Conceptual Framework and Methodology"* discuss about the literature review regarding the labour migration, socioeconomic and living and working conditions, health migration and work. While the second section of this chapter focus on conceptual framework for study and last section deal with methodology which is applied to perform study.

The third chapter *"Migration Dynamics among Construction Workers*" has two main section. The first section deals with migration pattern among the construction workers while, second section describe the migration process among the construction worker.

The fourth chapter *"Socio-Economic, Living and Working Condition of Migrant Construction Workers"* deals with the socioeconomic, demographic and household characteristics. It also focus on work characteristices and the living and working condition of migrant construction worker

The Chapter fifth ***"****Health Problems and health seeking behaviour of Migrant Construction Worker"* has five main sections. The first section focuses on food intake and health habits among construction worker, while second section deals with health problem and injuries

among migrant construction worker. Third section discuss about health status of construction worker. while, fourth section an attempt is made to assess availability, accessibility, affordability of healthcare for migrant construction worker. The last section of this chapter focuses on health seeking behaviour among construction worker.

The last and sixth Chapter *"Summery and Conclusion"* is divided into two main sections. First section discusses about major finding of study and last section provides some policy implication and suggestion to make study fruitful.

CHAPTER II

Review of Literature, Conceptual Framework & Methodology

2.1: Introductions

This chapter has been divided into three main sections. First section discuses about the literature related to the migration, work characteristics and the health seeking behaviour among migrant worker. In this section, first part focus on the various studies regarding the migration such as the theory of migration, cause of migration, socioeconomic status and the work and living conditions of migrant workers, whereas, second part highlights various studies regarding to health problems and health seeking behaviour among the migrant workers particularly in the construction workers. Second sections of this chapter provide a theoretical conceptual framework for the present study. In which, the author has tried to explains the relationship between the migration, work and the health-seeking behavior for migrant worker.

The last and third section deals about the methodology and data source which are used to perform the current study. The first part of this section describes the data sources which are used to accomplish the objectives of our study, which mainly focusing the sampling design of primary data, whereas, second part provides an account on the methodological part of the study.

2.2: Review of Literature

2.2.1 Defining the Migration

Migration is a universal and dynamic phenomenon. It is one of the three the basic components of population change which determine the population of any region with mortality and fertility. Human history shows that migration is continuing since the origin of human on planet earth throughout all ages but the forces for migration change one place to other place and one era to another. As the globalization era begins, unexpected migration was observed in human population all over the world but it was neglected in discussions and debates because the primarily focus of globalization was on the trade, investment and the capital flow but migration continue with new forms of this economic, political and social change in society at all time. The migration is multi-dimensional aspect of population which demonstrates change in the cultural, religious ethnic, demographic, political and economic

aspects of population. Therefore, it studies by not only the sociologist and anthropologist but also the economist and the demographers.

Migration generally defined on the two bases the social-economics and spatial aspect. Eisenstadt[1] defined "migration is a process of physical transition of people or group from one society to another" (Eisenstadt, 1953, p. 169). Thus, the sociological studies see migration as one of the internal part of social process and emphasis that social context force people to migrate from one society of other and make this process happen. On the other hand, there are other definitions of migration those are based on the spatial movement in population.

According to Lee[2] "A move across the hall from one apartment to an- other is counted as just as much an act of migration as a move from Bombay, India, to Cedar Rapids, Iowa, though, of course, the initiation and consequences of such moves are vastly different….. No matter how short or how long, how easy or how difficult, every act of migration involves an origin, a destination, and an intervening set of obstacles" (Lee, 1966, p.49).

Thus definitions reveal that the migration involve a spatial movement among the people which could be permanent or semi-permanent and it should have three basic characteristics, origin place, destination place and the intervening obstacle which is generically the distance of the movement. In this movement, people generally transfer form one social or political unit to another which has implications for social, cultural, political and economic change in society both the destination and origin place (Lee, 1966; Apostolopoulos & Sonmez, 2007) .

Theories of Migration and Internal Migration

There are various theories which tried to explain the migration process particularly the labour movement such as Migration Laws of E.G. Ravenstein, Push/Pull Factors Model, Neoclassical Migration Theory, Dual Labor Market Theory, and New Economic Geography and Labor Migration (Gurieva & Dzhioev, 2015). Some of these theory tried to explain the migration in context of international migration, whereas, others focus on the internal migration or migration within the country.

[1]Eisenstadt, S. N. (1953). Analysis of Patterns of Immigration and Absorption of Immigrants. *Population studies*, *7*(2), pp-169.

[2] Lee, E. S. (1966). A Theory of Migration. *Demography*, *3*(1), pp-49.

Reavenstein was the first person who carried out an empirical study on census data from England and Wales & other countries on migration process and on the basis of his study he explicate the following *Law of Migration* (Ravenstein, 1885) :

1. *Most of the migrants travelled to short distance, whereas, long distance migration prefer towards the big centers of industry or commerce.*[3]
2. *Generally step by step migration is followed by people.*[4]
3. *The native persons of town have fewer tendencies to migrate as compared to their counterpart of rural people.*[5]
4. *A counter –current of migration is produced by each current of migration.*[6]
5. *Women are more migratory compared to man within the country, whereas, males are more migratory than females for long distances.*[7]
6. *Adult people are more mobile than others, whereas, family rarely moves from their place of birth.*[8]
7. *The largest volume of migration observer from agricultural areas towards the central place of industry and commerce.*[9]
8. *Migration play pivotal role to grow the big cities than its natural increase.*[10]
9. *As the transport, industry, and trades develop, migration also increase, and thus economic reasons are major force to mobile the people.*[11]

Thus the Ravenstein tried to explain the basic characteristics of migration process through his remarkable empirical work on law of migration but some of its hypothesis still need to prove as these are based on the 18th century census data and the world has drastically changed not only in terms of political and social but also in economic context.

Another major work to explain the migration process was done by *Everett S. Lee* in his push/pull factors model of migration. The Lee (1966) said that "Migration …involving a set of factors at origin and destination, a set of intervening obstacles, and a series of personal

[3] Ravenstein, E.G. (1885). The Laws of Migration. *Journal of the Statistical Society of London*, 48 (2), pp 199.
[4] ilbd. pp-199.
[5] ilbd pp-199.
[6] Ravenstein, E.G. (1876): Census of The British Isles, 1871 : The Birthplaces of The People & The Laws of Migration, London: Trübner & Company, pp 230.
[7] ilbd pp 229-230.
[8] ilbd pp 230.
[9] ilbd pp 202.
[10] Ravenstein**,** E.G. (1889) .The Laws of Migration, *Journal of the Statistical Society*, 52(2), pp 287.
[11] ilbd, pp 286-287.

factors*"* (pp. 52)[12]. In all these, some of the factors such as unemployment, low level of the income at native place, poverty, adverse natural and climatic conditions push people to migrate from their origin place and whereas, other such as high income, and higher development attract or pull them towards their destination. Along with these pull and push factors migration process also affected by the some intermediate factors such as distance, transport cost, and information about the destination place. The Lee (1966) also revealed that migration process is selective and different factors work for different people such as for high qualified person it will be pull factor in destination, whereas, for low-skilled worker the push factors will play greater role in migration decision.

Similarly, Neoclassical Economic Theory also has tried to explain the labour migration both at macro level as well as micro level in process of economic development. It suggests at macro level migration is primarily determine by wage differential & employment conditions between at destination and the origin places or labour markets (Harris & Todaro, 1970;) whereas, at micro level, an individual come to a decision of migration after estimate the all costs and benefits of his mobility. According to this theory, a migrant is rational person and he is able to take decision of migration after analyzing all net returns from the movement (Todaro, 1976; Massey et al., 1993).

On the other hand, New Economics of Migration theory provides a theoretical model in response to Neoclassical Economic Theory. This model argues that migration decisions are purely made by the household or families in response to income risk and market's failures not by the individuals on cost-benefits analysis. Thus, migration decision not only influence by the wage differentials, but, it is also collective decision of family which is determined by number of factors such as markets failures (labor market, credit market, or insurance market), relative deprivation in households, risk-aversion and risk-minimization of household income (Stark, & Bloom, 1985; Stark 1991; Massey et al. 1993). Thus, there are numerous migration theories or models those are relevant to explain migration process in their specific social and economic approaches. There is no uniform model which explains the labour migration, because determining factor of migration may vary from local to regional or internal level or one society to other (Gurieva & Dzhioev, 2017).

[12] Lee, Everett S., (1966). A Theory of Migration. *Demography*, 3(1), pp. 47-57.

Internal Migration and Urbanization

Human Development Report (2009) stated that the number of internal migrants is about four times higher than the total number of international migrants. It reveals that people are more migrate within countries boundaries than the international borders which impose the policy implications for economic growth, social interaction and urban life of a country. Internal labour migration not only impacts on labour market both the origin place and the destination but it also affect the income, consumption pattern and living standard of a family (Srivastava & Sasikumar, 2003).

It was observed in studies, internal migration generally increased with the economic growth. Historically in India the migration rate was remained low compared to other country, but after the economic reforms, the immense mobility observes in the India's population. After economic reforms, the people started to migrate due to not only in search of better economic opportunities but they consider migration as tool for their economic wellbeing and poverty reduction in both rural and urban area (Srivastava, & McGee, 1998, IOM, 2005; Kundu, 2007; Siddiqui, 2012; Mishra, 2016).

In recent times, migration seems to be a significant force for urbanization and providing a diverse character to the cities. Nearly 54 per cent of world population inhabit in the urban area. There are cities such as London, New York and Sydney where nearly one third populations is migrant, on the other side, Dubai and Brussels the cities in which migrant constitute more than half of their population. Studies also suggests that similar trend are observed in urban population in developing countries of Asia and Africa but the migration pattern in these countries differ from the developed world as most of the mobile people in their cities are temporary or circular migrants (UN, 2014).

There are few studies (Bhagat, 1992; Kundu, 2007, Kundu, 2009) which tried to observe that the migration role in urban growth through the indirect method. In this method, urban population is decomposed into these three segment (a) natural increase, (b) merging of towns and jurisdictional changes in agglomerations and (c) net migration. The Kundu (2009) observe in his study that rural to urban migration contribution to urban population growth was around 21 per cent in 1990s.

Similar to Kundu's study, Bhagat and Mohanty (2009) also carried out a study on migration and urbanization in India on basic of census data on basis of natural increase, net increase in towns, jurisdictional changes, and net rural-urban migration components. They revealed that

contribution of natural increase and new towns in urban growth has been decline during the time period of 1981-91 to 1991-2001. But the contribution of rural – urban migration has increased from 18.7 per cent to 20.8 per cent during these two census period. Thus, It could be said that migration play significant role in urbanization along with the other demographic event such as natural increase.

Studies show (Kundu, 2009; Srivastava, & Sasikumar, 2003) in last few decades, some new dynamics are observed in labour market and urban population in both developed and developing countries. The worker force has shifted towards the tertiary sector. Similarly, urban population show dynamics growth shift from large cities to small town. The growing phenomena of urbanization from modest to high in some of the countries observe not the due to economic growth but it primarily associate with the growth of labour intensive informal sector and the circulatory movement of the labour force form under –developed region to developed regional and urban centers are mostly engaged with the this unorganized sector of economy.

Bhattacharya (1998) also opinioned in his study that informal sector is providing tremendous opportunities to sustain the rural- urban migrant labour force in urban areas due to its dynamic and productive nature. It is also observed that when rural people migrate to urban area in search work, they mostly engage in low paying informal sectors work such as the construction and domestic work, manufacturing, wholesale, retail, transport etc. (Shonchoy & Junankar 2014).

In his study *Suresh (2010)* opinioned that after the economic reforms, the growth in certain spatial centers in particularly in developing countries, has shown implication for social cost not only for rural but also for urban people. After 1990s, rural people started migrate towards urban centers to fulfill the rising demand of labour in urban infrastructure transformation sectors such as housing, mass transport and shopping.

Migration among Construction Worker

The migration among the construction worker associated with the health of the economy. The migration among construction worker in urban areas can be observed high during the economic boom but it could be low during the economic slowdown in any country (Buckley, 2012). Construction work is one of the significant sectors in term of employment generation in an urban economy for developing countries. In India, constriction sector is second biggest employment provider sector after the agriculture where, nearly 44 % of the labour force of

the informal sector is engage in fastest growing sector construction industry (Pattenden, 2012; Deshingkar & Akter 2009; Srivastava & Sasikumar, 2003).

Srivastava (1998) observed in his study that larger number of workers migrated from one state to another such as Haryana, West Bengal and Assam. Similarly around 45 lakh inter-state migrant workers work in different sectors for short time period. Nearly more than 12 lakh labobour inter-state migrant worker engaged in agaricultre sectors and 20 lakh in construction work.

Similarly *Deshingkar and Akter (2009)* in his study also observed about migration and human development in Indian context, construction industry provide employment around to 40 million migrant worker in urban informal sector followed by the domestic work (20 million), textile (11 million), brick kilns (10 million), transportation, mines and quarries etc.

There are some studies (Srivastava, 2011)[13] based on the National Sample Survey (NSS) data estimates that the highest short duration migrant observed in the construction work which is around 36.2 per cent of total short duration migration after that agriculture (20.4%) and manufacturing sector (15.9%). In India, there are around 30-40 million migrant worker who employ in construction work.[14] Thus studies suggest that construction industry is the biggest source of employment in urban informal sector in Indian context and most of the construction workers are migratory in their nature (Deshingkar & Akter, 2009; Thorat, and Jones, 2011; Srivastava, 2011, Borhade, 2016)

Seasonal/Circular Migration Nature among Construction Workers

In India, more than 90 per cent of the labour forces work in informal sector. *Bremen (1996)* opinioned in his pioneer work on footloose labour in rural western India that the informality in labour force exits both in rural and urban areas. The specific nature of migration among the rural labour makes them vulnerable for their exploitation. The mobility among these workers from rural to urban areas is observed not only circularly in nature but also seasonal. There are some rural workers who commute towards cities for work and return to his home at evening. On the other hand, rural worker also migrate for work in cities in from one work site to other work site not only within state but the out of state boundaries. Some rural people migrate to urban areas in particular season to work as temporary migrant worker In

[13] Srivastava, R. (2011) Internal migration in India: An overview of its features, trends, and policy challenges. New Delhi: UNESCO, Social and Human Sciences Sector & UNICEF

[14] Thorat, Y. S. P. and Jones, H. (2011) Remittance Needs and Opportunities in India, Deutsche Gesellschaft f r Internationale usammenarbeit (GIZ): New Delhi.

construction sector, where mobility observe very high in worker also see these kind of migration pattern. *Deshingkar and Akter (2009)* also revealed in their study the circular or seasonal migration has significant proportion (100 million) in total in internal migration which contributes around 10 per cent to India's GDP.[15] *Keshri & Bhagat (2013*) estimated in his study of temporary labour migration in india that the temporary migrant are around 7 time more than the permanent migrant who are mostly migrate from rural areas to urban areas particularly in under developed states of central and north Indian states.

Haberfeld et al. (1999) in a study of seasonal migration of India's rural labor found that more than 90 per cent seasonal migrant are male and very young and come from the tribal communities. Construction work is the second largest sector after the manual and unskilled jobs in which generally rural seasonal migrant employ themselves.

In a study about the migration labour in construction work *Srivastava & Sutradhar (2016)* observed most of the construction worker belongs to seasonal or circulatory migrant who visit their native place after a particular time and return to their origin place despite the visit of different construction site in one or other cities.

Creches, (2008) carried out study on "*Migrant Construction Workers and the Health Status of their Children"* among the migrant construction workers who reside on construction sites in Delhi. In this study, the author also observed the migration process among the construction worker and found that non availability of job in agriculture sector, low wage and irregular income at their native place push them to migrate in construction work towards urban areas and availability of work most of the time in city and hope of better life work as pull factor for their migration. The migration process among the construction workers operate through the informal information networks in which the *Jamadars or Munshi* and labour contractor play a significant role. This study observed migrant construction workers continuously migrate from one site to other site or one city to other city in group with their Jamadar or contractor.

Srivastava and Jha (2014) also investigated in his study about the construction workers that majority of construction worker (87%) are temporary migrant who visits their native places in particular season or at least once in a year and only a small proportion of workers (13%) settle permanently to urban areas with their families. Thus, their study revealed that in construction sector, most of the construction worker migrates from their native places to urban areas as temporary migrants.

[15] Deshingkar, P., and Akter, S. (2009). Migration and human development in India. Human Development Research Paper 2009/13 pp. 40.

Origin Place of Migrant Construction Worker

NSSO reports[16] which are the prime source of migration data after the census in India, demonstrate that in India 99 per cent migrant belongs to internal migration. The rural areas remain the main source for migration not only for the rural areas but also for the urban centers, whether rural area has been observed as source of origin place less for urban areas (59 per cent) as compared to rural areas (91).

Studies suggest that the recent trends in internal migration shows the long distance (inter-state) migration has been shown as increase trend 11.82 per cent to 13.31 per cent in 1991 to 2001 census (Srivastava 2012). The flow of internal migration in India always remain from the high populated and economically backward states such as Bihar, Utter Pradesh, West Bangle, Orrisha, Rajasthan Jharkhand to the most developed and labour demand driven states e.g. Maharashtra, Punjab, Haryana, Tamil Nadu, and Gujarat. Even in case of internal labour migration, certain migration corridor can observed in country for example Bihar to NCR region, utter Pradesh to Maharashtra particularly Mumbai, Bihar to Punjab and Haryana, Orrisa to Gujarat and Andhra Pradesh (Deshingkar and Akter 2009, Srivastava 2012, Borhade 2016).

Keshri & Bhagat (2012) in his study of temporary and seasonal migration revealed that northern states such as the Bihar, Jharkhand Gujarat Madhya Pradesh, Rajasthan and eastern the West Bengal, Nagaland has been observed with the higher migration rates for seasonal migration. The temporary migration is used as livelihood strategy mostly in these states during the low agriculture job season. This short term migration is mostly determined by the economic factor such as land possession and the income source and the education.

Similar to other studies, *Suresh (2010)* tried to investigate the migration phenomena through the case of NCR Delhi region in his study. According to author, Delhi metropolitan region received huge in-migration during the time period of 1981-2001. Most of the shares of migrant people are out migrated from the distressed rural areas of north Indian states such as Utter Pradesh and Bihar. Theses migrant people belongs to the unskilled or semi-skilled laborer who migrated from the rural areas to urban centers due to unavailability of job and livelihood and engaged themselves in unorganized sectors of city

[16] NSSO, (2007-08), *Migration in India (2007-08).* Report No. 470., National Sample Survey Office (NSSO) Ministry of Programme Implementation, Government of India, New Delhi, pp 28.

A micro study on migrant construction worker based on the field survey conducted by *Chandrakanta (2014)* for his doctoral study, observed that majority of construction workers (70%) migrate to Delhi from rural areas of three major states Bihar, Utter Pradesh, and West Bengal and remain belong to Empowered Action Group (EAGs) states.

Srivastava, & Jha, (2014) also tried to investigate the labour force in Construction Industry in Delhi-NCR region. This study also shows most of the seasonal migration worker in construction sector who come to NCR region belongs to less developed central and eastern region states Bihar, Utter Pradesh, West Bengal, Chattershgrah, Madhya Pradesh, and West Bengal. Some specific group of migrant contractual worker also found who generally migrate mostly from certain pockets of some states such as Malda district region in West Bengal.

Reason for Migration among Worker

The migration process is determined by various push and pull factors. In pull factor, higher wage, higher living standard, higher educations, high demand of labour in non-agriculture sectore are major that affect the in-migration at destination place. Whereas, low wage, low literacy, unavailability of livelihood and work at origin place works as push factors for migration among the people. The various studies suggest factors to contribute the migration process are work differently not only for poor and rich people but also for rural and urban area.

Harris-Todaro model tried to explain the rural- urban migration in context of developing countries. Their model explains that the rural people migrated to urban areas despite the high unemployment in cities due to wage differential in both areas. It propose that migration is purely an economic phenomena and migrant labourer is rational person who decide to migrate after the analyzing the wages differential both in rural and urban areas to maximization his earnings *(Harris and Todaro 1970).*

Some studies *(Keshri, & Bhagat, 2012)* suggested that poor people are more mobile than rich people particularly in case for temporary or seasonal migration but there are some other studies *(Kundu & Sarangi 2007, Bhagat 2010)* which profound that economic deprivation is not the single important factor that compel poor people to migrate particularly in case short duration migration. The out-migration is generally observed both poor and rich household but reasons can be different for both of sections of the population.

Bhagat (2010) reveals in his study on internal migration in India based on census data that economic parameters such as the per capita income, Gross State Domestic Product (GSDP),

work status are correlated with not only the in-migration but also out migration. Author concluded that sectoral change in economy and the income are having impact both on in-migration and on out migration.

In another study, *Kumar, & Sidhu, (2017)* tried to investigate the push and pull factors in brick-kilns workers in Punjab. The study profound that industrial development, better job opportunities and higher wages and better living conditions, aspiration for better life work as the pull factor for labour in Punjab, whereas, low wage, inadequate agriculture land and work, poverty among household are the factor which compel labour to migrate from their native places. But in case of labour migration, the economic factors are more important than the non-economic factors

Suresh (2010) tried to analyze the labour market in urban construction sector in India and China. Author concluded that mostly of the construction workers belongs to lower strata of the society who are migrated from rural areas to urban centers due to social exclusion and decimation in labour market at their native place. But recently this trend has been replaced by the distress migration phenomena. In distress migration, the livelihood crisis and low work opportunities at rural areas play more important role in rural-urban migration than the social exclusion and discrimination in work. Thus, recent rural- urban migration mostly affected by the distress migration and construction sector also be evidence for this phenomena.

Iyer et al. (2004) tried to explore the phenomena of distressed migration in north-west India. In their study, they concluded that migrant worker move from the underdeveloped state to a developed state to get a better job for their survival. There are some factors such as the failure of agriculture growth, low wage, low development in non-farm sector, deprivation among the tribal's people, the ineffective of poverty programmes, and growing regional disparities which force to people to migrate from their origin place.

Nature and Duration of Labour Migration

The nature of migration also varies not only for the community to community but also for one region to another. The result of some studies (Keshri & Bhagat 2013) shows the temporary migration is appeared seven times more among Indian population as compared to the permanent migrant. The permanent migrant is mostly high among the urban areas, whereas, the temporary migrant is observed more among the rural people as compared to the urban population. Authors observed that a significant proportion which is around 63 per cent, of the labour migration in rural to urban migration is dominated by the temporary migrants. The

difference in the nature of migration also appears according to the gender perspective. Male labour migrant has been found more temporary mobility from rural to urban areas as compared to the female labourers.

When it comes to the duration of the migration, a study by *Srivastava, & Jha, (2014)* concluded that the most of the construction worker are newly migrated in urban areas. Around 65 per cent construction worker who migrated to the urban area were migrated between the time periods of 1 to 5 years ago and 22 per cent were found as migrate between 6 to 10 years ago.

Social Network and Labour Migration

Social network play crucial role in migration process. As it is said that "Social contacts at destination not only reduce the psychological costs of migration by providing a supportive relationship during the migrant's adjustment period but also reduce monetary costs by providing information on employment opportunities as well as material assistance during the job search " (Banerjee 1983, pp. 185)[17]. Banerjee,(1983) tried to investigate the role of social networks in chain migration in India through a empirical study. According to his study, labour migrants generally come under the serial migration in respect to social support, in which migrant receive help other than the family member at their destination. Migrant worker also depend on relative and covillagers to assist in migration process or to build their social network at destination.

Suresh (2010) outlined the role of mid player such as the Jamadar or contractors in construal labour among the migration worker. He concluded migrant workers are hired by the big construction companies through the labour contractors, thekedar, Jamada. Caste, language and regional identity have significant role to get job to migrant construction workers.

The studies *(Mitra 2006)* also observed that despite the decreasing work opportunity in the large industrial sector and without income support at destination, urban migrant continue to engage in informal sector of urban areas and manage to generate sustainable source of livelihood only due to the their social capital develop by them in urban areas.

In his study about the construction worker in National Capital Region (NCR), *Creches, (2008)* opinioned that in construction sector, most of the time worker approach to urban areas through by their relative and co-villagers or friends. These friend or relatives inform them

[17] Banerjee, B. (1983). Social networks in the migration process: empirical evidence on chain migration in India. *The Journal of Developing Areas*, *17*(2), pp-185.

about the construction work and introduce them to the contractor or Jamadar/Thekedars. Sometime the worker directly contacts with the contractor at the construction site in search of work and engage in construction work. The study also suggests that the most of the construction worker migrated in groups whether it is with family member or friend or the contractor., but nearly 70 per cent worker are migrated with the jamadar or Munsi who works as middle man for them to get job. Thus, the migration among the construction worker is highly influenced by the social network.

Socio-Economic, Demographic Status and Migration Construction Worker

Household Characteristics among Migrant Workers

In the study of labour migration not only focus on the individual person's migration but also the household/family is also considered as prime unit for migration. Even the New Economic theory of Migration postulates that migration decisions are purely made by the households or families not by the individual. According to the enthusiasts (*Stark & Bloom, 1985; Stark 1991; Massey et al. 1993)* of this theory, labour migration decisions are collective efforts of the family which are taken by household in response to avoid the failure of labour market and the income risk not by the individuals on their cost-benefits analysis. Thus, the household characteristics such as the size of family, number of dependent persons in family, type of family also determine the migration pattern particularly in case of labour.

The *Deshingkar & Start (2003)* investigated the seasonal labour migration in rural India and found that household size is correlated with the labour migration process. The large household sizes are associated with more migration compared to small household size. Household with large number of family member participate more in labour migration because it has the opportunity to accomplish it aspiration to increase family income due to its large family size, whereas, in case small family size, fewer working population in family demoralize the migration decision.

Dodd et al. (2016) also find out similar result in his study of labour migration in southern Inida. This study revealed that larger household is observed with high probability to migrate for short time period. The large households are observed to have at least one family member to participate in labour migration

Demographic Characteristics of Migrant Construction worker

labour migration is also selective according to their demographic aspect of population such as age, sex and marital status. Ravenstein (1876) concluded in his thesis "Law of Migrtion"

"Women are more migratory compared to man within the country, whereas, males are more migratory than females for long distances. Similarly adult people are more mobile than others, whereas, family rarely moves from their place of birth".[18] In case of India, migration also varies according to sex. Marriage always remain major reason for migration in woman whereas, work/employment observers as significant reason for migration among the male *(Deshingkar & Akter 2009).*

Studies also suggests *(Dodd, 2016; Keshri & Bhagat, 2013) that* labour migration particularly the temporary or seasonal is significantly associated with age and sex of the laboure population. Male laboure are having high probability to migrate for short duration compared to female. Similarly the younger laboure people are more mobile comparative to the older people. A study *(Coffey et al. 2015)* on short duration labor migration from rural area shows that person ages between 15-30 years have high probability to migrate. Not only the male worker but also the female worker in younger age has more propensity for migration but female are less likely to migrate as compared to male. But some studies *(Deshingkar et al 2008)* recently shows that labour migration now showing an increase trend not only female worker but also for the higher strata of the society which was previously restricted to the mostly for male worker and the lower class for the society.

In his study about women construction workers in a Punjab city *Virk (2004)* concluded that these women worker mostly comes from the lower strata of the society and due to child marriage they begin to work in construction sector with his partner in their early age. Mostly these women construction worker migrate from one place to other and occasionally visit their home and due to low bargaining power and alien places, they get very low wages for their work as compared to their counterpart male worker.

In the study of construction labour in NCR region *Srivastava & Jha (2014)* revealed that nearly three-fourth proportion of the construction workers were found in male category whereas, the only one-fourth workers were female. Most of the construction worker belongs to younger age group. Nearly 70 % to total labour force in construction sector were aged between 18- 35 years.

[18] Ravenstein, E.G. (1876): Census of The British Isles, 1871 : The Birthplaces of The People & The Laws of Migration, London: Trübner & Company, pp 230. pp 229-230.

Social Characteristics of Migrant Construction worker

In case of India, social aspects of the people such as the caste, religion, ethnicity, and education are also play an important role to determine the labour migration. There are many Studies (Deshingkar 2006, Deshingkar & Akter 2009, Keshri & Bhagat 2013) suggested that communities which are in lower strata of the social hierarchy have more tendency to migrate compared to higher social classes of the society in particularly in labour migration. Sometime the caste and the village play an important role to labour migration as some specific communities has the probability to migrated in specific sector of economy (Deshingkar 2006, Deshingkar & Start 2003). This pattern can be observed in the construction sector as most of the construction worker come through the construction labour from a specific village or communities.

Similarly *Dodd et al.(2016)* also observed in his study about the seasonal labour migration deprived section such as the scheduled castes, scheduled tribes and the Other Backward Classes (OBC) /Most Backward Castes (MBC) have more probability to participate in labour migration compared to the higher classes of society. The study also suggested that the OBC family send more people to labour in other places than the SC or ST families.

Haberfeld et al. (1999) also revealed fact that in rural labourers who are deprived in their socioeconomic status mostly migrate from difficult geographical and low agricultural income areas on seasonal basis to improve standard of living of their household.

Shonchoy & Junankar (2014) explained in his study about the Informal Labour Market in India that rural migrant workers employ in informal sector is determined by the demographic social and education characteristics of the worker. Factor such as Education of household, and individual, caste and religion of migrant worker play pivotal role to decision to work in informal or formal sector. People with lower social background such as other backward classes (OBC) and Muslims are observed with more tendencies to work in unorganized sector.

Srivastava & Sutradhar, (2016) observed in their study about the migration labour in construction work in National Capital Region Delhi, majority of construction worker belongs to lower strata of the society which constitute the tribal, schedule caste and the minority sections' people. These workers also have very poor education status such as only 26 per cent workers found with more than primary education.

According to *Chandrakanta (2014)* most of the migrant construction worker are married and belongs to younger age (15-29) group. In their religious composition, majority construction worker comes from the Hindu religion and a significant proportion belongs to minority communities' such as Muslim, Christianity. On the other hand, in their social attributes, Other Backward Class (OBC) constitutes the biggest share of pie among the construction workers, whereas, socially backward group i.e. SCs and STs were found only 15 per cent and 6 per cent respectively. These migration workers also observed with very low education background. Similar result are observed in the other studies (Srivastava, & Jha, (2014)

Economic Characteristics of Migrant Construction worker

Poverty and the low income at origin places remain one of the major reasons for the migration particularly among the seasonal and the temporary migration worker. Recently, this is observed in the studies *(Deshingkar & Farrington 2006)* that the landless and poor people has started to take part as temporary migrant as they have shifted from agricultural activities to non-agricultural activities for their livelihood particularly in south Asian countries. In case of the India, the Rural Labour Enquiry Report on the rural labour (Bureau 2004) also support this fact that landlessness problem is growing among the rural area and they are shifting towards the daily wage earning sector.

Similarly, *Dodd et al. (2016*) in their study of temporary labour migration revealed that person from the landless or marginal land household has more probability to participate in short term labour migration as compared to their counterpart. Thus, they concluded through their research that people from the poor and landless households have more tendency to migrate short-term for their survival. *Srivastava, and Jha, (2014)* find out in a study of migrant construction worker that nearly 50 per cent of the migrant construction worker don't have any land and only one-tenth of the total sample worker has less than one acre land at their origin place. They concluded that that most of the migrant construction worker are landless or have marginal land which comes mostly rain fed and low productivity areas. A study carried out among the construction worker in Delhi-NCR by the *Creches (2008).* This study observed that the income from the agriculture land is decreasing among the rural areas. Therefore, they migrate towards urban area's unorganized sector work.

Thus, studies show that the migrant construction labourers are mostly poor and landless (Pattanaik 2009). Due to their poor economic status and low living standard at origin place, they adopt migration towards the wage earning unorganized sector such as construction work, for their livelihood.

Work Characteristics of Migrant Construction Workers

Work is the most prominent reason for the migration among the construction worker. But the work characteristics also vary among the migrant worker. In his study *Suresh (2010)* tried to explain the process of worker's employment in construction work. The contractor or Jamadar play a pivotal role in organizing the labour force in construction sector. There are two types of the contractor work in this sector, one those who arrange the rural unskilled labour force for the construction companies in urban areas, whereas, other one, are those who are given tasks to arrange the more skilled worker in required field. Sometime these contractor or Jamadar provides the some of the amount from their wage in advances to encourage participating of labor force in this sector.

In construction work, various types of the work are done by the worker. Some of them employ in helper then, other are worked in mason, painter, plumber, carpenters, machine work, and supervision work. Thus it has various types of worker. But the "helper" and the "Mistry" can be found in all work of building construction. The biggest share of the construction worker comprise by the Labourer/ Helper/ Load carriers and the Mason (*Tiwary et al (2012).* A study by The *Tiwary et. al (2012)* observed that nearly three-fourth of the all building construction worker come under the two categories the Helper and Rajmistry. Similarly *Pattanaik (2009)* also found in his study about the construction worker that nearly 60 per cent share of the all migrant worker belongs to the unskilled labourer, whereas, other part include the mason and the painter with having some skill about their work.

Wage differential in construction work is very well known fact. The wages among the construction worker are not only varies according to skill status but also the types of worker and gender status. A study on construction worker by *Creches, (2008)* showed women are mostly unskilled and engaged in head-loading work. The man worker obtains more wages compared to the women for same work. Similarly, *Mukherjee (2009)* revealed worker with some skill such as the carpenter, technician, and machine operator are generally obtain high wage as compared to the unskilled worker e.g helper or laod carriers.

A study also carried out by *Solanki and Zankharia (2014)* among the construction worker in Maharashtra. Their study indicate that the wage differential are existed not only the man and women worker but also among the Naka and the Non-Naka worker (off-site & On-site worker). The Naka workers are paid higher wage as compared to the Non-Naka worker.

In case of the wage. Construction sector is very complex. There are various stake holders such as construction firm, supervisor, contractor, and Munsi/ Thekedhar who are involved in payment of wage to construction worker. As in this sector, worker employ thorough the contractor or Thekedhar they has their own commission to arrange the labour force for the company. Thus, construction worker face the problem regarding to wage such as low wages, wage differential for same work, delayed in payment, and no legal security for depute on these issue as the workers are not provided any prove for their payment *(Suresh 2010)*

Living and Working Conditions of Migrant Construction Workers

Last decade, apartment construction has grown in India particularly in metro cities and its neighboring region such as NCR and a large number of the migrant worker engage in this sector. Due to their migratory nature, employer provides the temporary living arrangement at the construction site for this labour force. Thus as a result of this a large of the worker resides in the temporary settlement at construction site. In respect to the living arrangement, these temporary Juggies produce a "mini slum" like settlement at the construction site. Temporary Juggies are made by the brick, tents, or tin roof (*Suresh 2010).* Some of the construction workers are lived at the outside the construction site with some housing allowance *(Creches 2008)*

The living conditions in these mini slums of migrant worker are highly deplorable. The basic facility such as electricity, toilet, bathroom, and safe drinking water, proper ventilations in these temporary accommodations/ Jhuggis are mostly absent or found in miserable conditions. These Jhuggis are also unprotected from the extreme weather, dust and mosquitoes. Poor living and housing conditions pose health vulnerability among migrant construction worker *(Mukherjee et al. 2009, Korra 2010).)*

Mukherjee et al. (2009) tried to investigate socio-economic and working conditions among the Naka worker[19] and construction site worker in his study. The Naka workers are mostly permanent migrant, whereas their counterparts the site workers are mostly temporary and seasonal migrant. The Naka workers (off-site worker) are not only different from site worker in their socioeconomic status but also in living and working conditions. The Naka worker observer as more stable in life despite their poverty and uncertainty in acquiring the work compared to site worker. But site worker are even seem to be more vulnerable regards to

[19] "Naka" is Hindi word which is used for road-side corner. Mukherjee et al. (2009) defined Naka in their study as a place where construction worker assemble to obtain the work in urban areas.

their low socioeconomic and poor work condition despite their more regular work compared to the Naka worker.

Iyer et al. (2004) explore the work and living condition in his study of causes and consequence of distress migration in Indian. In their study they estimated that around 3 lakh construction workers worker in Punjab and Haryana and most of them migrate from Rajasthan, Tamil Nadu, Madhya Pradesh and Utter Pradesh. The majority of construction workers are work as temporary basis and mostly vulnerable due to their poor living and working conditions and low wages and unaware about their rights due to low education level. The labour chowk's construction worker suffer for shed and toilet facility at labour chowks and there always uncertainty to get work at labour chowks.

A study of the migrant construction workers by *Creches, (2008)* also tried to look about the living and working condition in the construction sector. It revealed that most of the construction workers inhabit on the construction site in the temporary houses which are mostly made by the brick, asbestos or tin roofs and only few worker live outside construction site. Study enlighten that that only 50 % construction worker obtain the clean drinking water and only 23 % use the toilet in their residence area but it also suggests the intervention from the Mobile Creches at the construction site show positive impact on the living condition of worker.

The *Virk (2004)* investigate the socioeconomic and living conditions of women construction workers at site in his study and observed women are more vulnerable for their living and working conditions in construction sites. In construction work, most of the time women have to live to at construction sites where they face more problem compared to men regarding their privacy and living conditions.

2.2.2 Migration, Work and Health Seeking Behaviour

In India, after adopting economic reform and liberalization employment or work related migration has increased and a huge influx of people from rural and urban area are migrated to urban areas to observe the work opportunities. A results of push factors such as agricultural failure, lack of jobs, low wage rate and pull factors as better wages and availability of jobs force people who belongs to lower socio-economic status, to migrate to large and metropolises city like Delhi, Kolkata, Mumbai and Bangalore where they are mostly absorbed in low-paid jobs in unorganized sector such as manufacturing, construction, services or transport sectors and employed as casual labourers, head loaders, domestic

worker, venders, and rag-pickers, rickshaw pullers and hawkers. At the same time, this urban labour migration poses some health related implication to this most vulnerable group. In this section author will describe the exiting literature on migrant's health seeking behaviour and their access to health care services.

In a mortality study about the construction worker by *Dong et al. (1995)* carried out in UK. In their study author revealed in construction work there is always high probability of accident which increase the risk of or cause sometime the death among the worker.

Adane et al. (2013) tried to explore the occupational injuries among building construction workers in Ethiopia that it is impossible to calculate the accident among construction worker but each year on average around 55,000 workers are dead due to accident at the construction sites all over the globe. Their study demonstrated that injuires are common among the worker in construction sector. They revealed that 38.7 per cent workers are injured due to worker related injuries in a one year. Male worker are observed with more injuries than their counterpart female worker.

Tiwary and Gangopadhyay (2011) carried out a review of literature on the occupation health problem among construction worker. Author find out that the construction worker are mostly suffers with the silicosis, lead poisoning, joint pains, benzene poisoning and skin diseases due to their work condition and living condition. The breathing problem among the worker be is mostly associated with high dust condition at work site and higher noise condition can cause the hearing loss while the Raynaud's sysdrome is caused due to the employ in the vibration work at construction site. Thus, heavy work load and highly exposure to work cause various occupational diseases among the construction worker.

Bhattacharya & Biswas (2011) also tried to see the relationship between the Working Postures and Health Status of Construction Workers. Their study revealed that around 84 % construction workers said that they suffer the musculoskeletal health problems due to the work. Most of the construction worker's postures are found very harmful for their health problem. Worker with less work experience and younger age (25-35 years) experience less health problem related to work compared to older and more experienced workers.

Chatterjee (2006) described that health risks in mobile people at destination place are generally determined by certain factors which includes individual factors such as health awareness, social support and their health seeking behaviour; health system related factors as health network and services coverage; employer related factors work site safety and living

conditions, insurance coverage, and other benefits of work; and government related factors such as national health policy and plans, public services systems and community development. The vulnerability among migrants related to health can be assessed by the availability, accessibility, quality of health care services and environmental condition such as working and living conditions.

In a study *Borhade (2011)* observed how vulnerable migrant labour regards to their health. Their health status very lower compared to non-migrants in urban area whether its concern for children or women. The some legal protections are available for migrants, but, most of them are unpracticed due to lack of information and knowledge in migrant workers. Migrant worker are generally neglected in national health programmes and policies. But recently lunched National Urban health Mission (NUHM) programme tried to focus on the marginalized section of urban area including with migrant workers.

A study conducted by *Hesketh, et al.(2008)* regarding to migrant workers in china demonstrated the health migrant effect but poor living condition and inattention to health can make temporary migrant workers vulnerable to poor health in long-term compared to permanent rural and urban inhabitants. Lack of health insurance and higher cost of health care are major obstacles in accessing heath care not only for migrant workers but also for urban poor workers.

Akram (2014) observed in his study most of the migrant construction workers go for treatment whernever fall sick or had injuries but most of them using the private or NGOs clines compared to government houspital due to the easy accessibility of health sericrve in nearly by construction site.

A another study carried out by Resosudarmo et al. (2010) on socioeconomic and health status of migrants in Indonesia showed that rural-urban migrant are having higher socioeconomic status compared to non-migrants and migrants health and their children's education didn't find any difference with non-migrant in urban population but migrants children are having higher possibility of being underweight.

Nguyen and White (2007) conducted a study on health status of temporary migrant in urban area of Vietnam. In this study they observed temparray migrants who live in guest- houses are mostly showing healthy status at initially stage but after sometime their health deteriorates faster compared to other sub groups of urban residents. It rejected the myth that temporary migrants are healthy than other urban people. Female temporary migrants are more

vulnerable compared to their counterpart's male migrants. Study suggested that urban migrants health can be improve by providing information on health care, sanitation and hygiene conditions which are major determinants of health.

Adosul et al. (2011) examined health status of construction worker in his study and observed that migrant worker are more prone for infections and respiratory diseases and having more habits to consume of tobacco and alcohol. Nearly out of ten around two migrant workers are suffered from febrile illness and out of that nearly 21 per cent having chance suffering from malaria. Their research find out that environment and work conditions affect health status of migrant labours.

Hang et al. (2006) observed in a qualitative study of health seeking behaviour of rural-urban migrants in China that migrant people are lagging behind in accessing regular medical health care services. Higher cost of health care and lack of insurance were found major reasons for under utilization of healthcare among migrants that encourage them for ineffective health seeking behavour like unsupervised self-treatment, going to unregulated clines or remain without seeking any medical care for health problems. Not only the affordability but also long working hours, lack of sick leaves, fear of losing job and attitudes of health care providers also affecting non-utilization or underutilization of health care services.

Kishor and Joshi (2001) explored in their study of male worker in Delhi that unskilled and semi-skilled worker are observed more prone for diseases compared to businessmen and professionals, whereas, businessmen and professional worker are more prone for suffering from chronic diseases such as asthma, heart diseases and diabetes. All workers are going to general physicians during the illness but professionals are generally preferred specialists not only for chronic diseases but also for common diseases it shows higher education and economic status create difference in health seeking behaviour among the workers.

Cutler & Lleras-Muney (2006) tried to observe the relationship between the health and education. In his study they revealed that there is straight forward association between the education and the health but the relationship between these two variables is very complex in nature. As the education level increase in community their health also shows the improvement. The relationship between the education and the health not always works directly, it also determine indirectly by the other factors such as income and labour market and background of the family.

A study conduct by *Gupta and Dasgupta (2000)* in urban Delhi showed lower income family spend higher on their health expenditure by using private hospital compared to middle and high income family. The education, work status, marital status, income are major factors which determine the health seeking behaviour in urban population which also include the migrant.

Another study about health behavior of a migrant indigenous people in eastern Indian city by *Babu et al. (2010)* revealed that low health status among indigenous population is result of poor living condition and low accessibility to health care. Thus this study shows indigenous population who migrate to cities in search of work and employment become vulnerable regarding to health and access to health care.

Biao (2004) tried to examined problem and obstacles of urban migrant in China. In his study author observed urban migrants are lagging behind in accessing exiting health care services due to their financial difficulties and lack of proper knowledge and information on health services. Women are generally unaware about what kind of reproductive health care they can receive form family planning programme.

Nauman et al. (2011) conducted a longitudinal study to assess the change in health status in adult who migrated from rural to urban area in Thailand. The difference is found in health status of migrated people and people who remain in rural area. This study revealed migrated adult enjoy better mental and physical health status in urban area due to their socio-economic and demographic characteristics.

A study is carried out by *Nair (2001)* on to assess the health affordability among the unorganized worker in Delhi. In his study author revealed that on average around Rs 424 is pay out by a family in year on their health expenditure and Rs. 250 spend on the other extra expenditure during their health problems, thus, an unorganized family spend nearly more than 8 percent of their yearly income. Nearly one-fourth of the household arrange money for their health expenditure by borrowed money or by selling their household assets.

In a study about the disparities in healthcare utilization in China by *Fan et al. (2013)* examined that gender also matter in health care utilization among migrant and non-migrant people. Female migrant face more barriers in accessing the health care compared to all other population.

2.3 Conceptual Framework

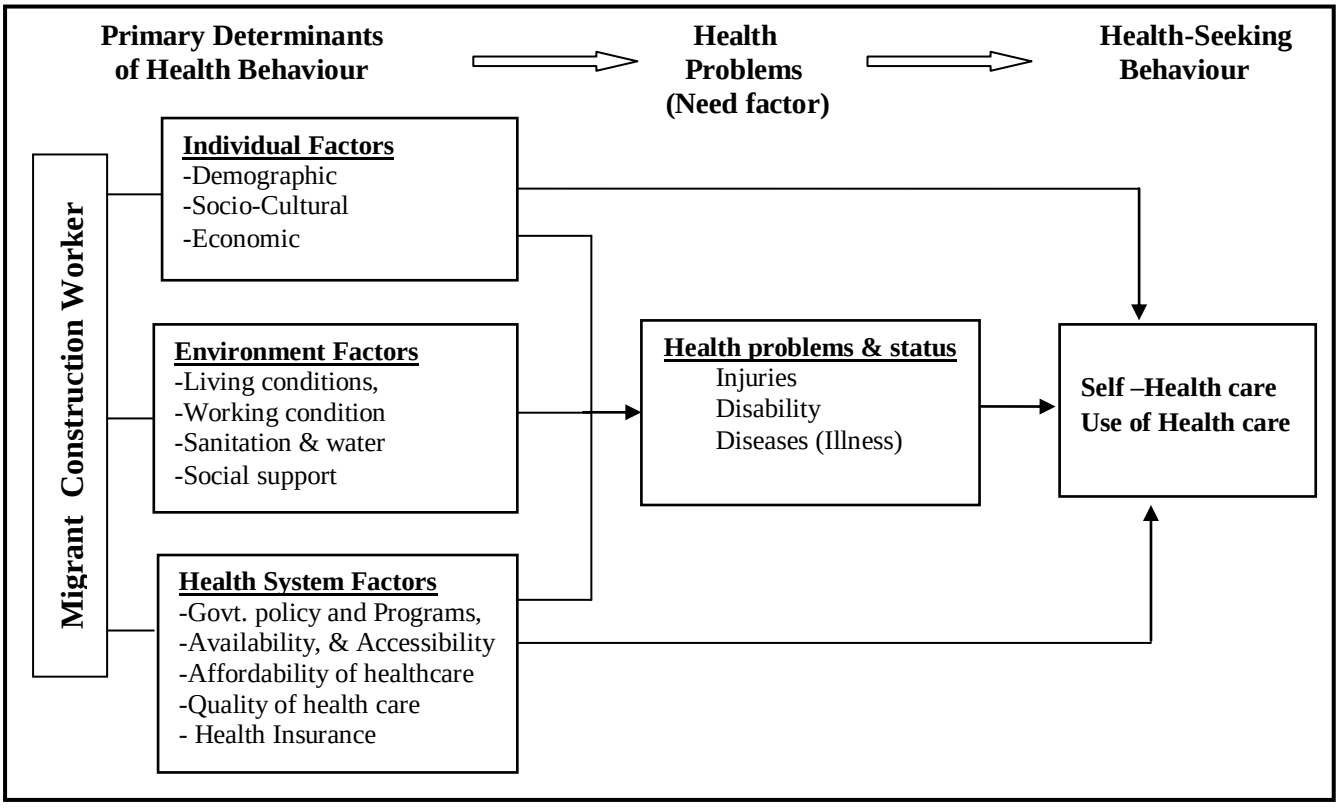
A research study is carried out on basis of the certain hypothesis, conceptual framework, and appropriate research methodology and data if they are needed. Through those data and methodology the conceptual framework and hypothesis are generally proved to sort out the statement of the problem. A conceptual framework or model is the basic structure on which a study is carried out with the help of data and methodology. In this present study, a conceptual framework of health seeking behavior among the migrant construction worker is constructed to analyze impact of socioeconomic, demographic migration and work related factors on the health seeking behavior among the migrant workers. The present section provides an introduction of conceptual framework of the study and their various variables, data source and methodology on which this study has been preformed.

Conceptual Framework of the Study

After review of exiting literature on the migrant and their health issue it was observed that health behavoiur of migrant always different from other people. In case of migrant construction worker, they are more vulnerable in tern of health comparative to other people not only due to their socio-economic, living and working conditions but also for accessing the health care due to their migration *(Borhade, 2011)*. *Andersen (1995)* revealed in his behaviour model that healthcare utilization is a behavioural phenomenon which is determined by various individual, environmental and health system related factors. *Teller (1973)* & *Fan et al. (2012)* also tried to explore the relationship between the migration and health seeking behaviour on the basis of Andersen's behavioural model of healthcare utilization. According to this behavioural model, health seeking behaviour in any population is determined by three sets of factors the predisposing, enabling and need factors. Predisposing factors are those individual characteristics such as demographic, social and health beliefs with these some people having more tendencies to use health care services. Enable factors are conditions which permits people to act on use of health care services utilization such as income, health insurance, working hours, and need factors such as illness and injuries are most immediate cause of using the health care *(Andersen & Newman, 1973).* Besides of all three factors, the health status (need factors) also influencing by the environment factors such as, sanitation, housing and living conditions, working conditions, and social support at destination in case of migrant worker *(Adosul et al., 2011).*

In present study, the author has tried to construct a conceptual framework for study the health seeking behaviour among the migrant construction worker after modified the Andersen's behavioural model. According to this modified conceptual model there are some primary determinants of health behaviour which include the individual factors (e.g. demographic, socio-cultural, & economic), environment factors (e.g. availability of water, sanitation, living and housing conditions, working condition, & social support), and health systems factors (e.g. health programme and policies, availability, accessibility, affordability, and quality of health care). All these primary determinants affect the health status of individual and as a result of this, health problems such as injuries, illness, and disability are observed among the individuals. These health problems lead to adopt a specific health seeking behaviour among

Fig 2.1: Conceptual Framework of Health-Seeking Behaviour among Migrant Construction Workers (after modified Andersen Model)



individual. In their specific health seeking behaviour migrant workers can adopt personal health care (Diet, exercise, and self-care) or can use the exiting health care services (go to medical store, go to small clinics or go to government, NGOs, private hospitals). Thus, the above conceptual framework will be applied to the study of health behaviour of migrant construction migrant worker in National Capital Region (NCR).

2.4: Database

Resent study will be based mainly on primary data but in some part of study the secondary data also will be used form National sample survey (NSSO) and census of India to observe the background of construction workers. As there is limitation of secondary data on health of migrant workers particular for construction workers those are vulnerable both their migration and nature of working conditions, data has been collected thorough pre-designed open-ended Migrant *Construction Workers and Health Schedule* by the interview and observation methods.

Secondary Data source:

Some following secondary data has been used to analysis the migrant and construction workers situation in study.

- Census of India, B Series, Economic Tables
- Census of India, D Series, Migration Tables
- National sample survey 68th round (2011-12)

Primary Data Source:

The study is based on the primary data which has been collected through primary survey among the construction workers through a structured *Migrant Worker and Health Schedule.* The information on the socioeconomic, living and working conditions and health problems and health care utilization among construction workers has been collected in depth through face to face interview at construction sites and *Labour Chowks*. The following information will collected through the construction worker and health schedule-

1. **Migration Related Characteristics of Construction Worker**
    - Place of origin
    - Cause of migration
    - Duration of migration
    - Age at time of migration
    - Reason to choose the destination
    - Family composition at destination

2. **Socioeconomic, Living and Working Condition of Construction Workers**
    - Socioeconomic & Demographic characteristics- age, marital status, sex, religion, caste, education, income, access to social services such as ration card, food, education.
    - Living and Environmental conditions- Housing condition, Toilet facility, Electricity connection, Sewerage line facility, Sanitation condition, Sources of water , Fuel used for cooking & Social support.
    - Working conditions at work site e.g. Nature and types of work, working hour, availability of toilet and water facility at work site.

3. **Availability of health care**
    - Information and awareness regarding health care
    - Availability health care in residential area
    - Primary health care available at work site
    - Coverage of health insurance or scheme
    - Contact of health worker at home
4. **Major health problems and health status**
    - Injuries during the Construction work
    - Illness (Diseases) in last month
    - Any disability occurrence due to work
5. **Accessibility of health care**
    - Distance of health centre
    - Mode of transportation
    - Charge of health care (affordability of health care)
6. **Health seeking behavior**
    - Personal health care- Diet, exercise, and self-care
    - Source of health care- Consulting unqualified Person Buys drugs from a medical stores , Going to hospital (Govt., private, NGOs)

2.5: Research Methodology

Sampling Deign

Present study is an attempt to study the working and living conditions, health status and health seeking behaviour of building construction workers This study is a cross-sectional study based on primary data which will be collected from the four cities Delhi, Gurgaon ,Noida and Bhiwadi in NCR. Construction work related to residential and commercial buildings increase in these cities after the boom in construction sector. During pilot survey, it was observed among construction workers in each selected city that there are two categories of construction workers, first, who are living temporary on construction sites till the construction work finish and second, construction worker who lives outside the construction sites. Generally these types of construction workers live in slums and Jhuggi- Jhoparies or come from nearby rural areas and assemble in morning at *Labour Chowks* (roadside squares) to get work.

Number of sample size is estimated on the basis of given formula (1.1). With the help of this formula, appropriate sample size for the study has been estimated both in case of illness and injuries among migrant construction workers on the basis of previous study *(Akram, 2014).* On basis of this calculation, we found that in each case around 323 and 350 samples are sufficient for study respectively.

The sample size is estimated on the basis of the following formula:

$$n = \frac{z^2 pq}{e^2}$$

……. (1.1)

(Cochran, 1977; pp-75)

Here …..

n = Sample Size

Z= Standard value for 95% confidence interval =1.96

e = absolute precision of study (acceptable error 5% =0.05)

p = the proportion of targeted population with reported illness =70 %=0.70 and

Injuries=35%= 0.35 (from the study of Akram, 2014)

q = 1-p =1-0.70= 0.30 & 1-0.35=0.65

$$n = \frac{(1.96)^2(0.70)(0.30)}{(0.05)^2} = 322.69=323 \text{ (For illness among MCWs) ……. (1.2)}$$

$$n = \frac{(1.96)^2(0.35)(0.65)}{(0.05)^2} = 349.58= 350 \text{ (For injuries among MCWs)…… (1.3)}$$

Table 2.1: Construction Workers (CWs) surveyed in selected cities in NCR Region

City (states)	No. of CWs tried to contacted during survey	No. of CWs who Respond during survey
New Delhi (Delhi)	115	114
Gourgoan (Haryana)	115	115
Noida (Uttar Pradesh)	115	114
Bhiwadi (Rajasthan)	115	114
Total No. of sample	**460**	**457**

In present study, total 460 samples of building construction workers are tired to contact for study purpose (Table 1). We increased the sample number form required level because of two reasons. First, this study is about the individual person's health aspects which required large number of sample for a study and second, as the sample increase; results are becoming more realistic for the study. But out of 460 samples, 457 samples respond positively during the field survey. It shows the higher responsiveness among the construction workers.

In each city, total 115 building construction workers are surveyed on the basis of the snow-ball sampling method for the purpose of study. Nearly 60 samples has been collected from each two categories of construction worker, one who lives temporary on the construction sites and other who lives outside the construction site and get work through the *Labour Chowks*. In present study, for the migrant, Census of India definition is used which consider people whose current place of enumeration or residence is different from the place of birth or the last place of residence. A worker who has completed at least one year of his or her migration and working in building construction sector is the respondent in the study. One year time period limitation for migrant construction worker is used due to see their health problems and health behaviour.

Table 2.2 Areas from Samples Collected During Field Survey

City	Area form sample collected		
	Construction Sites	**Labour Chocks**	**Total**
New Delhi	68	46	114
Gurgoan	69	46	115
Noida	75	39	114
Bhiwadi	84	30	114
Total	**296 (64.8%)**	**161 (35.2%)**	**457 (100%)**

Table 2 shows that nearly 35 % sample are collected for Labour Chocks and remaining 65 % are collected for building contruction sites at four cities in NCR region.

Identified Locations to Collect Samples of Construction Workers

For the purpose to collect the samples of construction worker in National Capital Region (NCR) we have done a pilot survey in each four selected city Delhi, Noida, Gurgaon and Bhiwadi. Through this pilot survey, it has been observed that two type's workers engage in the building construction work. One, those who work in large scale building construction projects and live on the construction site for temporary period till the construction work finish. Mostly these are migrated people who get their work through the labour agents and contractors. Second one, who live outside the construction site. These construction workers assemble in morning at the *Labour chowks* (Roadside Squares) in the cities and person and contractor who need them come at these places to collect them for their construction work. Generally they engage in small construction work and mostly live in slums and J-J Clusters or come from the nearby rural areas in search of work. Therefore, through the pilot survey we identified some construction sites and *Labour Chowks* in each city to collect samples. These locations can be identified in the appendix B

Statistical Techniques for Data Analysis

To full fill the objective and hypothesis following statistical methods will be apply in present study

1. **Bivariate analysis:** In bivariate analysis, cross tabulation and chi-square test method has been used to see the association and differential between dependent and independent variables.
2. **Multivariate analysis**: as bivariate analysis is unable to see the net effect of independent variable on the dependent variables. Therefore, *logistic regression*

method will be applied for multivariate analysis to see the net effect of each independent variable on dependent variable. The following regression coefficient equation will be applied-

$$P = \frac{\exp(Z)}{1+expZ} \quad \text{.....(1.4)}$$

3. **Cartographical Methods:** Different cartographical tools such as Bar-Diagrams, Pie-Charts, Choropleth method has been used also to analyze data in study.

2.6: Limitation of the Study

The present study tries to analyze health seeking behavior of migrant construction workers based on primary data. There is lack of secondary data on the migration and health. In this study, it has been tried to correlate migration, work condition and health aspect among the construction worker on the basis of primary survey. The author also tried to see role of program factors which determine health care utilization among people, but due to migratory nature of construction worker it was not to possible to capture all these aspect of health. The inadequacy in the knowledge and training of health care and resource restrictions effect the utilization in any area but here it was impossible to include all these aspect in the analysis due to unavailability and shortage of time. There are some non-program factors which influence health seeking behaviour such as the flood and drought frequency and other disturbance in an area, operation of welfare program but it was very difficult to include all these in this study. Therefore, except all these some limitation present study tried to analysis to determine the pattern and status of health seeking behaviour among the migrant construction workers.

CHAPTER- III

Migration Dynamics among Construction Worker

3.1: Introduction

Migration is a universal dynamic phenomenon which is observed generally in all parts of the world. The Lee (1966) said that "Migration …involving a set of factors at origin and destination, a set of intervening obstacles, and a series of personal factors*"* (pp. 52)[1]. In all these, some of the factors such as unemployment, low level of the income at native place, poverty, Adverse natural and climatic conditions push people to migrate from their origin place and other side high income and higher development attract or pull them towards their destination. Thus, the pull and push factors determine the migration but in case of workers, it is mostly affected by work opportunity. In recent times, some of the studies reveal that migration is not only causing the burden on urban infrastructure and illegal slums but it has also emerged as vital instrument to poverty reduction and economic growth both in urban and rural areas among the people (Kundu, 2007; Srivastava & Sasikumar, 2003; IOM, 2005).

It is well established that healthy people have more tendency to migrate apart from the case of forced migration. Migration itself exposed health vulnerability among people not only due to human rights violations, decimation and social exclusion, language and cultural differences but the living and working conditions and poor access to health and social services at destination place particularly in case of migrant workers. Thus, migration is one of the important social demographic determinants of health (WHO, 2010; Davies, Basten, & Frattini, 2009).). Therefore, to understand dynamics of migration it becomes significant in a study of health behaviour of migrant workers. The present chapter is an attempt to investigate migration pattern and process among construction worker in NCR Cities.

This chapter has two main sections, in which the first section deals with migration pattern among the construction workers. In this, the author has tried to observe the migration pattern according to their origin place, major reasons behind the migration, their duration of migration, and the work status of construction worker before the migration. Whereas, in the second section, migration process among the construction worker, which includes their age during the first migration, number of places visited during the migration process, distance

[1] Lee, Everett S., (1966). A Theory of Migration. *Demography*, 3(1), pp. 47-57.

travelled by worker and person with whom they migrated to migrated city has been investigated.

SECTION–I: MIGRATION PATTERN AMONG THE CONSTRUCTION WORKERS

The construction sector is one of the biggest employment generation sectors of economy. In case of India, nearly 44 % of the labour force of the informal sector engages in this fastest growing construction sector. But, the most of the construction workers are migrant people (Pattenden, 2012; Deshingkar & Akter 2009; Srivastava & Sasikumar, 2003). In India, there are around 30-40 million migrant workers who employed in construction work.[2] The study (Srivastava, 2011)[3] has revealed that the highest short duration migrant has been observed in the construction sector which constitute around 36.2 per cent share of total short-duration migration. In Indian context, construction industry has the largest share of labour force in urban informal sector where most of the construction workers are migrant person. Therefore, to study the migration pattern of construction worker in the study of health-seeking behaviour will be very constructive and useful.

3.2: Migration pattern among Construction Workers in National Capital Region

It is well established that work always remains as motivational factors for migration to people. Author has tried to see the migration status of construction workers in present study. Similar to other studies **(**Srivastava, 2011, Deshingkar & Akter, 2009; Thorat, & Jones, 2011) results of the study suggest that construction work mostly dominated by the migrant workers. Table 3.1 shows that 93 per cent construction workers found as migrant, whereas, only a small proportion of workers (7%) belonged to the non-migrant category. In migrant construction workers, around 81 per cent workers were temporary migrant and only 12 per cent have appeared as the permanent migrant. Temporary migrant is worker who move to NCR region for work for particular time period or season and after that, they return to their home. Whereas, worker those moved to NCR region from their origin place and currently reside permanently in city are belong to permanent migrant workers.

In context of cities, similar observations were revealed by data where temporary migrant worker dominate in construction work. In all four studied cities, more than three-fourth of

[2] Thorat, Y. S. P. and Jones, H. (2011) Remittance Needs and Opportunities in India, Deutsche Gesellschaft fr Internationale usammenarbeit (GIZ): New Delhi.

[3] Srivastava, R. (2011) Internal migration in India: An overview of its features, trends, and policy challenges. New Delhi: UNESCO, Social and Human Sciences Sector & UNICEF

construction worker belongs to temporary migrant in NCR region. It shows, irrespective of the cities, temporary migrant workers constitute the biggest proportion in construction work. In case of cities, non-migrant workers proportion witnesses the highest in Bhiwadi as compared to other cities. Around 23.7 per cent construction worker is found as non-migrant in Bhiwadi, whereas, for other three cities namely Delhi, Gurgaon, Noida this was observed very negligible with less than 2.6 per cent. In Delhi, around 21 per cent of construction workers are permanent migrant which is the highest among all NCR cities. For Gurgaon and Noida, it was observed 11.3 per cent and 13.2 per cent respectively. Bhiwadi has been observed with very few proportions of permanent migrant construction workers (2.6 %). The major reason behind this rationale could be lying in the size and functional aspect of the cities. Such as Delhi is the largest agglomeration which attracts more temporary as well as permanent migrant workers for work and, whereas, Bhiwadi is a small city compared to all other cities, therefore, it could be observed with higher non-migrant worker which also includes the daily commuter in construction sector.

Table 3.1: Migration Status among Construction Workers in NCR cities

Migration Status	City (%)					
	Delhi	**Gurgaon**	**Noida**	**Bhiwadi**	**All CWs**	**N**
Non-Migrant	0.9	0.9	2.6	23.7	7	32
Permanent Migrant	21.1	11.3	13.2	2.6	12	55
Temporary Migrant	78.1	87.8	84.2	73.7	81	370
Total (N)	**100 (114)**	**100 (115)**	**100 (114)**	**100 (114)**	**100**	**457**

Note: Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

It has been tried to observe migration among the construction worker according to type of workers. In construction sector, two types of workers employed, first, the On-Site Workers who generally reside temporarily at construction sites or nearby the work site or Labour camp and the second, the Off-Site Workers who live outside the work site. They, generally, live in rural areas, slum or non-slum areas in the city and get work through the *Labour chowks* (roadside squares).

Fig. 3.1 Migration Status among MCWs in National Capital Region (in percentage)

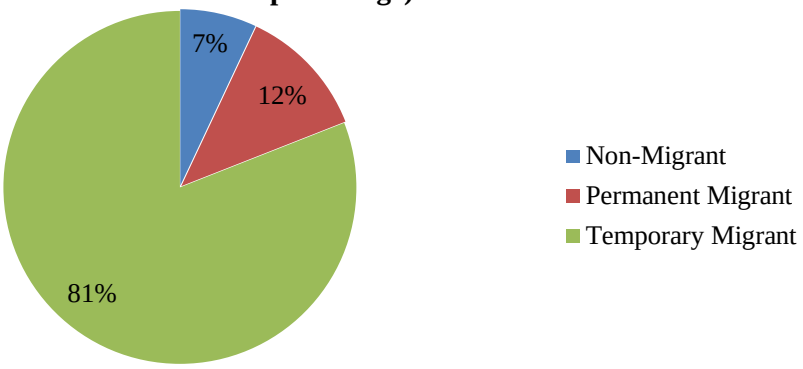
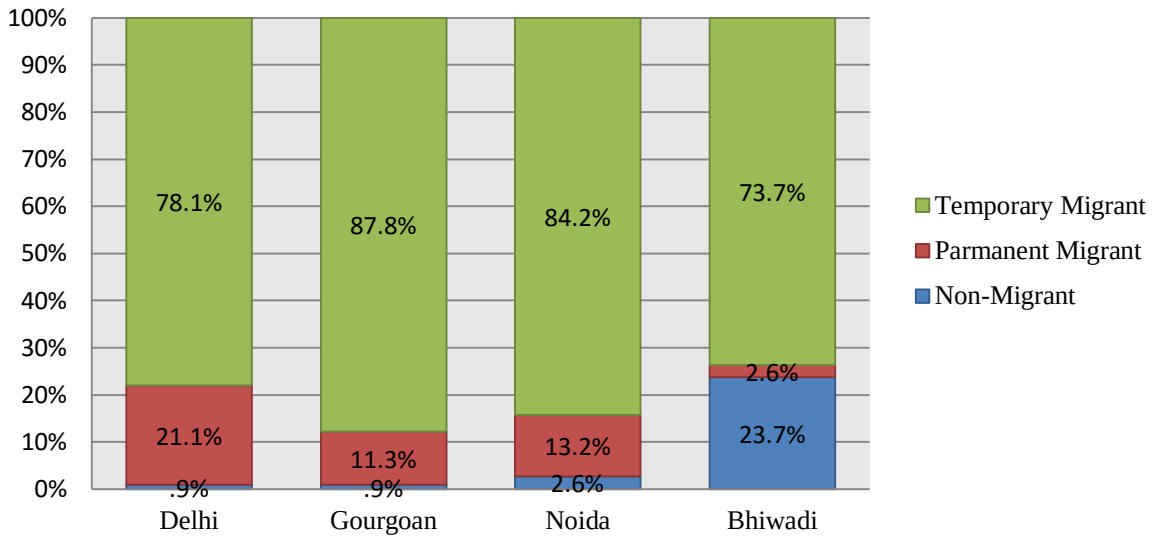


Fig3.2: Migration among Construction Workers in NCR Cities



The results of Table 3.2 shows that, out of total Off-Site workers nearly 55 per cent workers are temporary migrant and remain proportion compose the permanent migrant and the non-migrant worker those account around 28.4 per cent and 16.5 per cent respectively. In case of On-Site workers, all the construction workers belong to the temporary migrant status. It reveals the fact that the On-site construction workers are mostly temporary in their nature of migration and the permanent and non-migrant worker is found mostly in the off-site worker population.

Table 3.2: Migration Status of Construction Workers according to types of Workers

Migration status	Place Where Construction Workers Get their Work			
	Off-Site Workers (%)	On-Site Workers (%)	Total (%)	N
Non-Migrant	16.5	0.0	7.0	32
Permanent Migrant	28.4	0.0	12.0	55
Temporary Migrant	55.2	100	81.0	370
Total (N)	**100 (194)**	**100 (263)**	**100.0**	**457**

Note: Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

3.3: Origin place of Migrant construction workers

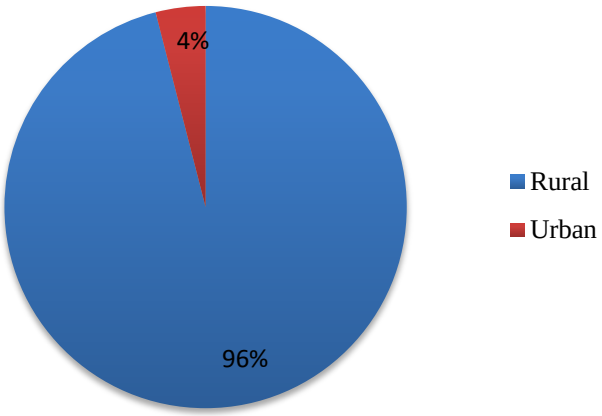
In migration process, the origin place of migrant also explains the factors which are involved in migration. In present study, we also tried to explore the migration dynamics according to origin place. Table 3.3 present data on origin place of migrant construction worker. It points out nearly 96 per cent migrant construction workers migrated from rural areas in National Capital Region and a negligible proportion (4%) of workers migrate to NCR region from urban areas. In respect to city, highest proportion of urban migrants observed in Delhi which is about 6 per cent. It is very less as compared to origin place of rural areas but highest in all cities in NCR region. The main reason behind this fact could be found in the size and prominence of Delhi city as compared to all other cities in NCR region. In term of rural area as origin place of worker, Noida observes the highest construction worker (98.2%) from rural areas followed by Gurgaon (96.5%).

Table 3.3: Origin Place of Migrant Construction Workers

Selected Cities in NCR	Place of Origin (%)		Total No of sample (N)
	Rural	Urban	
New Delhi	93.8	6.2	113
Gurgaon	96.5	3.5	114
Noida	98.2	1.8	111
Bhiwadi	95.4	4.6	82
Total (N)	96.0 (408)	4.0 (17)	425

Note: Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

Fig. 3.3: Origin Place of Migrant Construction Worker



The result of table also shows majority of construction workers arrive from rural areas whether it is big or small city but when it comes to urban areas as origin place then big city such as Delhi receive the highest urban migrant workers. These statistics reveal the fact similar to other studies (Srivastava, & Sasikumar, 2003) that labour force mobility in the informal sector such as construction work observes, particularly, temporary and circulatory in nature from the underdeveloped or rural areas to developed and urban centres.

3.4: State Wise Migration of Construction Workers in Nation Capital Region

In pattern of migration analysis, it is also very significant to identify state from where generally migrant worker comes. Table 3.4 presents the data on origin state of migrant construction workers in NCR. The data reveal that in National Capital Region, nearly 97 per cent of the construction workers are migrated from the Empowered Action Groups states (EAGs) namely Utter Pradesh, Madhya Pradesh, Bihar, Rajasthan, Chhattisgarh, Jharkhand and West Bengal. EAGs are lagging behind in their socio-economic development compared to other states. In these states, some of them e.g. Utter Pradesh, Rajasthan, Punjab and Madhya Pradesh are the neighbouring states of NCR region, whereas, others such the West Bengal, Bihar and the Jharkhand are far away from this region. Statistics also show that the highest share of migrant construction workers (33.4%) comes from Bihar and followed by the Utter Pradesh (29.2%) and the Madhya Pradesh (11.8%) state. Thus, these three states account nearly three-fourth of all migrant–construction worker, whereas, a small proportion (2.8 %) of the construction workers migrated to NCR comes from Haryana, Punjab, Orissa, Assam, Himachal Pradesh and Uttarakhand.

Table 3.4: State Wise Migration of Construction Workers in NCR (in percentage)

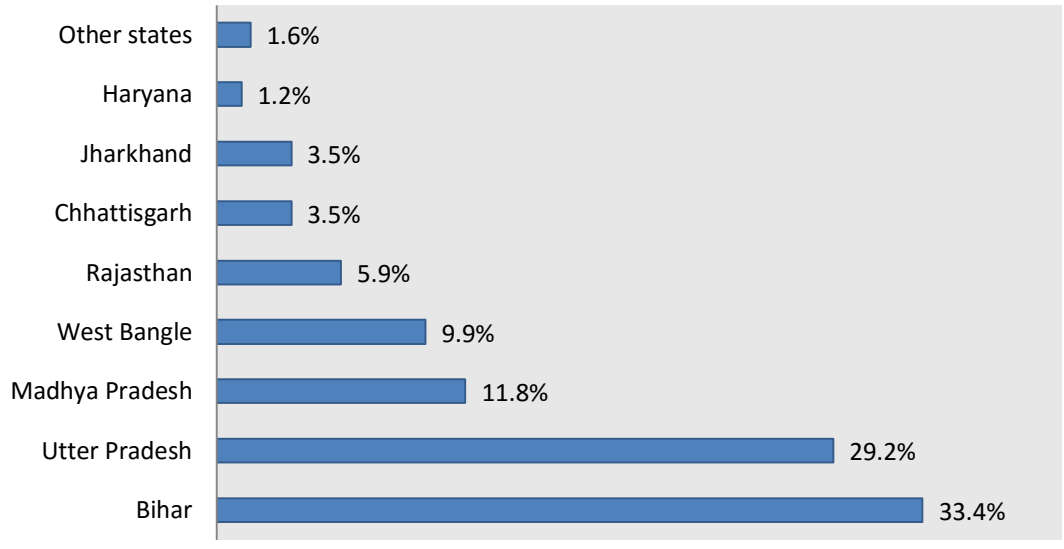
States	City (%)				Total	
	Delhi	Gurgaon	Noida	Bhiwadi	All MCWs	N
Uttar Pradesh	37.2	29.8	40.5	3.4	29.2	125
Madhya Pradesh	18.6	14.9	5.4	6.9	11.8	50
Bihar	28.3	34.2	33.3	39.1	33.4	142
West Bengal	3.5	6.1	9.0	24.1	9.9	42
Rajasthan	7.1	7.0	1.8	8.0	5.9	39
Chhattisgarh	0.9	0.9	8.1	4.6	3.5	15
Jharkhand	1.8	1.8	1.8	10.3	3.5	15
Haryana	0.0	2.6	0.0	2.3	1.2	6
Other States*	2.7	2.7	0.0	1.1	1.6	7
Total (N)	**100 (113)**	**100 (114)**	**100 (111)**	**100 (87)**	**100**	**425**

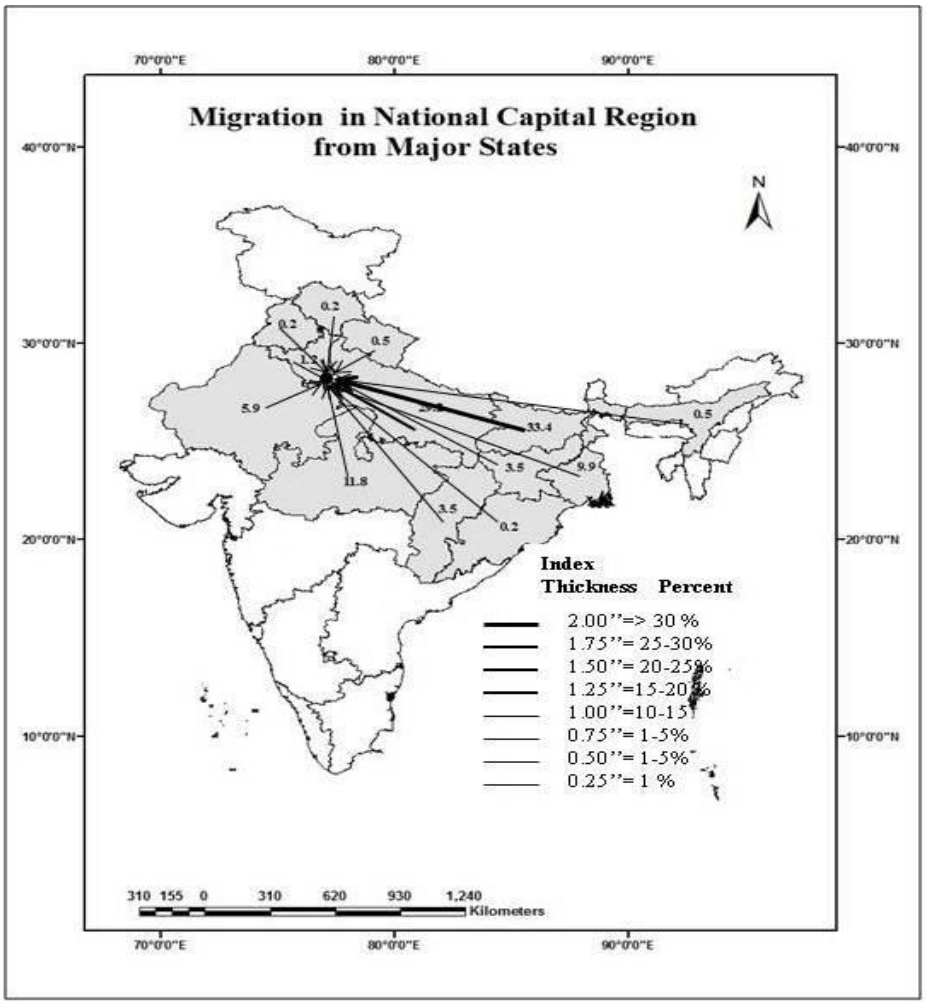
*Other states include Punjab, Uttarakhand, Orissa, Assam, and Himachal Pradesh.

Note: Parentheses ( ) figures are the number of samples

Source: Field Survey, 2015-16.

Fig.3.4: State wise migration of construction workers in NCR (in percentage)





Source: Field Survey, 2015-16.

In respect of cities, nearly 95 per cent migrant construction workers in Delhi belong to five states Utter Pradesh (U.P.), Bihar, Madhya Pradesh (M.P.), West Bengal and Rajasthan. This is also similar to the NCR region, but highest proportion of workers belong to the Uttar Pradesh around 37 per cent and followed by Bihar (28.3%) and Madhya Pradesh (18.6%). A similar migration pattern like the Delhi is also observed in case of Gurgaon. But the largest share of migrant workers comes from Bihar (34.2%) followed by Uttar Pradesh (29.8%) and Madhya Pradesh (14.9%). In Noida, most of the migrant worker comes from its home state which accounts nearly 41 per cent followed by second and third largest share from Bihar (33.3%) and–West Bengal (9%). These three states comprise nearly 82 per cent of migrant workers to Noida.

On the other hand, in case of Bhiwadi city, statistics put a different kind of picture regarding the origin state of migrant worker. For all other cities, neighbouring states consist of a significant proportion in migrant construction worker but in Bhiwadi, around more than 75

per cent migrant worker comes from three states Bihar (39.1%) and West Bengal (24.1%), Jharkhand (10.3%) which are long distance states. In case of NCR cities, one specific observation was seen that Bihar account nearly 30 per cent migrant construction workers irrespective of the cities, whereas, all other states share of migrant worker has changed with the cities.

3.5: Major Reasons behind the Migration among Construction Workers in NCR

Present Study also tried to explore major reasons behind the migration of construction workers. In NCR region, 47.1 per cent of migrant worker cited work or employment as major reason behind their migration and nearly 20 per cent construction workers migrated to NCR due to inadequate income at their native place. Thus, nearly 67 per cent of construction worker‘s migration related directly or indirectly to the work. A significant proportion (21.9%) of construction workers to migrate to construction work was due to their poverty. These are the major three reasons of migration among the construction workers who are observed among nearly 90 per cent share of the worker. Around 7.5 per cent worker told that they migrated with their family. In construction work, a significant proportion of the worker is migrated to urban area with their partner or family member as they can maximise their family income by working in construction work. A small share of construction workers migrated due to natural calamity factors such as drought or the flood in their origin places.

In case of cities, work/ employment remains the prominent reason for migration for all cities among construction worker. But in Bhiwadi city, around 67 per cent construction workers cited work/employment as major reason for migration which is the highest among all four cities. In Delhi, only 9.7 per cent told that they migrated due to the inadequate income at their native place, but for other remaining cities, it was observed as significant reason for migration like, for Gurgaon and Noida it was around 23.7 per cent and 28.8 per cent respectively, cited their reason for migration. Similarly, poverty is also observed as major reason for migration in all cities. In Gurgaon, around 27 per cent worker migrated due to poverty, whereas, for Delhi and Noida this share was found around 24 per cent and 21 per cent respectively. In Bhiwadi, only 13.8 per cent construction workers cited poverty as reason for their migration. In case of Delhi (12.4 per cent) and Noida (14.4 per cent), moving with family/marriage has also emerged as a significant reason for migration among construction worker. In Delhi, 7.1 per cent construction workers migrated due to the natural calamity such as the flood or drought at their origin place. For Noida, the share was found only 4.5 per cent.

But, in case of the Gurgaon and Bhiwadi, natural calamities doesn't seem a significant reason for migration as these two cities has negligible share for the worker's population who cited it as the reason for their migration.

Table 3.5: Reason for Migration among Construction Workers

Reasons for Migration	City (%)				Total	
	Delhi	Gurgaon	Noida	Bhiwadi	All MCWs	N
Work/Employment	46.9	47.4	31.5	66.7	47.1	200
Inadequate Income at Native Place	9.7	23.7	28.8	17.2	20.0	85
Poverty	23.9	27.2	20.7	13.8	21.9	93
Moved with family/ Marriage*	12.4	1.8	14.4	0.0	7.5	32
Drought/Flood	7.1	0	4.5	2.3	3.5	15
Total (N)	**100 (113)**	**100 (114)**	**100 (111)**	**100 (87)**	**100**	**425**

Note: Parentheses ( ) figures are the number of samples

*There were only 6 observations for the marriage reason

Source: Field Survey, 2015-16.

Fig.3.5: Major Reasons for Migration among Construction Workers

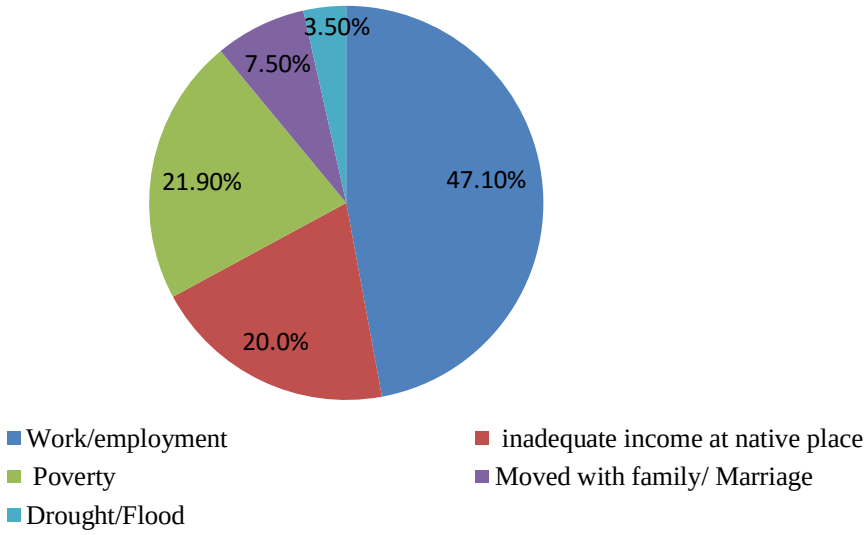


Table 3.6 explains the reason for migration according to sex composition among the construction workers. It is well understood from data that work or employment is the major pushing factor to migration not only for man but also for woman. But, male construction workers are more penchants to migrate due to work or employment as compared to female workers. In case of woman workers, another reason which is equally effective for migration is moving with family or marriage. As in construction sector, significant numbers of the female

Table 3.6: Reasons for Migration among the Construction Workers according to Sex Composition

Reasons for Migration	Male (%)	Female (%)	N
Work/Employment	49.2	28.9	200
Inadequate Income at Native Place	20.0	20.0	85
Poverty	22.9	13.3	93
Moved With Family/ Marriage*	5.0	28.9	32
Drought/Flood	2.9	8.9	15

Note: Parentheses ( ) figures are the number of samples
*There were only 6 observations for the marriage reason
Source: Field Survey, 2015-16.

workers are moved with the male worker to support the livelihood of their family. Similar results are shown from this table as around 29 per cent of the female worker cited moving with family or marriage as their main reason for migration in the NCR region. Poverty also works as pushing factor for migration for both male and female construction workers. Drought or flood does not emerge as the major reason for migration of man (2.9 %) but in case of female workers, they migrate three times more as compared to the male. It shows that women are more vulnerable towards natural calamities like drought and flood and as a result of these disasters they are forced to migrate.

The results of Table 3.7 present the reasons for migration among construction workers according to their migration status. The statistics of the table clearly indicate that work or employment remains the main reason for both permanent and temporary migrant workers. But permanent migrant workers have observed slightly higher share for this reason as compared to the temporary migrant workers. But, in case of temporary migrant, inadequate income at native place and poverty work more effectively as force of their migration as

compared to the permanent migrant. For example, around 21 per cent of temporary migrant worker cited inadequate income at their native place as the reason for their migration, but in case of permanent migrant workers, this share is found only-16.4 per cent. Similarly, 23.5 per cent of the temporary migrant worker migrates due to the poverty conditions in their family, whereas, only 10.9 per cent permanent migrant workers found to migrate due to poverty.

Table 3.7: Reasons for Migration among Construction Workers according to their Migration Status

Reasons for Migration	Migration status of Construction Workers (%)		
	Permanent Migrant	Temporary Migrant	N
Work/Employment	52.7	46.2	200
Inadequate Income at Native Place	16.4	20.5	85
Poverty	10.9	23.5	93
Moved With Family/ Marriage*	12.7	6.8	32
Drought/Flood	7.3	3.0	15

Note: Parentheses ( ) figures are the number of samples
*There were only 6 observations for the marriage reason
Source: Field Survey, 2015-16.

Moving with family or marriage is another important reason for migration for both permanent and temporary migrant workers. Permanent migrant workers migrate around two times more than that of the temporary migrant workers due to moving with their family or marriage. Thus, moving with family or marriage works as reason of migration more dominating in permanent migrant worker rather temporary migrant workers. Similarly, natural calamity is more forceful for migration in permanent migrant workers as compared to temporary migrant workers.

The results of the study suggest that work or employment emerged as the prominent pull factor for migration among the construction workers across all categories. Inadequate income at origin place and poverty observed as major push factor for migration among workers. In case of gender perspective, the work or employment is seen as the major reason behind their migration for men workers, but, for women workers, work and mobility with the family or marriage have appeared as the significant factor for their migration. Similarly, according to migration status, work or employment remains the major reason behind the permanent

migration, but, in case of the temporary migrant workers, inadequate income at native place and the poverty emerge as the significant reason for migration.

3.6: Duration of Migration among the Construction Workers

Duration of migration among the migrated population not only affect the socio-economic status of people but also has the impact on their health status and health-seeking behaviour. As the duration of migration has the mixed impact on the health of the working population, but with the increase in duration of migration, people also become familiar with the health care system of the region which determines their health seeking behaviour.

Table 3.8: Timing when the Migrant Construction Workers Left their Native Place

Timing	Migration Status of Construction Workers (%)			
	Permanent Migrant	Temporary Migrant	All MCWs	N
< 1 or 1 year before	0.0	11.4	9.9	42
2-5 years before	9.1	26.5	24.2	103
6-9 years before	12.7	12.4	12.5	53
10 & > 10 years before	78.2	49.7	53.4	227
Total	100.0	100.0	100.0	425

Source: Field Survey, 2015-16

The figures of Table 3.8 clearly indicate majority of the construction workers have the experience of the more than 10 years migration. Around 53 per cent migrant workers have experienced 10 or more years in migration process. There is very small proportion of the migrant workers (nearly 10%) who can be called as newly migrant because as they have experienced migration less than one year or one year. Around one-fourth of the migrant workers are the early migrant as they cited that they have left their native place before two to five year. Nearly 13 per cent migrant worker left their native place before 6 to 9 year. They, thus, have 6-9 year's experience of the migration.

The above table and the figure 3.7 also present detail on the duration of migration according to migration status of construction worker. For permanent migrant, nearly 78 per cent of the workers left their native place before 10 or more years. Only a small proportion of the permanent migrant worker (9.1%) is appeared under the early migrant who migrated before 2

to 5 years and 12. 7 per cent permanent workers responded that they left their native place 6 to 9 years ago.

Fig. 3.6 Time When Migrant Construction Worekrs Left the Native Place

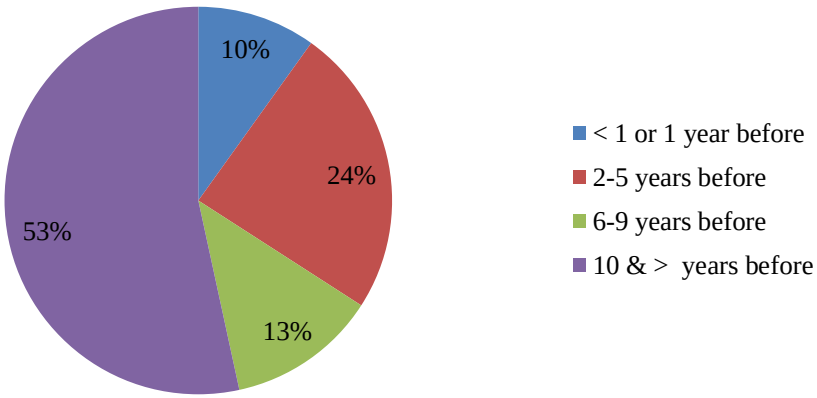
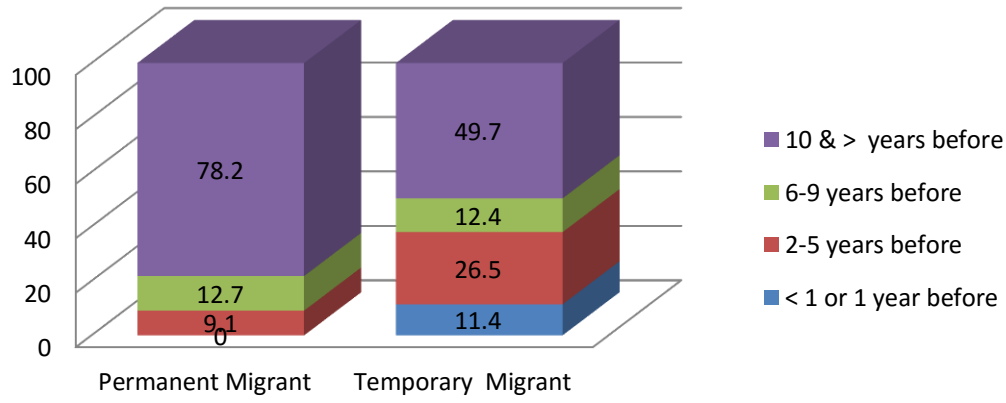


Fig. 3.7 Time When Migrant Construction Worekrs left Their native Place according to Types of Migration



Whereas, in case of temporary migrant workers, there is small proportion come under newly migrated workers who have experience of less than one year or one-year migration. The newly migrant workers are absent in case of the permanent migrant. Nearly 50 per cent of the temporary migrant workers have the experience of 10 or more years migration and around

one-fourth of the temporary migrant appeared in the early migrant workers who have 2- 5 years migration experience.

The study, thus, revealed that temporary migrant workers have a significant proportion of the newly or early migrant workers, whereas, in case of the permanent migrant, this share couldn't found or found in very less proportion. But, in case of permanent migrant workers, most of them are observed with having more than ten-year migration experience.

3.7: Work Status before the Migration among Construction Workers

Work always remains the major motivational factor for migration particular in the rural – urban migration. Migration not only has impacts on their work status but the migration and working conditions have impact on the well-being of migrant workers. The construction sector is one of the major employment sources for migrant workers where around 30-40 million migrant workers employed in this sector in India (Thorat, and Jones 2011, Srivastava, 2011).[4]

Table 3.9: Work status among Construction Workers before the Migration according to their Migration Status

Work Status Before Migration	Migration Status (%)			N
	Permanent Migrant	Temporary Migrant	All MCWs	
Not working	20.0	17.6	17.9	76
Same Work	50.9	60.3	59.1	251
Other Work	29.1	22.2	23.1	98
Total (N)	**100 (55)**	**100 (370)**	**100.0**	**425**

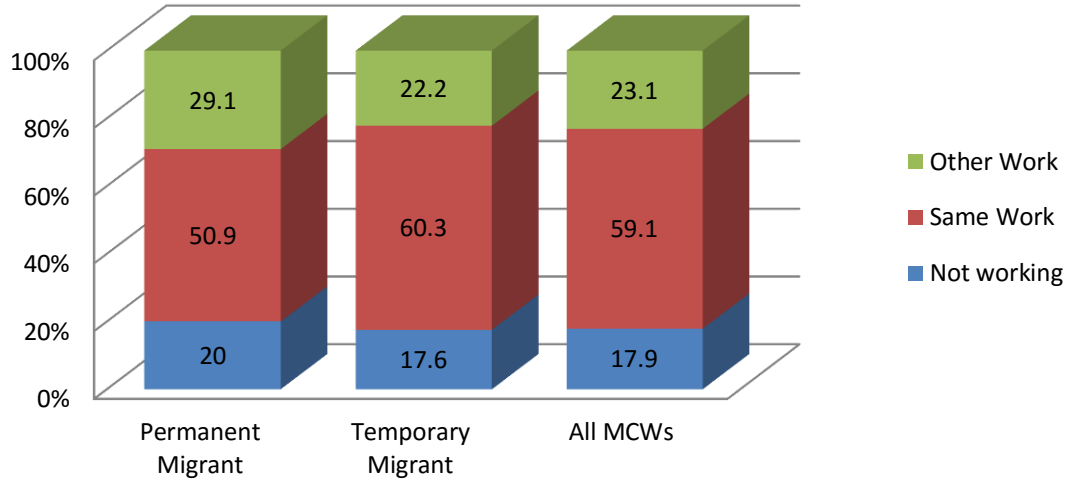
Note: Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

Table 3.9 and figure 3.8 summarize that in all migrant construction workers, nearly 60 per cent were employed in the same work in the construction sector before their migration. However, around 23 per cent worker cited that they were engaged in work other than the

[4] Thorat, Y. S. P. and Jones, H. (2011) Remittance Needs and Opportunities in India, Deutsche Gesellschaft fr Internationale usammenarbeit (GIZ): New Delhi.

construction and around 18 per cent were unemployed before their migration. Thus, the statistics show that the Migrant workers, who have some experience, have higher chances to get job at destination place and have the motivation to migrate in search of better income.

Fig.3.8: Work Status among Construction Workers before Migration



Statistics also show that most of the temporary as well as permanent migrant workers were employed in the same work in construction sector before their migration. But, temporary migrant worker (60.3%) is observed more than the permanent migrant workers (50.9%) engaged in same construction work before the migration. Around 29 per cent of the permanent migrant workers were employed with other work before their migration, while, for temporary migrant, this share is observed only 22.2 per cent. Similarly, nearly 20 per cent of the permanent migrant workers are unemployed before the migration. In case of the temporary migrant worker, on the other hand, only 17.6 per cent of the workers were unemployed before their migration.

The results suggest that majority of the migrant workers were engaged with the same work before the migration. So, it can be said that workers with the experience in construction work have the more possibility to acquire the work in construction sector after their migration. But, this fact works more in case of the temporary migrant workers than the permanent migrant workers. The permanent migrant workers turn towards the construction work more than the temporary migrant workers after the migration because they were unemployed or engaged in other work. So, construction work offers enormous opportunities for those migrant workers

who take migration decision not only to maximize their household income but also for those who migrate to urban areas due to wage differential in urban and rural areas.

SECTION–II: MIGRATION PROCESS AMONG THE CONSTRUCTION WORKERS

In this section, the author tries to investigate migration process among the construction worker. Migration is a dynamic and continuous process in case of construction worker. During the analysis of migration process, it has been tried to explore their age at their first migration, number of places they stayed during coming to the current city, distance which they have travelled during their migration and with whom they migrated to NCR region.

3.8: Age of Construction worker during the Time of First Migration

Migration is a selective process (Lee, 1966). In case of labour migration, this fact can be more truthful with respect to age and sex of migrant people. Ravenstein (1876)[5] in his "*Law of Migration"* also proposed that "Women are more migratory compared to man within the country, whereas, males are more migratory than females for long distances. Similarly, adult people are more mobile than others, whereas, family rarely moves from their place of birth". Thus, migration pattern also varies among the population with their age. In case of the labour migration, an analysis of migration with respect to the age at time of the first migration can be very beneficial to understand health seeking behaviour of the migrant population.

Table 3.10 presents the data of construction workers with respect to their age during first time migration. It reveals that nearly 60 per cent of the migrant workers started their first migration during the age between 10 to 20 years. Similarly, one-fourth of the migrant workers responded that they migrated first time at the age between 20 to 30 years. These statistics, thus, reveal that more than 85 per cent of the migrant workers migrated first time during their young age of 10 to 30 years. The possible explanation for their early migration among the migrant workers could be lying in this fact that they start migration at early ages due to the factor of unavailability of work at native place or in search of employment at the destination places. A small proportion of the workers start their migration in very early ages (5-10 years) and the later age of their life (40 -55 years). Only 7 per cent of the migrant workers started their first migration at the age between the 30 to 40 years

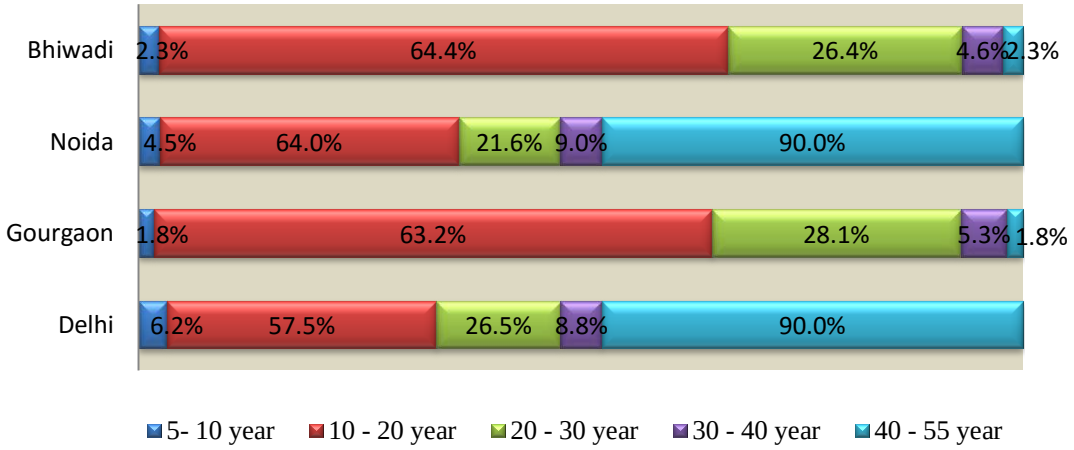
[5]Ravenstein, E.G. (1876): Census of The British Isles, 1871: The Birthplaces of The People & The Laws of Migration, London: Trübner & Company, pp 230.

Table 3.10: Age of Construction Workers at the Time of First Migration

Age at time of First Migration	City (%)				Total Sample	
	Delhi	Gurgaon	Noida	Bhiwadi	Per centage	N
5 - 10 year	6.2	1.8	4.5	2.3	3.8	16
10 - 20 year	57.5	63.2	64.0	64.4	62.1	264
20 - 30 year	26.5	28.1	21.6	26.4	25.6	109
30 - 40 year	8.8	5.3	9.0	4.6	7.1	30
40- 55 year	0.9	1.8	0.9	2.3	1.4	6
Total	100	100	100	100	100	425

Source: Field Survey, 2015-16.

Fig. 3.9: Age of Construction Worker at the Time of First Migration



. The similar pattern, in case of the first migration, is also seen in all cities of NCR region as 80–90 per cent of the migrant workers are migrated first time at the age of the 10-30 years. In case of Delhi and Noida, significantly higher proportion of the migrant workers (6.2 % & 4.5 respectively) migrated at their age of 5-10 as compared to other cities. Likewise, a higher proportion of the first migration at age of 30-40 years also appeared in Delhi (8.8%) and Noida (9.0%) compared to Gurgaon and Bhiwadi.

Table 3.11: Age of Construction Workers at the Time of first Migration according to their Migration Status

Age at the time of First Migration	Migration status of Construction Workers (%)		Total
	Permanent Migrant	Temporary Migrant	
5 - 10 Year	9.1	3.0	3.8
10 - 20 Year	43.6	64.9	62.1
20 - 30 Year	34.5	24.3	25.6
30 - 40 Year	10.9	6.5	7.1
40 – 55 Year	1.8	1.3	1.4
Total (N)	**100 (55)**	**100 (370)**	**100 (425)**

Note: Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

Table 3.11 also provides details on age of construction worker at time of first migration with respect to their migration status. The table reveals that the largest share of temporary migrant workers (64.9%) migrates at age of 10-20 years which is also found higher in comparison to permanent worker (43.6%). The second largest share of the migrant workers, for both the temporary and the permanent migrant, start their first migration at the age between 20 to 30 years. But, this proportion has been observed higher in case of the permanent migrant as compare to the temporary migrant. One specific observation can be seen with statistics as the share of the permanent migrant workers are observed higher in all age categories during their first migration except the age of 10 to 20 years.

Data in the table clearly indicate that a very small proportion of migrant workers migrate after age above 40 years which is true for both permanent and temporary migrant workers case. It may be due to migration in later age become difficult. Thus, it can be said from this table that majority of the migrant workers start their migration at their young age between the 10 to 30 years and the temporary migrant has more tendency to start their migration at this age also as compared to permanent migrant workers. This could be associated with this fact the temporary migrant start their migration at early ages due to the prevailing low socioeconomic conditions at their origin places.

3.9: Place Visited during Migration Process by Construction Worker

Migration is continuous process particularly in case of the labour migration. Even the Ravenstein postulated that *"Migration proceeds step by step"* (Ravenstein 1885, pp.199)[6] . It means, during the migration process, a migrant never reaches to destination place directly but he visits a number of places before arriving at his final destination. In case of the construction sector, this fact is purely applied as migration in construction work is not only the seasonal but also the circular in its nature (Srivastava & Sutradhar 2016, Srivastava and Jha 2014). In this economic sector, migrant workers migrate from rural areas to urban centres and work on construction sites. After finishing one project, they move with their contractor or *Thekedhar* to other sites in the same city or sometimes to another city. They, thus, continuously visit the new places in their migration process for their livelihood in life. The visit of the new place not only provides them with the information regarding the cities but also make them familiar migration process.

Table 3.12 & figure 3.11 present the detail on place visited by construction workers during their migration process. Among all migrant construction workers, nearly 26 per cent came directly to their current living in NCR region without stay at any other place during their migration process. But more than three-fourth share of migrant construction workers say that they stayed at least one place during their migration. Around 21 per cent of the share of the migrant workers visited 1 to 2 places, whereas, the proportion of migrant workers for the 3 to 4 places visit is found around the 17.6 per cent. But, the largest share of the migrant workers (27.8 %) visits 5 to 10 places in their migration process. A small proportion of the worker said that they had visited more than 10 places during their migration.

It also reveals that more than one-fourth construction workers visited 5 to 10 places during migration and 17.2 per cent workers stayed at 3- 4 places. Only a small proportion nearly 7 per cent says that they visited more than 10 places during their migration process. In respect to cities, the share of the migrant workers who came to directly to current residence observed higher in Delhi (33.6%) and Gurgaon (26.3%) as compared to the other cities. Similarly, the proportion of migrant workers who visited 1 to 2 places during their migration process also found higher in these two above cities as compared to other cities.

[6] Ravenstein, E.G. (1885). The Laws of Migration. *Journal of the Statistical Society of London*, 48 (2), pp 199.

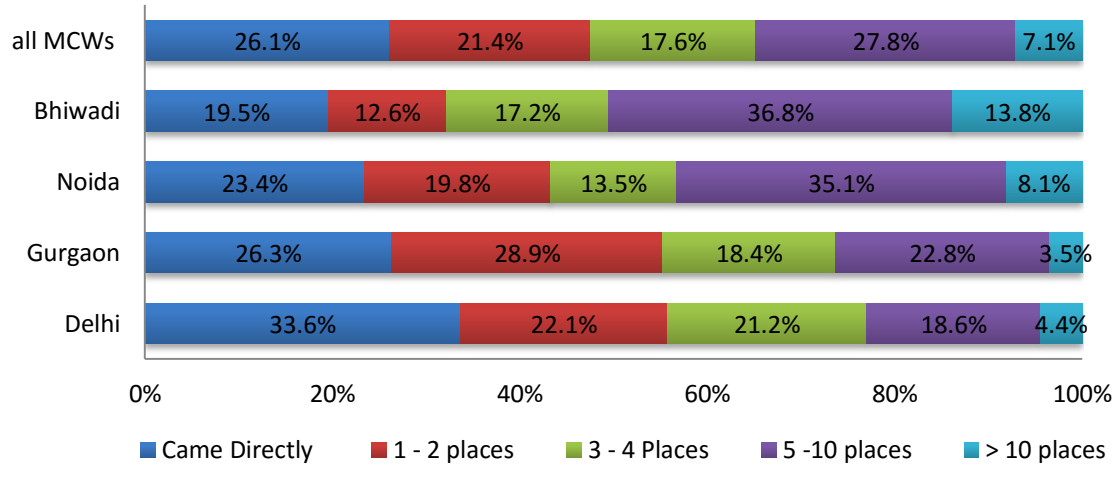
In case of Noida and Bhiwadi, largest share of the migrant workers said they have visited 5 to 10 places during their migration process. This proportion was found around 35 and 37 per cent for both cities respectively.

Table 3.12: Places Visited by Construction Workers during Migration Process

No. of visited Places	City (%)				Total	
	Delhi	Gurgaon	Noida	Bhiwadi	%	N
Came Directly	33.6	26.3	23.4	19.5	26.1	111
1 - 2 places	22.1	28.9	19.8	12.6	21.4	91
3 - 4 Places	21.2	18.4	13.5	17.2	17.6	75
5 -10 places	18.6	22.8	35.1	36.8	27.8	118
> 10 places	4.4	3.5	8.1	13.8	7.1	30

Source: Field Survey, 2015-16.

Fig.3.10 Places Visited by MCWs before Migrated to Current residence place



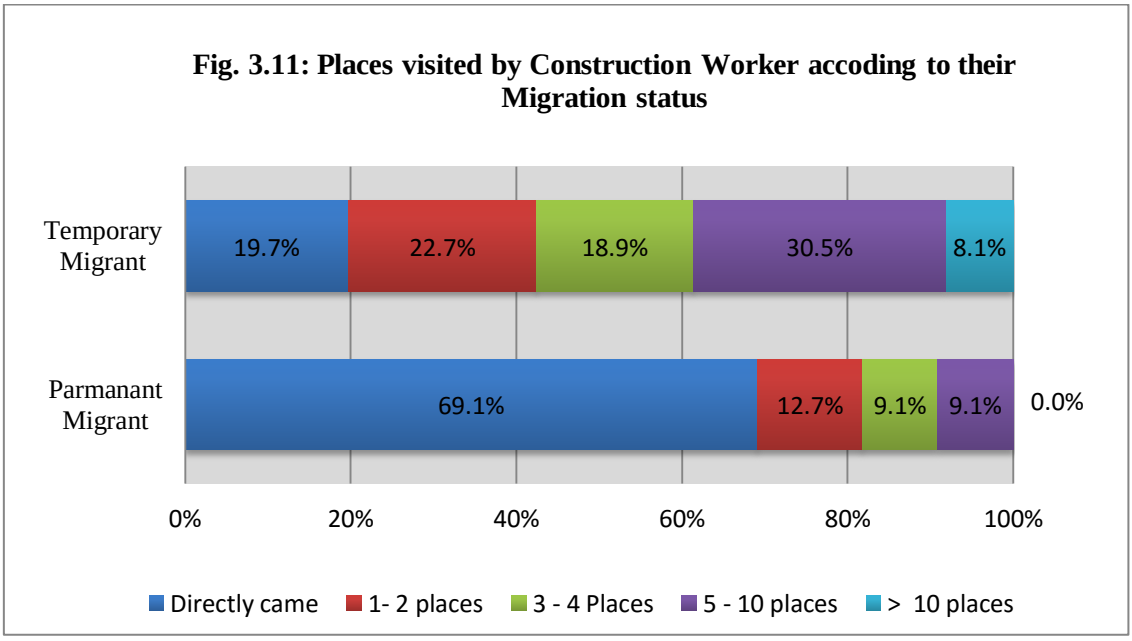
From these statistics, one can clearly observe that in Delhi and Gurgaon majority of migrant workers visit directly or after stayed at one or two places, while, in case of Noida and Bhiwadi, most of the migrant workers have the experience to visit more than 5 places during their migration process. Delhi and Gurgaon can be preferred places for migrant construction workers during the initial time period of migration process due to the greater importance of

these cities as Delhi is the national capital city and the Gurgaon called as the "millennium city" due to its high economic growth.

Table 3.13: Place visited by Construction Workers during Migration Process according to their Nature of Migration

Places visited During Migration process	Migration Status of Construction Workers		
	Permanent Migrant	Temporary Migrant	N
Directly came	69.1	19.7	111
1 - 2 Places	12.7	22.7	91
3 - 4 Places	9.1	18.9	75
5 - 10 Places	9.1	30.5	118
> 10 Places	0.0	8.1	30
Total (N)	**100 (55)**	**100 (370)**	**425**

Note: Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.



It has been tried to observe step migration among construction worker according to their migration status. The table 3.13 provides light on places visited by the construction workers according to their migration status. In case of permanent migrant workers, majority of them came to their present residence place without visit any other place. The proportion of permanent migrant workers who come directly to present places was around 69 per cent; in

case of the temporary migrant, this share is found only 19.7 per cent. Similarly, 12.7 per cent permanent migrant workers visited 1 to 2 places in their migration process, while, for temporary migrant, this proportion has appeared around 23 per cent. For temporary migrant, the proportion of the workers who visited more than 5 places during their migration is found more as compared to the permanent migrant. Thus, these statistics reveal that the permanent migrant workers have less tendency to visit more places, whereas, temporary migrant workers are witnessed with affinity to visit the more places in migration process.

3.10: Distance Travelled by Construction Workers during their Migration

Distance is also a prominent factor that affects the migration. The Ravenstein proposed in his Laws of Migration *"The great body of our migrants only proceeds short distance....Migrants going long distances generally go by preference to one of the great centers of commerce or industry"* (Ravenstein 1885, pp.199)[7]. Thus, the majority of the population migrates for short distance but in case of centre of economic activities, people can travel long distances during their migration process. This is equally true in case of migrant construction workers those travelled far from remote areas towards the urban centers for their livelihood.

Table 3.14 shows that almost 46 per cent construction workers travelled more than 1000 km from their native place to work in National Capital Region. More than one-fourth of construction workers told that they travelled 500 to 100 km distance during their migration in NCR region. It was also observed that majority of migrant workers (nearly 74.4%) travelled more than 500 km distance to reach NCR region during their migration. Only one out of the ten migrant workers seems to travel less than 250 km distances to get work in construction sector in urban areas.

Similarly, in case of the cities in NCR region, worker who travels more than 1000 km has the highest share in all four cities, while, in Bhiwadi, this proportion is observed highest (78.2%) compared to other cities. The second largest proportion of migrant workers comes under the workers who travel 500 to 750 km from their native places in all cities except the Bhiwadi. Similar proportion of the migrant workers has been observed who travelled 250 to 500 km and 500 to 750 km in all cities except Bhiwadi. But, in case of Bhiwadi, the migrant workers, who travelled 750 to 1000 km, have been observed more than two times higher as compared to the workers, who travelled 250 to 500 km. A small proportion of the migrant workers

[7] Ravenstein, E.G. (1885). The Laws of Migration. *Journal of the Statistical Society of London*, 48 (2), pp 199.

travel less than 250 km distance in all these cities. Thus, the result of these tables suggests, majority of the migrant construction workers travel long distance during their migration in construction work.

Table: 3.14 Distances Travelled during Migration by Construction Workers in Different Cities of NCR

Distance	City (%)					
	Delhi	Gurgaon	Noida	Bhiwadi	All MCWs	N
< 250 Km	14.2	13.2	6.3	10.3	11.0	47
250-500 Km	18.6	17.5	17.1	2.3	14.6	62
500-750 km	20.4	18.4	18.9	3.4	16.0	68
750-1000 Km	13.3	9.6	18.0	5.7	12.0	51
>1000 Km	33.6	41.2	39.6	78.2	46.4	197
Total (N)	**100 (113)**	**100 (114)**	**100 (111)**	**100 (87)**	**100.0**	**425**

Note: Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

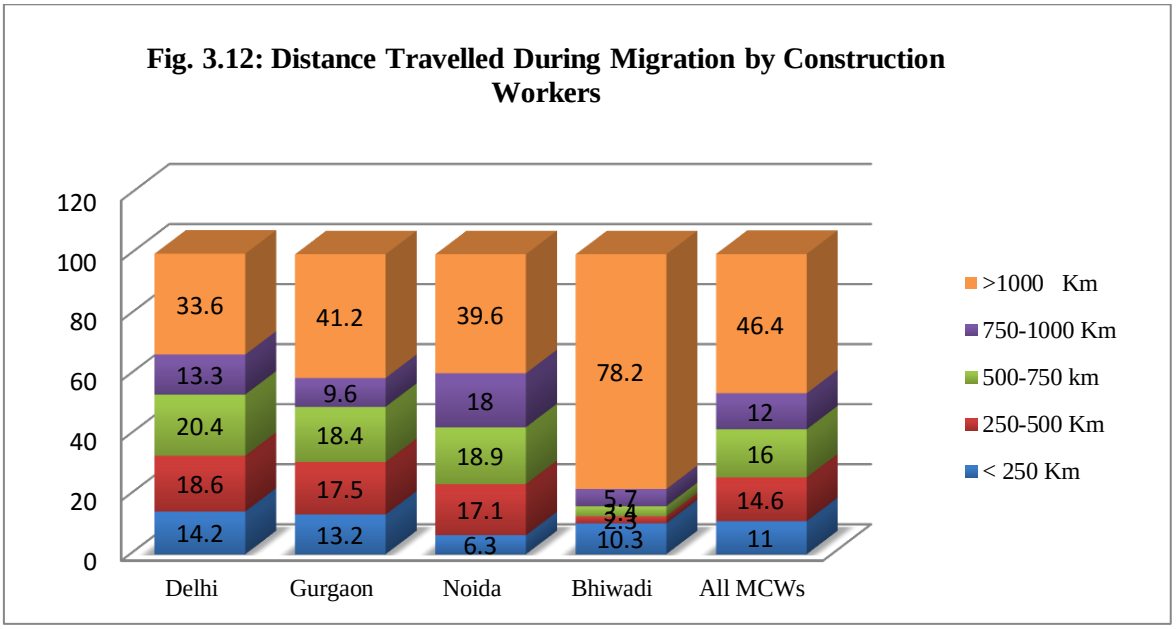


Table 3.15: Distance Travelled during Migration by Construction Workers according to their Migration Status

Distance	Migration Status (%)		
	Permanent Migrant	Temporary Migrant	N
< 250 Km	11	1.6	47
250-500 Km	21.8	13.5	62
500-750 km	9.1	17.0	68
750-1000 Km	12.7	11.9	51
>1000 Km	27.3	49.2	197
Total (N)	100 (55)	100 (370)	425

Note: Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

The author also tried to observe the distance factor among the workers according to the migration status of workers. Table 3.15 concluded that the proportion of the workers who travel more than 1000 km is observed higher among the temporary migrant worker than the permanent migrant workers. For temporary migrant workers, this share is found nearly 50 per cent, but, in case of the permanent migrant, it is only 27.3 per cent. Nearly 78 per cent of temporary migrant workers travelled more than 500 km during their migration, whereas, for the permanent migrant worker, the share was around 49 per cent for same travelled distance. Similarly, the proportion of the workers, who travel less than 500 km, is observed two times more in permanent migrant compared to the temporary migrant. These statistics reveal temporary migrant worker are more tend to travel longer distance in their migration as compared to the permanent migrant. In case of the short distance migration, whereas, just opposite situation can be seen as permanent migrant are more tend to migrate for short distance as compared to the temporary migrant.

3.11: Accompanied Person during Migration in Construction Work

Migration process also depends on the social network particularly in case of circular or serial migration (Banerjee 1983). In Construction sector, most of the migrant workers are circular or seasonal migrant and they are introduced to the construction work by some specific persons such as the contractor or Jamadar or the person from their social networks such as the co-villager, friend or a relative (Suresh 2010, Banerjee 1983, Creches 2008). This social network not only determines their migration but also helps to shape their health seeking behaviour at the destination places.

Table 3.16 presents detail on the person with whom migrant construction workers migrated to National Capital Region. The data of this table reveal that contractor plays an important role in migration of construction workers. Nearly 38 per cent of the workers told that they migrated to NCR region with the contractor. Similarly, the second most important person to accompany in migration appears the family or the relatives. As more than one-fourth of the total construction workers migrated with their family or relatives. Friends or village men, who those are generally their co-worker, also help them to migrate in construction sector. Nearly 20 per cent of the workers revealed that they migrated to construction work in NCR with their friends or co-villagers. A small proportion of the workers migrated to construction work by themselves or alone.

Table 3.16: Person with whom Construction Workers Migrated to NCR Cities

Person with Whom CWs Migrate	City					
	Delhi	**Gurgaon**	**Noida**	**Bhiwadi**	**All MCWs**	**N**
Self/Alone	17.7	16.7	9.9	20.7	16.0	68
Family/Relative	31.0	21.1	28.8	25.3	26.6	113
Friend/Village-man	23.9	25.4	19.8	6.9	19.8	84
Contractor/Jamadar	27.4	36.8	41.4	47.1	37.6	160
Total	100.0	100.0	100.0	100.0	100.0	425

Source: Field Survey, 2015-16.

In respect to migrated cities, the largest share of the workers in Delhi migrates with their family or relatives, while, in case of the other cities, biggest share of the construction workers migrates to construction work with contractor. The second largest proportion of the migrant workers in Delhi and Gurgaon migrates with the friend or village man, while in case of the Noida and Bhiwadi, the second largest share is observed with the family or the relatives. Similarly, a significant proportion of migrant workers is also found to migrate to these cities with any other person's help.

Fig. 3.13: Person with whom Construction Workers Migrated to NCR

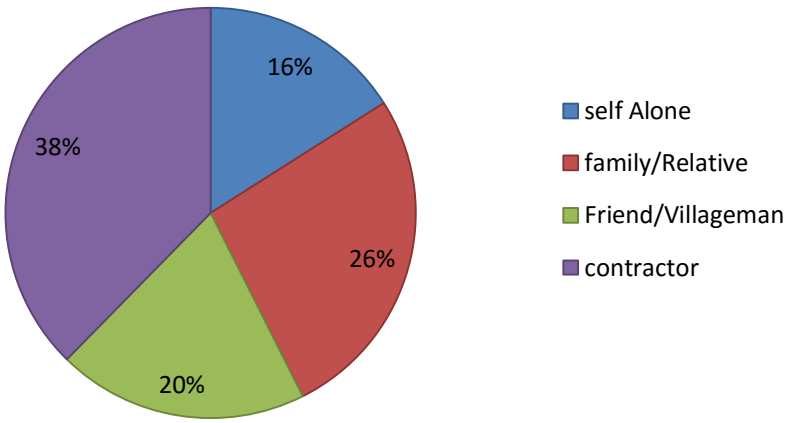


Table 3.17: Person with Whom Construction Workers Migrated to NCR and their Migration Status

Person with whom Construction Workers Migrate	Migration Status (%)		
	Permanent Migrant	Temporary Migrant	N
Self/Alone	30.9	13.8	68
Family/Relative	49.1	23.2	113
Friend/Village Man	16.4	20.3	84
Contractor	3.6	42.7	160
Total	**100 (55)**	**100 (370)**	**425**

Note: Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

According to the migration status of workers (Table 3.17), a different picture is observed among construction worker with respect to the accompanied person in migration process. In case of permanent migrant, largest share of workers (49.1%) migrates with their family or relatives, while, for temporary migrant workers, most of the workers (42.7%) migrated with the contractor. A significant proportion of permanent migrant workers (30.9%) also don't take help to migrate in construction sector. These migrant workers migrate themselves. In permanent migrant worker, only a small fraction of workers migrate with the contractor (3.6%) and the friend or village co-worker (16.4%). Likewise, a small proportion of construction workers (13.8%) migrates themselves among temporary migrant.

Hence, data reveals permanent migrant workers preferred to migrate themselves or with their family or relatives, whereas, temporary migrant are more tend to migrate with the contractor and the village co-worker or friends. This could be associated with this logic as the temporary migrant workers mostly migrate only for construction work but in case of the permanent migrant this factor couldn't work properly and their reason for migration always different from the temporary migrant workers.

3.12: Discussion and Conclusion

The results of the migration dynamics among construction workers suggested are found similar to other studies (Deshingkar & Akter, 2009; Thorat, and Jones, 2011; Srivastava, 2011, Borhade, 2016) as the construction sector is dominated by the migrant workers (93%). It shows, irrespective of the cities, temporary migrant workers constitute biggest proportion in construction work as nearly 80 per cent of migrant workers belong to temporary migrant in NCR region. The city, like Bhiwadi, has observed the largest share of the non-migrant workers, whereas, Delhi has attracted more temporary and permanent migrant. This could be associated with the size and functional aspect of the cities. In case of onsite workers, most of them are temporary migrant, while, the permanent and non-migrant workers constitute the largest share of the off-site workers.

In respect of the origin place of the migrant workers, nearly 96 per cent migrant construction workers come from the rural areas. It, thus, could be said that migrant labour in the informal sector such as the construction work mostly migrates from underdeveloped rural areas to developed and urban centers (Srivastava, & Sasikumar, 2003). The Study also proves that, Almost 97 per cent of the construction workers are migrated from the Empowered Action Group states (EAGs) namely Uttar Pradesh, Madhya Pradesh, Bihar, Rajasthan, Chhattisgarh, Jharkhand and West Bengal in NCR. This may be because of EAGs are lagging behind in their socio-economic development compared to other states in India. But around three-fourth of migrant construction workers belong to mainly three states Bihar (33.4%), Uttar Pradesh (29.2%), and ~~the~~ Madhya Pradesh (11.8%). With respect to cities, Bihar accounts nearly 30 per cent migrant workers among all four cities, whereas, other state's share varies among migrant workers. These results support this fact that internal migration flow in India always remains from the highly populated and economically backward states to the most developed and labour demand driven regions (Deshingkar and Akter 2009, Srivastava 2012, Borhade 2016). These migrant workers travel long distance to get work in construction sector as

nearly three-fourth migrated to Delhi-NCR by travelling more than 500 km distance. But, temporary migrant workers generally travel longer distance, while mostly permanent migrant showed short distance migration.

The result of present chapter also suggests, work or employment (47.1%) emerged as the prominent pull factor for migration among construction workers, whereas, the inadequate income and poverty at their native place work as push factor for their migration. In gender perspective, the work or employment remain the major reasons for migration for both men and women worker, but, a significant proportion of the women worker also move with their family during the migration in construction sector to provide extra income support for their family. The temporary migrant workers are mostly newly or early migrant workers; who are recently migrated to construction work, whereas, their counterpart, permanent migrant workers observe having more migration experience as they are migrated long time ago. The study also reveals that majority of migrant workers start their migration at their young age between 10 to 30 years. The temporary migrant is more tend to start their migration at early age in contrast to permanent migrant workers.

In case of work status before migration, most of the migrant workers are found to engage in construction work before the migration. The permanent migrant workers turn towards the construction work more than the temporary migrant workers after their migration because they are unemployed or engaged with other work before migration. Thus, construction work offers enormous opportunities not only for temporary migrant but also for permanent migrant workers.

The study also tries to reveal the step migration pattern and this pattern can be seen among the migrant construction worker but their step migration doesn't follow a linear pattern. Around more than 75 per cent of the construction worker said that they stayed more than one place during their migration process. In case of cities, majority of migrant workers are found to come directly or after stayed at one to two places during their migration to Delhi and Gurgaon. It shows that cities with greater importance (Delhi as National Capital & Gurgaon as "Millennium City") are preferred by the migrant worker in the initial stage of their migration process. The temporary migrant workers are also witnessed to visit more places as compared to permanent migrant workers due to their circular migration nature.

The study also suggests that contractor play a significant role in migration of construction workers as nearly 38 per cent of the workers migrated to NCR region with the contractor. The

family or relatives are also appeared as the second most important person to migrant workers to accompany in migration. In respect to migrated cities, the largest share of the workers in Delhi migrates with their family or relatives, while, in case of the other cities biggest share of the construction worker migrates with contractor. Similarly, the permanent migrant, mostly, prefers to migrate themselves or with their family and relatives, while, the temporary migrant is more dependent on contractor and the village co-worker or friend for their migration.

Thus, as a concluding remark, it can be said that the construction workers are highly migratory in their nature. Their migration pattern and process generally differ with other sectors which are not only determined but also influenced by various factors.

CHAPTER IV

SOCIO-ECONOMIC, LIVING AND WORKING CONDITIONS OF MIGRANT CONSTRUCTION WORKERS

4.1: Introduction

Labour migration is a universal phenomenon which is observed across the world. This phenomenon is determined not only by the socioeconomic composition but also work opportunities and work's characteristics of the population. These factors also play an important role in labour migration. The previous studies (Deshingkar 2006, Deshingkar & Akter 2009, Keshri & Bhagat 2013) have suggested that specific communities and class of the society has more tendency to participate in labour migration particularly in short duration. It is also observed that sometimes particular community (e.g. caste) from a specific region migrates to a particular sector of the economy (Deshingkar 2006, Deshingkar & Start 2003). Socioeconomic and demographic characteristic determine labour migration as well as the health-seeking behaviour of the migrant worker. The migrant workers are more vulnerable regarding to their health compared to other population because of their health behavior. That is affected not only by their socioeconomic status but also by migration and work. Therefore, study of socioeconomic composition and living and working conditions of the construction worker in the context of their health seeking behaviour will be very significant for this study. That's why, in this chapter, the author has tried to investigate not only socio-economic and work characteristics but also living and working conditions of migration construction workers.

The present chapter has been divided into five sections. The First section describes the family compositions such as types of family, head of the family, the dependent person in the family, whereas, the second section deals with the demographic characteristics of migrant construction worker such as their age and sex and marital status. The third sections focus on the social characteristics of the migrant construction worker which included their caste composition, religious composition, and their education level and their exposure to media. The fourth section gives a detail on land holding and house ownership status among construction worker which are an economic parameter of the worker. The work characteristic such as the nature of construction work, wage, working hour, worker experience among construction worker is included in the fifth section. The sixth and last section discusses the living and working condition among the migrant construction workers.

4.2: Family Composition of Migrant Construction Worker

The New Economics theory of Labour Migration postulates that the migration decision is purely taken by household instead of the individual person in response to avoid the income risk failure in a family. Thus the migration of labour is also a collective effort in which the decisions are not only made by the individual persons as discuss in the new classical theory of migration but also the households (family) are considered as the prime decision maker in labour migration (Stark 1991). Thus the household characteristics such as the household head, number of the family person, types of the family also play a significant role in labour migration.

In the present study, we also try to investigate the family composition among the construction workers. The Table 4.1 reveals that nearly 55 per cent construction worker belongs to the nuclear family and rests of the worker appear from the joint family. Most of the permanent migrant workers (69.1 %) are from the nuclear family as compared to the non-migrant and temporary migrant workers. It also found the non-migrant worker as more from joint family as compared to the permanent and the temporary migrant construction worker. But in the case of the on-site worker, the majority of belongs to the joint family whereas; a higher proportion of the off-site-workers belongs to the nuclear family (Table- 4.2). It reflects that as the majority of the site worker comes from the rural background where joint family system prevails more as compared to urban areas where the most of the off-site workers reside.

In respect to the head of the family, around 50 per cent construction workers stated that they are the head of their family. The permanent and the non-migrant workers show that they more forward in case of being the head of the family as compared to the temporary migrant worker. Even 78 per cent permanent migrant workers are found as the head of their family. Father or the father-in-law was observed as the second most important person as head of the family among the construction workers after the respondent himself/herself. Among construction workers, more than 90 per cent male person is found as the head of their household that reflects the patriarchal character of the worker community.

The result also reveals that most of the construction worker (75.3 %) belong to the family which has 3 to 6 member in it family. In the case of permanent and temporary migrant worker, highest proportion of construction worker comes from the medium size family which has 5 to 6 persons in the family, while, in the case of the non-migrant worker, highest proportion belongs to the large family which has more than 7 persons in its family. Among

off-site and on-site worker, the majority of workers appear from the small and medium size family. There are a small proportion of workers which belongs to the very small size family (1-2 members). Thus it can be concluded that most of the construction worker belongs mainly to those/that families which are having more people in their household. It reflects that as the size of family increase, more people start to engage in migration driven unorganized sector e.g. the construction work.

Table 4.1: Family Composition and Migration Status of Construction Worker

Family Characteristics		Migration Status Construction workers (%)				
		Non-Migrant	Permanent Migrant	Temporary Migrant	All CWs	N
Type of family	Joint	59.4	30.9	45.9	45.1	206
	Nuclear	40.6	69.1	54.1	54.9	251
Head of the Family	Respondent Self	56.3	78.2	45.1	49.9	228
	Father/Father-in-Law	31.3	14.5	38.4	35.0	160
	Mother/Mother-in-Law	6.3	3.6	5.9	5.7	26
	Husband	0.0	1.8	8.9	7.4	34
	Brother/other	6.3	1.8	1.6	2.0	9
Family size	Very Small (1-2)	0.0	5.5	3.2	3.3	15
	Small (3-4)	28.1	30.9	32.7	32.2	147
	Medium (5-6)	34.4	49.1	43.0	43.1	197
	Large (> 7)	37.5	14.5	21.1	21.4	98
Dependent person in Family	No One	3.1	3.6	1.1	1.5	7
	1-2 persons	15.6	18.2	24.1	22.8	104
	3 - 4 persons	50.0	49.1	47.0	47.5	217
	5 & more persons	31.3	29.1	27.8	28.2	129
Living Arrangement	Living Alone	0.0	10.9	29.5	25.2	115
	Living with Family	93.8	85.5	43.5	52.1	238
	living with others	6.3	3.6	27.0	22.8	104
Total		**100.0**	**100.0**	**100.0**	**100.0**	**457**

Note: Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

The table also indicates that the most to the construction worker have dependent persons in their family on them. Nearly three-fourth construction worker (75.7 %) observes with three or more than three persons depend on them. A negligible proportion of workers found in the study which said they don't have any person to depend on them. These results are also applied

to all category of construction worker whether they are migrant or non-migrant. It reflects that there is the higher dependency on the construction worker in their family.

Fig.4.1 : Living Arrangment among Migrant Construction Workers

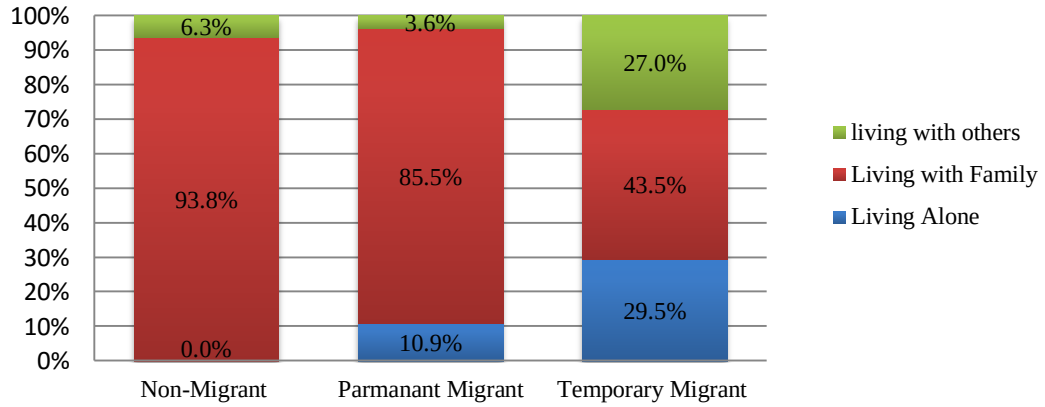


Table 4.2: Family Composition according to types of Construction Worker

Family Composition		**Types of Construction Workers (%)**		
		Off-Site Worker	**On-Site Worker**	**N**
Type of family	Joint	39.70	49.0	206
	Nuclear	60.30	51.0	251
Family size	Very Small (1-2)	4.60	2.30	15
	Small (3-4)	27.80	35.40	147
	Medium (5-6)	46.40	40.70	197
	Large (> 7)	21.10	21.70	98
Living Arrangement	Living Alone	19.10	29.70	115
	Living with Family	63.90	43.30	238
	living with others	17.00	27.0	104
	Total (N)	**100 (194)**	**100 (263)**	**457**

Note: Parentheses () figures are the number of samples
Source: Field Survey, 2015-16.

The living arrangement of any population not only determines their social life but also reflects their well-being in society. In the case of construction workers, it plays a crucial role to determine their overall well-being as it not only provides them with a psychological

support but also helps during their health problem. In the present study, around 52 per cent workers are observed living with their family. Nearly 23 per cent worker said that they live with the other person such as a friend, co-worker, or co-villager in NCR. The one-fourth of the construction workers are living as alone at their current residence place. The statistics also reveal the majority of non-migrant and the permanent migrant worker lives with their family as compared to the temporary migrant worker. The temporary migrant worker also appears in higher proportion as living alone compared to the non-migrant and permanent migrant workers. Similarly, in a case of types of worker, an on-site worker is living alone more than the offsite worker. In off-site worker, where nearly 64 per cent worker resides with their family but for on-site only 43.30 per cent worker lives with their family. Similarly, in living with others, on-site worker are more ahead as compared to the off-site worker. Thus the data shows the non-migrant, permanent and off-site worker mostly live with their family, whereas, on-site worker and the temporary migrant worker mostly living alone or other persons.

4.3 Demographic Composition of Migrant Construction Worker

Labour migration phenomenon is very selective in respect to demographic aspects of the population such as age, sex and marital status. *Lee (1876)* concluded in his thesis that "Women are more migratory compared to man within the country, whereas, males are more migratory than females for long distances. Similarly, adult people are more mobile than others, whereas, the family rarely moves from their place of birth" (pp. 229-230).[1] In India, migration also varies according to the sex of population. Marriage always remains the major reason for migration among woman, whereas, work/employment observers as the significant reason for migration among the male (Deshingkar and Akter 2009). The recent studies of labour migration suggested that historically labour migration is mostly predominated by the male population but recently "feminization of migration" concept become significant feature of labour migration due to rising demand for female labour in certain sectors of economy and increasing demand and acceptance of woman's economic independence in society (Deshingkar, & Grimm 2005). Similarly, the people in younger age also have more affinity to migrate as compared to the older people in case of labour migration (Coffey et al. 2015). These demographic aspects not only affect the labour migration but also impose health vulnerability among the migrant worker. The Andersen who developed a behaviour model for

[1] Ravenstein, E.G. (1876): Census of The British Isles, 1871: The Birthplaces of The People & The Laws of Migration, London: Trübner & Company, pp 230. pp 229-230.

health care utilisation included demographic characteristics in his model as a predisposing factor which determines the use of health care for any population (Andersen 1995).

Table 4.3 and Table 4.4 present the details of major demographic characteristics of construction workers according to their migration status and the types of the construction worker. The result presented by these table shows that construction worker is mainly dominated by the male worker. Nearly 90 per cent construction workers were found as male and the only 9.8 per cent female worker are observed in this sector of the economy. In respect to their migration status, all migration categories of construction workers mainly belong to male workers. Even in non-migrant, all construction workers are male. But in migrant worker which includes temporary and permanent migrant, a small proportion of female worker are found. Similarly both off-site and on-site work forces are dominated by male but on-site worker has the higher female worker as compared off-site worker.

Table 4.3: Demographic Characteristics according to Migration Status of Construction Worker

Demographic Characteristics		Migration Status of CWs (%)				
		Non-Migrant	Permanent Migrant	Temporary Migrant	all Construction Workers	N
Sex	Male	100.0	96.4	88.4	90.2	412
	Female	0.0	3.6	11.6	9.8	45
Age Group	15-25	25.0	7.3	36.8	32.4	148
	25-35	21.9	34.5	33.8	33.0	151
	35-45	37.5	36.4	22.4	25.2	115
	45-65	15.7	21.8	7.0	9.5	43
Marital Status	Married	84.4	89.1	75.1	77.5	354
	Others *	15.6	10.9	24.9	22.5	103
Total		**100 (32)**	**100 (55)**	**100 (263)**	**100.0**	**457**

Note: Parentheses () figures are the number of samples

*Others includes the Unmarried/Divorced/Separated/Widowed persons

Source: Field Survey, 2015-16.

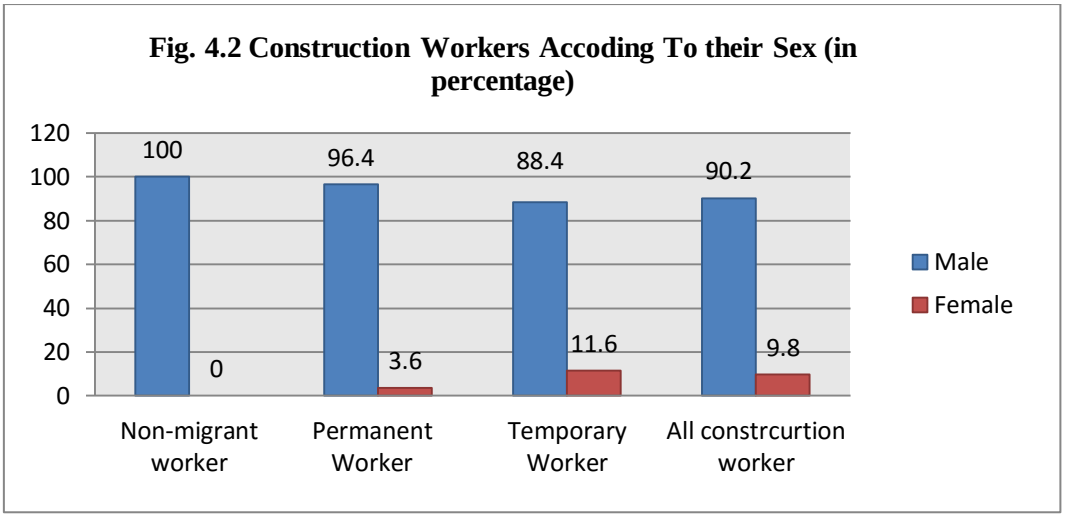


Table 4.4: Demographic Characteristics According to Types of Construction Worker

Demographic Characteristics		Types of Construction workers		Total Sample	
		Off-Site Worker	On-Site Worker	%	N
Sex	Male	98.5	84.0	90.2	412
	Female	1.5	16.0	9.8	45
Age Group	15-25	18.0	43.0	32.4	148
	25-35	34.0	32.3	33.0	151
	35-45	33.5	19.0	25.2	115
	45-65	14.4	5.7	9.5	43
Marital status	Married	84.5	72.2	77.5	354
	Others *	15.4	27.7	22.5	103
Total (N)		**100 (194)**	**100 (263)**	**100**	**457**

*Others includes the Unmarried/Divorced/Separated/Widowed persons
Parentheses () figures are the number of samples
Source: Field Survey, 2015-16.

It is proven like other studies (Srivastava & Jha 2014) which reveal that construction sector is mainly dominated by the male worker but the on-site workers who are mostly migrant, have small proportion of the female labour force. In reference to onsite worker, it may be due to fact that some of migrant workers migrate with their family to urban areas who join construction work to generate extra financial earing for their family.

In regards to age, nearly 65 per cent of the construction workers are aged between 15 to 35 years and around one-fourth of worker are aged between 35 to 45 years. There is a small proportion of the worker which belongs to more than 45 years. A similar pattern has been observed in all categories of migration worker. In temporary migrant worker and on-site

worker, around 70 -75 per cent proportion belongs to 15- 35 age group. It shows that temporary migrant and on site worker are younger than that non-migrant or off-site worker. These results support the other literature (Dodd 2016; Keshri & Bhagat, 2013) that male and younger population are more migrated to take part in unorganised work such as the construction work as compared to their counterpart female and older people.

Fig 4.3: Age Composition among Construction Workers (in years)

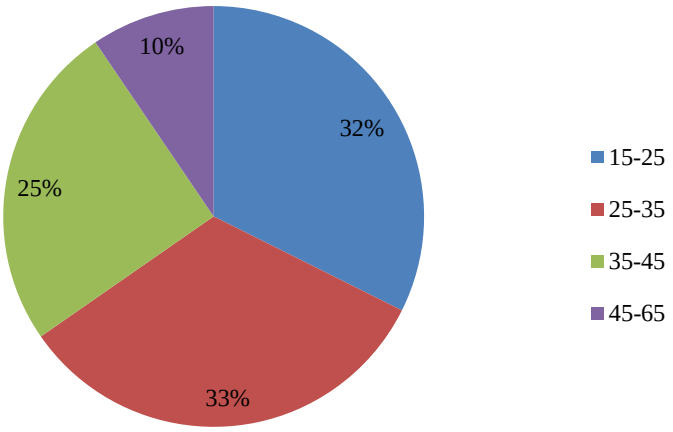


Table 4.3 and 4.4 reveals–more than three-fourth of the construction worker is married and only 22.5 per cent of the construction worker belong to another categories which includes unmarried, separated, widowed, or divorced people. A similar pattern is observed in all the categories of migrant workers, but the temporary migrant and on site workers are found having less proportion of married group as compared to non-migrant, permanent migrant and the off- site workers. It means that most of the construction worker are married but in temporary migrant and on site worker, some proportion of worker belong to single person in case of their marital status.

4.4: Social Characteristics of Migrant Construction worker

Social aspects such as caste, religion and ethnicity not only play a pivotal role to determine the labour migration but also affect the health seeking behaviour of the migranat population. In the case of labour migration, communities with lower strata in society have been observed with the high probability of migration as compared to their counterpart particularly in the case of internal migration and short-duration migration. (Deshingkar 2006, Deshingkar &

Akter 2009, Keshri & Bhagat 2013). Sometimes, a particular social group of the society from a particular region is appeared to have mobility for a particular sector of the economy. This pattern can easily figure out in the construction sector as most of the migrant worker migrates from particular social group or region (Deshingkar 2006, Deshingkar & Start 2003). The social differential in society not only provide the shape of labour migration but it also determines the health seeking behaviour of the people (Yesudian 1998)

The Table 4.5 and 4.6 reflects the social composition of construction workers. In construction worker, nearly 48 per cent worker belongs to other backwards Class (OBC) and 27 per cent are from the Schedule Castes (S.C.). It shows that more than three-fourth of construction worker comprise by these two communities who belongs to lower strata of society. Small fractions of construction worker (18.20 %) appear from the others than the backwards communities of society. It shows that more than 80 per cent of construction worker belongs to the socially backwards communities. Similarly, in the case of migration status among the worker, largest proportion among the non-migrant and temporary migrant worker belong to the OBC community, while for permanent migrant worker Scheduled Castes (SC) has the largest share. A similar pattern among the OBC and SC is also observed for on-site and off-site construction workers.

Table 4.5: Social Characteristics of Construction Worker According to their Migration Status

Social Characteristics		Migration Status of Construction Workers (%)			Total Sample	
		Non-Migrant	Permanent Migrant	Temporary Migrant	%	N
Caste	S.T.	3.1	1.8	7.8	6.8	31
	S.C.	18.8	41.8	25.9	27.4	125
	OBC	68.8	32.7	48.1	47.7	218
	Others	9.4	23.6	18.1	18.2	83
Religion	Hindu	75.0	96.4	74.1	76.8	351
	Muslim	25.0	3.6	24.9	22.3	102
	Total	100(32)	100(55)	100 (370)	100.0	457

*Hindu includes the Sikhs

Parentheses () figures are the number of samples

Source: Field Survey, 2015-16.

In case of religious composition among construction worker, the majority of the worker (77.7%) reported themselves as Hindus (it also includes the very small proportion of the

Sikhs community) and rest of the worker population (22.3%) belongs to Muslims community. In temporary migrant worker, Hindu's worker population is less as compared to the non-migrant and the permanent migrant worker. Similarly, in the case of types of workers, on-site worker has more Muslim worker population as compared to the off-site worker. In on-site worker, nearly 30 per cent worker belongs to Muslims community. Despite this fact, statistics show that construction work forec is mostly dominated by the Hindus community.

Fig.4.4: Construction Worker accoding to their Caste Composition

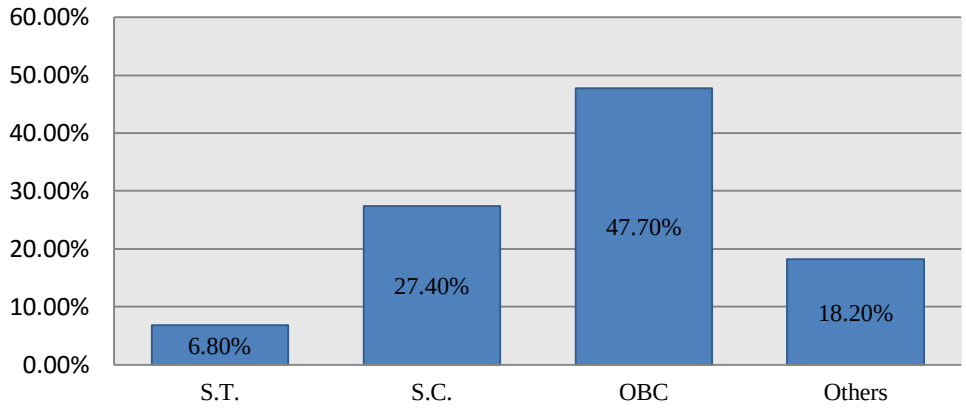


Table 4.6: Social Characteristics of Construction Worker according to Type of Workers

Demographic Characteristics		Types of Construction workers		Total Sample	
		Off-Site Worker	On-Site Worker	%	N
Caste	S.T.	3.1	9.5	6.8	31
	S.C.	28.4	26.6	27.4	125
	OBC	44.3	50.2	47.7	218
	Others	24.2	13.7	18.2	83
Religion	Hindu*	87.6	70.3	77.7	355
	Muslim	12.4	29.7	22.3	102
Total (N)		**100 (194)**	**100 (263)**	**100**	**457**

*Hindu includes the Sikhs

Parentheses () figures are the number of samples

Source: Field Survey, 2015-16.

Thus, present study also demonstrates a similar pattern to other studies (Chandrakanta 2014, Dodd et al. 2016) that backwards communities such as OBC, SC and Muslims have more propensity to participate in labour migration. They not only migrate to overcome the social

discrimination and exclusion in labour market at their destination but also use migration as the strategy for their livelihood.

4.5: Educational and Media Exposure among the Migrant Construction Worker

Education status is considered as the significant social aspect of any population. Education not only has the impact on the socioeconomic and living standard of the people but also it determines the health status of the population (Cutler & Lleras-Muney 2006). In the case of migration, education itself can be a motive for migration among the people but it also varies one society to another. In higher class of the society, education can be a motive to migrate to achieve better education and search out better opportunities in life. But in the case of lower classes, low education status force people to migrate to participate in labour migration particularly in the unorganised sector's jobs (Shonchoy & Junankar 2014).

Table 4.7: Education & Media Exposure among the Construction worker according to their Migration Status

Education & Media Exposure		Migration Status (%)				
		Non-Migrant	Permanent Migrant	Temporary Migrant	%	N
Education Level	No Education	18.8	25.5	36.2	33.7	154
	primary	34.4	21.8	20.0	21.2	97
	Middle	18.8	20.0	19.7	19.7	91
	Secondary	15.6	21.8	16.5	17.1	78
	Intermediate & Above	12.5	10.9	7.6	8.3	38
Media Exposure	No exposure	25.0	30.9	56.8	51.4	235
	Partial Exposure	31.3	27.3	28.9	28.9	132
	Full Exposure	43.8	41.8	14.3	19.7	90
Total		**100.0**	**100.0**	**100.0**	**100.0**	**457**

Parentheses () figures are the number of samples
Source: Field Survey, 2015-16.

In the present study, the author also tried to investigate the education status and media exposure among the construction workers as these affect the health seeking behaviour among the population. The table 4.12 and 4.12 provide the details regarding to education level and media exposure among the construction worker. The outcome of the tables suggests that nearly one-third population (33.7 %) of construction worker doesn't have any formal education. Around more than 40 per cent construction worker is found with the education till the middle class. A very small proportion of the construction worker's (8.3 %) has the

intermediate and above education. Similarly, the largest proportion of temporary migrant worker is illiterate as compared to non-migrant and permanent migrant. It demonstrate

Fig. 4.5 :Education among the Construction Workers

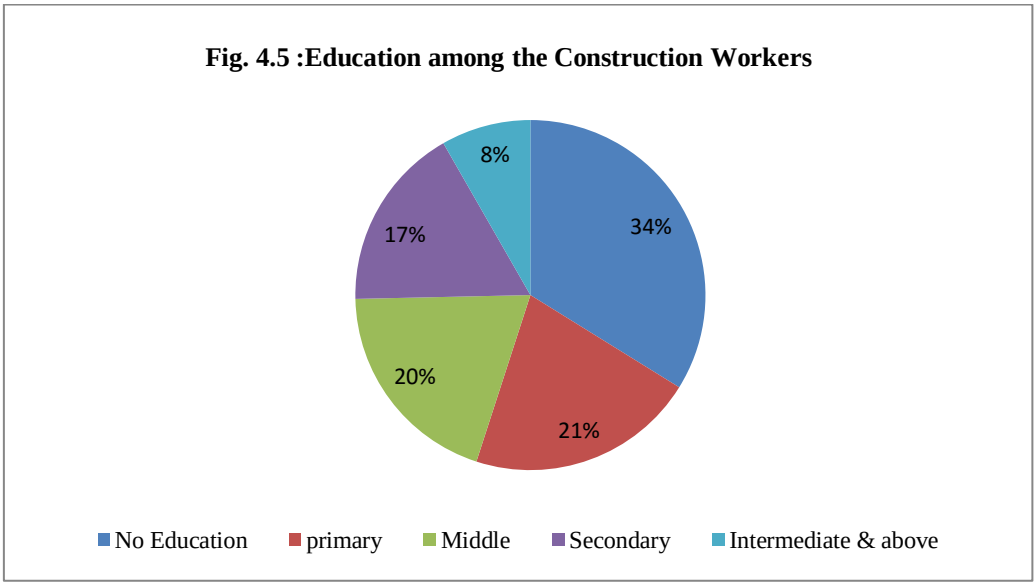
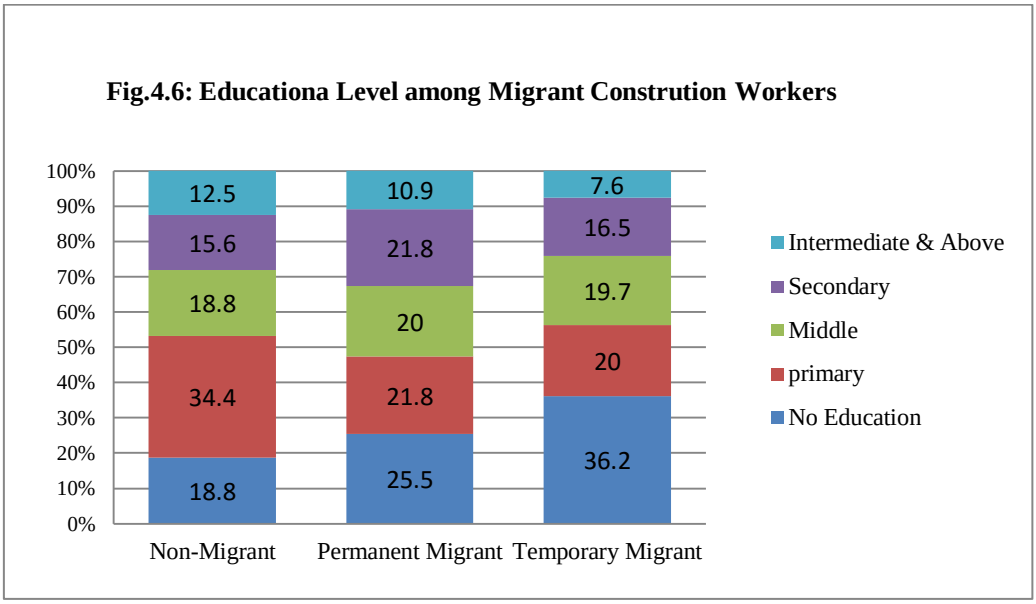


Fig.4.6: Educationa Level among Migrant Constrution Workers



people with no education has high tendency to migrate for short-term or temporary. Non-migrant and the permanent migrant worker are observed with more education as compared to the temporary migrant. According to the types of worker, on-site worker has less education level as compared to off-site worker. In on-site worker about 44 per cent worker doesn't have any education, while, off-site worker, it is only 19.6 per cent. A similar pattern is also observed among on-site and off-site workers for all othe education level.

The study (Ghosh 2006) also confirms that the media exposure has the positive impact on the health care utilisation. Therefore, it has been tried to know by access to media exposure among the worker by considering the indicator such as their frequency of watching the TV or listening the radio in a week and reading of the newspaper. On the basis of these indicators, the author categorized media exposure in three categories i.e. no exposure, partially exposure and the full exposure.

Table 4.8: Education and Media Exposure among the Construction worker according to their type of construction workers

Education & Media Exposure		Off-Site Worker	On-Site Worker	N
Education Level	No Education	19.6	44.1	154
	primary	25.8	17.9	97
	Middle	21.6	18.3	91
	Secondary	21.1	14.1	78
	Intermediate & Above	11.9	5.7	38
Media Exposure	No Exposure	37.6	61.6	235
	Partial Exposure	28.9	28.9	132
	Full exposure	33.5	9.5	90
	Total	**100 (194)**	**110 (263)**	**457**

Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

Statistics reveals that construction worker has low exposure to media. Nearly 51 per cent construction workers have no exposure to media. Around one-third worker have partially media exposure and only 19.7 per cent have full exposure to media. The temporary migrant workers are lagging behind in case of media exposure compared to the non-migrant or permanent migrant worker. For example, both in non-migrant and the permanent migrant worker more than 40 per cent people are found the full exposure to media but in the case of the temporary migrant worker, this proportion was observed only 14.3 per cent. Similarly, around 62 per cent on-site workers are found with no exposure to media. But off-site worker, this is only 37.6 per cent. In the case of full exposure to media, off-site worker has more proportion as compared to their counterpart the on-site worker. Thus, the statistics put such picture in which temporary migrant and the on-site worker are found with the poor position in

regarding their exposure to media which can make them vulnerable to access the valuable information regarding to their health.

4.6: Land holding among the Migrant Construction worker

The economic status not only determines the labour migration but also it affects the health seeking behaviour of the migrant worker. The land holding is considered as the parameter to measure economic status in rural area. The land holding greatly affect the migration pattern particularly in rural population. *Deshingkar*[2] stated that in the context of rural migrant labour "*The landless and land-poor households typically rely on the sale of their labour in farm and non-farm activities"* (Deshingkar & Farrington 2006, pp.3). Therefore, in the situation where landholding is observed very uneven, analysis of landholding among the migrant worker will be significant.

Table 4.9: Land Holding among the Construction Workers

Land Holding (In Bigha)	City (%)					
	Delhi	Gurgoan	Noida	Bhiwadi	Per centage	N
0	38.6	33.9	39.5	45.6	39.4	180
< 1	9.6	7.8	13.2	13.2	10.9	50
1-5	37.7	44.3	30.7	29.8	35.7	163
6-10	8.8	7.0	13.2	7.9	9.2	42
> 10	5.3	7.0	3.5	3.5	4.8	22
Total	100	100	100	100	100	457

Source: Field Survey, 2015-16.

Table 4.10: Land holding among the construction workers according to Migration status

Land Holding (In Bigha)	Migration Status of Construction Workers (%)			Total Sample	
	Non-Migrant	Permanent Migrant	Temporary Migrant	%	N
0	71.9	50.9	34.9	39.4	180

[2] Deshingkar, P., & Farrington, J. (2006). *Rural Labour Markets and Migration in South Asia: Evidence from India and Bangladesh.* Background Paper for the World Development Report 200, pp.3 accessed from https://openknowledge.worldbank.org/bitstream/handle/10986/9199/WDR2008_0011.pdf?sequence=1&isAllowed=y

< 1	6.3	9.1	11.6	10.9	50
1-5	12.5	30.9	38.4	35.7	163
6 -10	6.3	7.3	9.7	9.2	42
> 10	3.1	1.8	5.4	4.8	22
Total	**100.0**	**100.0**	**100.0**	**100.0**	**457**

Source: Field Survey, 2015-16.

Table 4.9 provides the data on land holding among the construction workers. It shows that nearly 40 per cent construction worker has been observed as landless and only 11 per cent worker are found with less than 1 Bigha and 35.7 per cent worker have 1-5 Bigha land. Only 15 per cent worker populations are observed with having more than 6 Bigha land among all worker. Similarly, trend also observes among construction worker in all surveyed cities in National Capital Region. Thus, Land holding among the construction worker is found very low.

Fig.4. 7: Land Holding (In Bhigha) among Migration Construction Workers

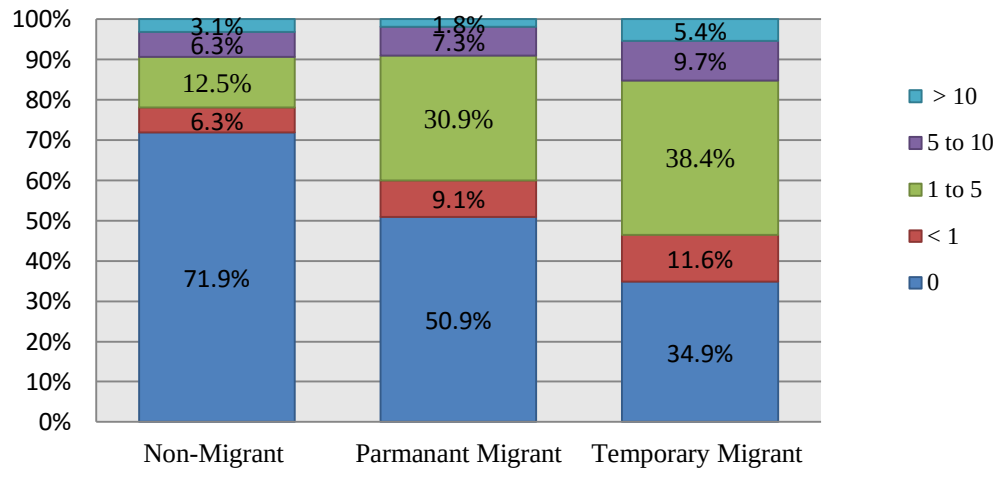


Table 4.10 also present the data on land holding among worker according to their migration status. It reflects that temporary migrant worker has more land as compared to non-migrant and permanent migrant workers. The proportion of the worker with no land holding is around 72 per cent and 51 per cent for non-migrant worker and permanent migrant worker respectively but for the temporary migrant, it is 35 per cent. This could be related to thw fact

that the most of the temporary migrant worker migrate from the rural areas and they have some proportion of the land at their origin places. Whereas their counterparts, non-migrant and permanent migrant worker generally reside in urban areas, therefore, they might have less probability of possessing the land at their destination or origin place. Still a small proportion of land is possessed by the non-migrant and permanent migrant worker but not as compared to the temporary migrant worker. Even permanent migrant workers have more land as compared to the non-migrant workers. In temporary migrant, around 38 per cent worker is found to have 1 to 5 Bigha land, whereas, for non-migrant and permanent migrant it was observed around 12.5 per cent and the 31 per cent respectively. A small proportion of the workers are holding the land more than the 6 Bigha in all categories of migrant workers.

4.7: Ownership of House at current residence among the Migrant Construction worker

The ownership of the house in the urban area is also considered as the indicator of the standard of living. In the case of construction workers, the living standard is determined by whether they are living their own house or live in temporary house which is generally made or provided by the employer/contractor for them at construction sites.

Table 4.11: Ownership of House among the Migrant Construction Workers

House Ownership among CWs	Migration Status of Construction Workers (%)				
	Non-Migrant	Permanent Migrant	Temporary Migrant	All Construction Workers	N
Owned House	93.8	30.9	0.3	10.5	48
Rented House	6.2	69.1	25.9	29.8	136
Temporary Jhuggis at site	0.0	0.0	71.1	57.5	263
No House *	0.0	0.0	2.7	2.2	10

* Worker with no house temporary dwell in rain basera, temples, or mosques and under the flyover.

Source: Field Survey, 2015-16.

Table 4.11 indicates that nearly 58 per cent of the total constructions workers are residing in the temporary houses at construction sites. Generally, due to specific nature of construction work and migratory nature of construction workers, employer or contractor provides a temporary residential settlement to worker at nearby the construction sites. These temporary residences are mostly built by the bricks or tin shed or rubber sheet/tents. Around one-third

of all construction workers are living in rented house. Only 10.5 % of construction worker have their own house at their current residence.

Table 4.12: Ownership of House at Current Residence according to Construction Workers

House Ownership among CWs	Types of Workers			
	Off-Site Worker	On-Site Worker	All Construction Workers	N
Owned House	24.7	0.0	10.5	48
Rented House	70.1	0.0	29.8	136
Temporary House at site	0.0	100	57.5	263
No House *	5.2	0.0	2.2	10
Total	**100.0 (194)**	**100 (263)**	**100.0**	**457**

* Worker with no house temporary dwell in rain basera, temples, or mosques and under the flyover.
Parentheses () figures are the number of samples
Source: Field Survey, 2015-16.

If we see the housing arrangement among the worker according to migration status, it can be concluded that around 71 per cent of the temporary migrant workers reside in the temporary house at the site, but, in the case of On-site workers, all construction workers inhabit at the temporary dwelling at the construction sites. In non-migrant, around 94 per cent workers have their owned house, whereas, for the permanent migrant worker, this share is only 30.9 per cent. In case of off-site worker, around one-fourth inhabits in their owned house. In construction workers, a significant number of workers live in rented house in urban areas. The table 4.11 and 4.12 statistics also show that nearly 70 per cent of the construction workers reside in rented house in both subgroups i.e. the permanent migrant worker and off-site workers. A negligible proportion of the worker (2.2%) doesn't have the house in the urban areas. They said that doesn't have any house to live in the city, therefore, they prefer to inhabit in the public temporary settlement such as the rain basera, temples, or mosques and under the flyover.

Thus, most of the construction worker inhabit in temporary dwelling settlement or the rented house. Only a small proportion (1/10) of the worker has the ownership of the house. The on-site worker mostly has their temporary settlement at the construction site as most of them are the temporary migrant. But the majority of the non-migrant worker is found with having their own house at their current residence.

4.8: Work Characteristics of Migrant Construction Workers

Construction work is the second most significant sector of the economy after the agriculture which provides employment around the 44 per cent of informal worker. The construction sector is the much-diversified sector in nature of work as it consists of real estate as well as infrastructure and industrial construction. Construction sector not only varies in nature of work as it consists of a load carrier work to the machine's work to the supervision work but also vary in term of the wage, and working hour.

4.8.1: Nature of Work among Construction Worker

Table 4.13 presents the details on the construction worker according to their work in which they are employed among major cities of NCR Region. It reflects around 50 per cent of the construction worker is employed in load carrier's work. These load carrier people are generally called "*Beldar*". The second largest share of the worker which is about 22 per cent engages in under mason work. Thus, these two categories comprise more than 70 per cent of the all construction worker. A significant proportion of the construction worker which is around 7.7 per cent for each comes under the both the iron and steel work and the painter worker. Around 3.1 per cent of the total workers are observed to work as a carpenter. Similar proportions of the workers are engaged with the machine operator work e.g. crane or drilling machine work. The remaining workers are found to engage in electric work, floor finishing work, and the plumber's work.

In the case of cities, majority proportion of the workers find to employ themselves in the Load carrier work, but Gurgoan city shows that it has the higher load carrier worker as compared to the other cities. For Gurugram, its share has been found around 58 per cent but for other three cities, it remained around 46.5 per cent to 47.4 per cent. Whereas, in the case of the mason's work, Bhiwadi has the largest share (31.6%) and followed by the Noida (20.2%) and Delhi (19.3%). It has been found that Delhi has the higher proportion of the construction workers those are engaged in skill work such as the electrical work, Painter's

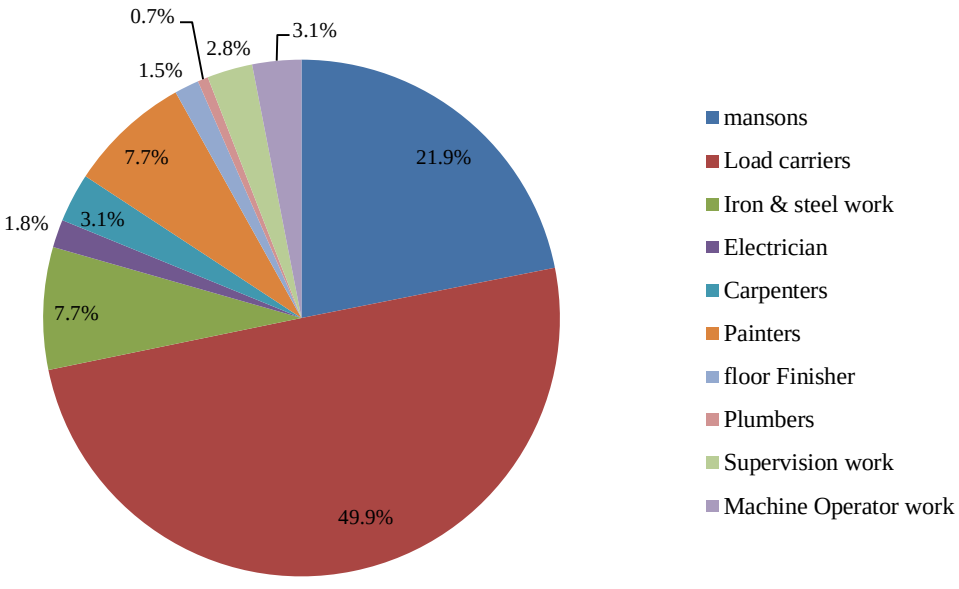
Table 4.13 Nature of Work among Construction Workers in NCR Cities

Nature of Work	Delhi	Gurgoan	Noida	Bhiwadi	All Construction Worker	N
Masons	19.3	16.5	20.2	31.6	21.9	100
Load carriers	47.4	58.3	46.5	47.4	49.9	228
Iron & steel work	3.5	5.2	12.3	9.6	7.7	35
Electrician	3.5	0.9	0.9	1.8	1.8	8
Carpenters	4.4	0.9	2.6	4.4	3.1	14
Painters	13.2	7.8	9.6	0.0	7.7	35
Floor Finisher	4.4	1.7	0.0	0.0	1.5	7
Plumbers	0.0	0.9	0.9	0.9	0.7	3
Supervision work	1.8	4.3	3.5	1.8	2.8	13
Machine Operator work	2.6	3.5	3.5	2.6	3.1	14
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**457**

***Supervision work also includes the supervisor, contractor, Jamadar or Thekedhar

Source: Primary Survey, 2015-16

Fig.4.8: Major Construction Works Where Worker Engaged



work, Floor finishing work as compared to other cities. The Noida and the Bhiwadi city shows that both have a significant number of workers who employ in the iron and steel work

such as it is around 12.3 per cent and 9.6 per cent for both the city respectively. But for Gurgoan and Delhi, it was found only 5.2 per cent and the 3.5 per cent respectively.

Table 4.14 gives the picture of gender perspective in construction work. The statistics reveal that woman who is around 10 per cent in construction work, employ only in two types of works, the load carrier work, and the Masons work. Nearly 96 per cent of the women are engaged in the load carrier work and the remaining small proportions of the women are employed in the mason's work. But in the case of the male, a different and the diversified picture can be seen in relation to the works in the construction sector. Nearly 45 per cent of the male workers are engaged in the load carrier work and the around 24 per cent are working as the Masons. The third largest share (8.5%) of the male worker appears in the both the Iron and steel work and the Painter's work. There are some other works such carpenter's work, floor finishing, supervision work, and machine operate work where the small proportion of the male workers are absorbed. Thus, female worker is mostly engaged in the unskilled work such as the Load carriers etc, whereas, male worker mostly works in mason and load carries but some proportion of the male also employ in the skilled driven work.

Table 4.14: Nature of Construction Works according to Sex of Construction Workers (in percentage)

Major Construction Work	Male	Female	N
Masons	23.8	4.4	100
Load carriers	44.9	95.6	228
Iron & steel work	8.5	0.0	35
Electrician	1.9	0.0	8
Carpenters	3.4	0.0	14
Painters	8.5	0.0	35
floor Finisher	1.7	0.0	7
Plumbers	0.7	0.0	3
Supervision work	3.2	0.0	13
Machine Operator work	3.4	0.0	14
Total	**100(412)**	**100(45)**	**457**

Parentheses () figures are the number of samples
Source: Field Survey, 2015-16.

4.8.2: Wage and Skill status of Construction Worker

Higher wage always remains the motivational factor to migrant worker. The labour demand has grown in Delhi-NCR region after the boom in the construction industry. As a result of

this, wages of the casual worker has increased in this region compared to another part of the country. Thus, the demand of labour and high wage in construction sector attract many rural workers from other parts of the country to migrate this region and low wage or inadequate income at the native place force them to migrate towards urban areas. Neo-classical Migration theories also explain that migration is primarily determined by wage differential & employment conditions between the destination and the origin places or labour markets (Harris & Todaro 1970)

Table 4.15 present the average wages among the construction worker in NCR region. The result of table shows that average daily wage among the construction worker is Rs 308.71 and the average monthly earning is observed nearly Rs 7079.85. In the case of the male worker average wage is found Rs 318.50, whereas, this is around Rs 223.33 for female worker. Thus, female are less paid in the construction work as compared to the male worker.

Table 4.15: Average Wage among construction worker

Construction Worker's Characteristics		Average Daily Wage (Rs.)	Average Monthly earning (Rs.)	N
Sex	Male	318.50	7284.75	412
	Female	223.33	5328.78	45
Skill status	Unskilled	254.56	5557.84	236
	Semi-skilled	360.15	8214.18	184
	Skilled	398.27	11143.51	37
Type of Worker	Off-Site Worker	345.32	6578.66	194
	On-Site Worker	282.43	7470.91	263
Migration Status	Non-Migrant	358.44	7778.13	32
	Permanent migrant	354.24	6080.00	55
	Temporary Migrant	298.16	7183.27	370
	Average Wage (Rs.)	**308.71**	**7079.85**	**457**

Parentheses () figures are the number of samples
Source: Field Survey, 2015-16.

Similarly, an unskilled worker earns averagely Rs 254.56 per day, while the semi-skilled and the skilled earn around Rs 360.15 and Rs 398 per day respectively. In respect to the types of worker, on-site worker is found with low earning as compared to off-site worker. The on-site worker earns averagely Rs 282.43 per day while the off-site worker earns Rs 345.32 per day. But on-site workers earn more in a month than the off-site. The statistics show that on-site worker averagely earn around Rs 7470.91 per month whereas, the off-site worker earns only

Rs 6578.66 per month. The onsite workers earn more monthly income than off-site worker despite their low daily wage. The construction on site's worker generally does more work in a month as compared to the off-site worker because the off-site worker couldn't find work for the whole month as they could get work only for on average 15 - 18 days in months while onsite worker works more than 25 days in a month. The differences also observed in daily wage according to the migration status. The non-migrant worker is obtained higher daily wage as compared to the permanent and the temporary migrant worker. A non-migrant construction worker earns on average Rs 358.44 per day but the permanent and Temporary migrant worker earns only Rs 354.24 and Rs 298.16 per day respectively.

The daily wages are observed slightly higher in this study as compared to the other studies (Srivastava & Jha 2014, Akram (2014). This could be found due to the study also included the off-site worker (*Labour Chowk Worker*) those are generally paid the higher wage as compared to on site worker due to their bargaining power. Whereas, these studies focused only on-site worker and observed work characteristics e.g. wages. Another thing, they included generally only the manuals workers and neglected the machine operator worker and supervision workers such as the supervisor, contractor, or Thekedhar those even received higher income than the other construction worker. The daily wages are very dynamic in the construction sector. It not only varies according to nature of the construction work but also vary according to place of the worker (Appendix: Table-6). In the construction sector, the worker generally sometimes work more than the normal working hour and in that case, their daily wage is decided not by working per day but the number of the working hour. Thus, daily wages are varied not only by the nature of the construction work but also for the worker of the same work. However, the present study reveals that male worker, off-site worker, non-migrant & permanent migrant worker acquire higher daily wage as compared to their counterpart.

The figure 4.9 shows around 50 per cent of the construction worker receive 201-300 Rs per day and 16.2 per cent of the worker receives 150-200 Rs per day. Whereas, around 20 per cent of the construction worker said that the obtain Rs 301 to 400 for working per day. A small proportion of the worker (13.3%) received more than Rs 400 for working a whole day in the construction sector. In respect to monthly earning among construction worker (Fig. 4.10),

Fig.4.9: Daily Wages among the Construction Worker (in percentage)

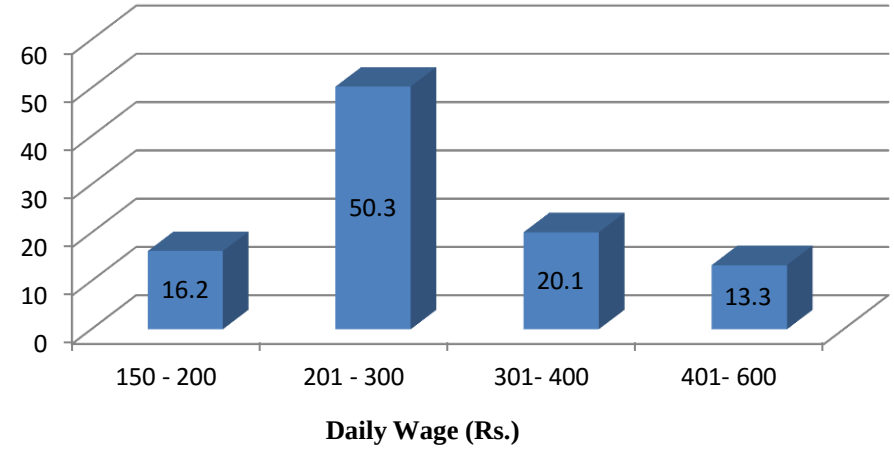


Fig. 4.10 : Monthly Earning among the Construction Worker (in percentage)

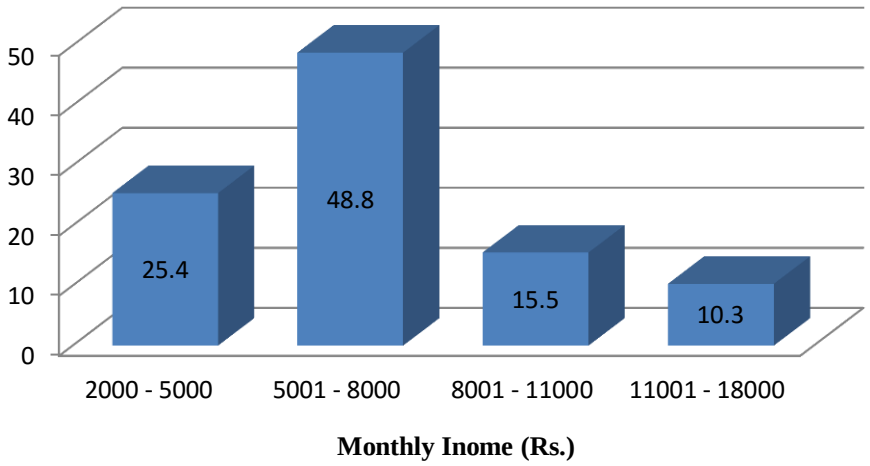
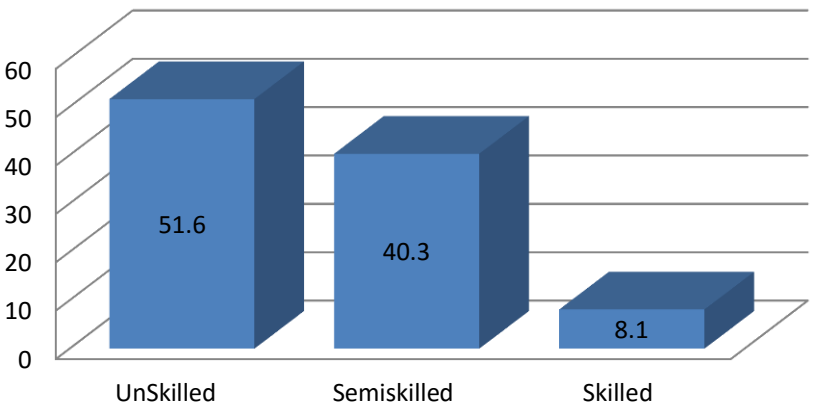


Fig 4.11: Skill Status among the Construction Workers (in percentage)



around 49 per cent of worker earns Rs 5001 to 8000 in a month, while, around one- fourth worker said that they are paid around Rs 2000 to 5000 for a month from construction work. A small proportion of the worker earns more than the 11000 Rs per month. But nearly, 16 per cent of the worker obtains Rs. 8001 to 11000 as their monthly income. Thus, the result suggests that majority of the construction worker can earn Rs 2000 to 8000 per month as three-fourth of construction worker make out this proportion of the earning for the whole month.

Figure 4.11 reflect that in all construction workers, half of the workers (51.60%) are unskilled and nearly 40 per cent are observed with semi-skilled. Thus these two groups of workers consist nearly more than 90 per cent of the construction worker. A small proportion (8.10%) of the construction workers are found in skilled labour group. It shows that construction sector is mostly dominated by the unskilled or semi-skilled worker.

4.9: Living and Working Condition among Migrant Construction Worker

Working and living conditions at work place are the issues of human right for the worker. But in case of vulnerable group such as migrant worker, women worker, the living and working condition has great impact on their well-being. Mathiesen (2003) in a study on health and working and living conditions among construction workers in large-scale construction projects in Denmark concluded that " the organization of large-scale developments (project), with long hours, on-site accommodation or long-distance commuting, represents a considerable risk to the health of the employees" (pp.28)[3]

Similarly, Bhattacharya & Biswas (2011) revealed that around 84 % construction workers said that they suffer the musculoskeletal health problems due to the work. Most of the construction worker's postures are found very harmful to their health. Worker with less work experience and younger age (25-35 years) experience less health problem related to work compared to older and more experienced workers. thus, the living and work condition not only determine their health status of worker, but also has the impact of their health seeking behaviour.

[3] Mathiesen, K. (2003). Work, Health and Living Conditions for Construction Workers on Large-Scale Construction Projects: A Danish Study,pp.1-28, *Centre for Alternative Social Analysis*, Danish Working Environment Authority retrieved http://docplayer.net/23409174-Work-health-and-living-conditions-for-construction-workers-on-large-scale-construction-projects.html

Table 4.16: Housing Condition and Facility Availability among Construction Workers

Housing Condition and facility availability		Off-Site Worker	On-site Worker	All MCWs	N
Residence area	Rural	17.5	-	7.4	34
	Slum	36.1	-	15.3	47
	Non-Slum	46.4	-	19.7	113
	Construction Site	0.0	100	57.5	263
Structure of the House*	Kutcha	15.8	0.0	6.5	29
	Semi-Pucca	34.2	1.9	15.2	68
	Pucca	50.0	0.0	20.6	92
	Jhuggi [#]	0.0	98.1	57.7	258
Number of Room*	Jhuggi [4]	0.0	98.1	57.7	258
	1 Room	71.7	1.9	30.6	137
	> 1 Room	28.3	0.0	11.6	52
Toilet Facility	No Toilet	17.5	46.0	33.9	155
	Public/Shared Toilet	40.2	51.7	46.8	214
	Owned Toilet	42.3	2.3	19.3	88
Bathroom Facility Availability	No Bathroom	53.1	99.2	79.6	364
	Shared Bathroom	11.9	0.0	5.0	23
	Separate Bathroom	35.1	0.8	15.3	70
Source of Drinking Water	Pipe Water	52.6	28.1	38.5	176
	Tube Well/Hand Pump	30.4	54.0	44.0	201
	Tanker	8.2	17.5	13.6	62
	Other Source	8.8	0.4	3.9	18
Electricity Availability	No	4.6	8.4	6.8	31
	Yes	95.4	91.6	93.2	426
	Total	**100.0 (194)**	**100.0 (263)**	**100.0**	**457**

Note:

* No. of case are only 447 as some of wworkers are found homeless and temporary dwell in rain basara, temples, or mosques or under the flyover.

[#] *"Jhuggi"* is a temporary dwelling room at Site or nearby site which is made by the Tent/plastic sheet, tin shed, Bricks/asbestos etc.

Parentheses ( ) figures are the number of samples

Source: Field Survey, 2015-16.

[4] "Jhuggi" is the Hinid word for the temporary dwelling at site. which is provided by the contractor to construction workers.

4.9.1: Residence and Housing Facility Availability among the Migrant Construction Workers

Table 4.16 present the housing condition and facility availability among the construction worker at their current residence places. Its shows that about 57.5 per cent of the worker are reside on the construction site. In case of on site worker, all are lived at construction site. Whereas, in off-site worker nearly 46.4 per cent lived at non-slum areas and 36.1 per cent said that they lived in the slum areas. A small proportion of the off-site worker is found to live in rural areas. The rural people of the nearby metro cities also participate in construction work for their livelihood. The rural labourer come to cities at Labour chowk in search of work and at labour chowk, they are hired by the employer or contractor for construction work.

In respect to housing structure of construction worker, nearly 58 per cent of the total workers are lived in the temporary settlement "Jhuggis" at construction site. But 20.6 per cent of the workers are lived in the Pacca house at their current residence. Around 15 per cent and 6.5 per cent construction worker are found to dwelling in Semi-Pacca and the Kutcha house respectively. In case of on site workers, around 98 per cent worker live in the temporary dwelling "Jhuggis". Most of the site workers are migrant people; therefore, they are provided a temporary settlement by the employer or contractor at work site. Worker who live in Pacca house is observed in mostly as off-site worker as their share is found around 50 per cent. Similarly 34.4 per cent of the worker said they lived in the Semi-Pacca house but in case of on-site worker, a negligible proportion (1.9%) was found to live in Semi-Pacca house. Thus, in off-site worker are observed to live in the Pacca and Semi-Pacca and Kutcha house but on site worker only live in the temporary "Jhuggis" at construction site. In case of room availability for them, on-site worker have only their temporary dwelling "Jhuggies" which is very small room made by the tin shed, tent/plastic sheet, or bricks. Only nearly 12 per cent of the workers are observed who have more than one room in their house and the remaining 88 per cent have only one room, in which 58 per cent have only Jhuggis settlement. In case of off-site worker, nearly 72 per cent of the worker has only one room in their house and only 28 per cent are observed with more than one room. Thus, the site worker mostly live in temporary dwelling room "Jhuggis" and similarly majority of the off-site worker are have only one room to their inhabit.

Similarly availability of facilities to construction worker is very deplorable condition. As only 19 per cent of the construction workers have a toilet facility at their residence, whereas, nearly 47 per cent has to use shared or public toilet. But most of on site worker said that they don't use the public/ shared toilet due to very unhygienic conditions. Similar experiences are observed from the worker who resides in slum areas. Thus, despite have a toilet facility at residence they don't use it. Nearly 34 per cent of the worker said that they don't have any toilet facility at their current residence. The share of on-site worker's share with no toilet facility is observed around 46 per cent but for off-site worker, this share is found only 17.5 per cent. Thus only one-fifth proportion of the construction worker has the toilet facility and on site worker are more suffered with the toilet facilities compared to off-site worker. In respect to the bathroom facility, nearly 80 per cent worker said that they don't have bathroom facility at their current residence. Only 15.3 per cent workers have the separate bathroom facility. In respect to the types of worker, on site worker are more suffer with bathroom facility as compared to the off-site worker as 99.2 per cent of site-worker don't have this facility, but for off-site worker this share is found only 53.1 per cent. Even, the on-site worker and female workers are more suffered due to unavailability of the toilet and bathroom facility.

"There are 8 to 10 toilets in this labour camp, but we rarely use them because they are so unclean that no one can use it. No one come for sanitation despite the complained about it, therefore, we go in open field for latrine" (Mubashire Allam: Construction site worker from Noida).

Among all construction workers, 44 per cent have tube-well as their source of drinking water. In case of on site worker, this share is found around 54 per cent which is higher than off-site worker. It is well known fact that most of construction sites have the tube-well facility for their water utility. Therefore, on site worker have more tendency to use the tube-well to their drinking water. A small negligible proportion of workers gets drinking water using hand-pump. But the pipe water is found as main source for drinking water among the off-site worker. Tanker of water is used more by on site worker as compared to off-site worker. Thus, tube-well and the pipe-water are the major source of drinking water among worker. Tube-well is main source for on site worker but in case of the off-site worker, pipe-water is main source. In case of the electricity, nearly 93 per cent workers are found with have the electricity facility in their residence. But the share of non-availability of electricity is found more among on site worker as compared to off-site worker. In on site worker, nearly 92 per cent worker said they are provided the electricity facility but it was observed in field

experience that the employer/ contractor provide electricity only for 3-4 hour in the evening. They couldn't enjoy the electricity to whole night or day. Thus, construction worker are lagging behind to avail these basic household facility. The site workers are more prone to suffer with these facilities as compared to off-site workers

4.9.2: Working condition among the Construction workers

Table 4.17 reflects the work conditions among the construction worker. Nearly 64 per cent of the workers are observed to work more than 20 days in a month. Whereas, a small proportion (17.5 %) worker said that they work 16 to 20 days in a month and similarly 18.2 per cent worker observe with working 5 to 15 day in a month. But in case of the on-site worker, around 93 per cent worker work more than 20 days in a month, whereas, for the off-site worker this share found only one-fourth (25.8%). Among the off-site worker, nearly 40 per cent worker found worker only 5 to 15 day in months and 34.5 per cent work only 16 to 20 days. Thus, the site workers are more prone to work in a month than the off-site worker. Due to the footloose nature of their job the off-site worker had less chance to work in a month as compared to the onsite worker.

In case of working hour in construction sector, generally eight hour is the normal working hour per day. Therefore, nearly 50 per cent worker found to work 6 to 8 hour per day. Around one-fourth of worker are said that they generally worker 9 to 10 in a working day. Nearly, similarly proportions of worker (23.7%) are work more than 10 hour per days. Off-site worker are mostly (67%) work 6 to 8 hour in a day. whereas, only around 38 per cent site worker work 6 to 8 hour. Thus, majority of the construction worker work more than the normal working hour. The site workers are having more tendency to work more than 10 hour as compared to the off-site worker. Thus, overtime is common among the worker. Nearly 50 per cent worker does the overtime in their work. But 36.3 per cent said we do the overtime sometime in month while, around 11 per cent said that they do overtime most of the time in month. There is a small fraction of the worker (3.5%) who participates in overtime in daily basis. The overtime is observed more among the site-worker. For example, nearly 64 per cent of the site workers are engaged in overtime, whereas, in off-site worker, this share is found only 35 per cent. In case of the frequency of overtime in work, 44.5 per cent of site worker are said that they do overtime sometime in a month, but for off-site worker this share is found only 25.3 per cent. The frequency of doing overtime on most of the time and daily basis are observed more in the on-site worker as compared to the off-site worker. Thus, the

construction worker mostly of the time engaged in overtime. But the phenomenon is observed more among the site worker.

Table 4.17: Working Condition among Construction Worker (in percentage)

Work Characteristics		Off-Site Worker (%)	On-Site Worker (%)	All MCWs (%)	N
Working Day in Month	5-15	39.7	2.3	18.2	83
	16 -20	34.5	4.9	17.5	80
	21 - 30	25.8	92.8	64.3	294
Working hour per Day	06-8	67.0	37.8	50.2	229
	09-10	22.7	28.6	26.1	119
	>10	10.3	33.6	23.7	108
Overtime	No Overtime	65.5	37.6	49.5	226
	Sometime	25.3	44.5	36.3	166
	Most of the Time	6.7	13.7	10.7	49
	Daily	2.6	4.2	3.5	16
Work Exposure	< 2 year	14.4	25.9	21.0	96
	2-5 year	18.6	29.7	24.9	114
	6-10 year	29.4	21.7	24.9	114
	> 10 Year	37.6	22.8	29.1	133
	Total	**100 (194)**	**100 (263)**	**100.0**	**457**

Parentheses () figures are the number of samples
Source: Field Survey, 2015-16.

Work exposure also impact on the health status among the worker. Nearly one-third of construction worker are have more than 10 year exposure to work. Whereas, around one-fourth share of all worker are said that they have 2 to 10 years work exposure. A small proportion (21%) is found with have experience of less than 2 year in construction work. Off-site worker are seem to have more exposure to work in comparison to the site worker. Such as the proportion of workers who have less than 2 year exposure to work among off-site worker is observed only 14.4 per cent while, for site worker this share is found nearly one-fourth. Similar pattern is observed among this worker in case of 2 to 5 year exposure to work. the proportion of worker who are have more than 10 year and 6 to 10 year exposure to work found higher among the off-site worker than the site workers. Thus, despite the low exposure to work site worker are found more vulnerable to their due to overtime.

Table 4.18: Working Condition in Construction Work According to Workers

Worker's Perception About the Work Conditions		Per centage	N= 457
Risk for Injury/Accident in Work	No	15.10	69
	Yes	84.90	388
Dustiness at Work Site	Not at All	7.00	32
	Moderate Dusty	34.10	156
	Very Dusty	58.90	269
Noise pollution at Work Site	Not at All	14.9	68
	Moderate Noise	53.6	245
	Very Noisy	31.5	144

The working conditions at the work places also play inevitable role to determine the health status and well-being. Table 4.18 explore the work condition by asking worker's perception about the work environment and conditions. Majority of worker (84.9%) said that construction work is very risky that causes injuries and the accident. similarly 93 per cent found construction work vulnerable for dusty conditions. But out of this, 34.16 per cent said that dust conditions are moderate at the construction site. Similarly, about 85 per cent considered constrcution work as the moderate and very noisy to them. Thus, these statistics regarding the worker's perception about the worker conditions show that the construction work is very dreadful which has the great impact on their health status.

4.10: Discussion and Conclusion

Health seeking behaviour of any population is determined by the various individual, environmental and healthcare related factors (*Andersen (1995*). But in case of the migrant worker, it is affected not only by the socioeconomic and demographic factor but also migration, living and working condition . This also has immense impact in determining their health seeking behaviour (*(Borhade 2011*). In this context, present chapter is an attempt to studies the background of characteristics' of migrant construction worker.

In some cases, the result of the household characteristics of migrant construction worker observed similar to New Economic Theory of migration which suggests the household as whole play pivotal role in labour migration decision *(Stark 1991)*. The statistics reveals that nearly 55 per cent construction worker belongs to the nuclear family and rests of the worker appear from the joint family. But in case of on-site-worker, majority belongs to joint family,

whereas; most of the off-site-workers belong to the nuclear family. It show that onsite worker mostly migrate from the rural areas where joint family system prevail more as compared to urban areas where off-site workers reside. Similarly, most of the construction worker belongs mainly to the families those have more member in their household. It reflects as the size of family increase more people start to employ in construction sector which is a one of migration driven sector of economy. It has similar finding to other studies *(Deshingkar & Start 2003, Dodd et al. 2016)* those suggests the household with large number of family member participate more in labour migration because it has the opportunity to accomplish it aspiration to increase family income due to its large family size or this could be associated with this fact that large family size can force migrant worker to earn bread for the dependent member in household as nearly three-fourth construction worker (75.7%) observes with three or more than three persons depend on them.

The living arrangement among worker plays a crucial role to determine their well-being as it not only provide them a psychological support but also help to during health problem. Present studies, observed around 52 per cent workers live their family whereas; nearly 23 per cent live with the other person such as friend, co-worker, or co-villager. But most of the on-site worker live alone as they as mostly migrant person, whereas, majority of off-site worker those are often non-migrant or permanent migrant reside with their family. The study also suggests those males are dominated among the construction worker as the head of their household that reflect the patriarchal character of the worker community.

In regards to demographic aspect of construction worker, study reveals that labour force in construction work is dominated by male not only in on-site worker but also among off-site worker, and women construction worker are appeared more among the site work as compared to offsite worker. Thus, results proves similar to other studies *(Srivastava & Jha 2014)* which reveal that construction sector is mainly dominated by the male worker but on-site worker who are mostly migrant worker has the small proportion of the female worker. It could be related to fact in onsite worker; some of the migrant workers are migrated with their family to urban areas who join construction work to generate extra financial security for their family. The finding of present study also support the other literature *(Dodd et al. 2016, Coffey et al. 2015, Keshri & Bhagat, 2013)* that male and younger population are more migrated to take part in unorganised work e.g. the construction work as compared to their counterpart female and older people. In case of marital status, results observes that more than three-fourth of the construction worker were married and remaining proportion includes unmarried, separated,

widowed, or divorced. But, a small proportion of the single marital status worker observed among the construction site migrant worker.

Social characteristics like Caste and religion plays as dominant role to decide the nature of construction work. Majority of the labour force in construction work is unskilled and semi-skilled. People who belong to backward and suppressed community are also found with less or no skill status. Therefore, they employ mostly in unorganised sector. Construction sector is dominated by OBC and scheduled Caste. Present study also demonstrates a similar pattern to other studies *(Chandrakanta 2014, Dodd et al. 2016)* that backwards communities such as Other Backward Classes (OBC), Schedule Classes (SC) and Muslims have more propensities to participate in labour migration in construction sector. These backward communities not only migrate to overcome the social discrimination and exclusion in labour market at their destination but also use migration as the strategy for their livelihood *(Deshingkar 2006, Deshingkar & Start 2003).*

The study reveals the majority of the construction worker has no education or very low education status. The temporary migrant and onsite worker are more observed with no education as compared to the non-migrant and the permanent migrant and non-migrant and permanent migrant worker are observed with having high education as compared to the temporary migrant. These result demonstrate similar to other studies *(Shonchoy & Junankar 2014)* people with low education status has high affinity to migrate toward urban areas for short-term or temporary particularly in the unorganized sector's jobs. Similar to education status, temporary and onsite worker are observed with low exposure to mass media compared to permanent and off-site worker which may be a cause of low awareness about health facilities and programmes among these worker because mass media exposure play a important role to determine the health seeking behaviour among the people *(Ghosh 2006).*

In respect to economic status of migrant worker, landholding is prominent indicator for rural urban migrant worker as landless and low land people mostly depend to work mostly in unorganised sector for their livelihood *(Deshingkar & Farrington 2006).* The result proposes majority of the construction work are landless or has very less land (Pattanaik 2009). On-site worker are observed with have more land as compared to off-site worker. This could be possible as onsite worker are temporary migrant worker who are migrated from rural areas Therefore, they have some land at their origin place, whereas, off-site worker mostly permanent or non-migrant who belongs to urban areas. The ownership of house can be a

important parameter to access the economic status particularly in case of the urban worker. The result of study shows that the most of the construction worker inhabit in temporary dwelling settlement or the rented house. Only a small proportion (1/10) of the worker has the ownership of the house at their current residence. The on-site worker mostly has their temporary dwelling "Jhuggis" at construction site as they are temporary migrant, but, in case of off-site worker whose are non-migrant worker and permanent migrant, around one-fourth worker have their own house at their current residence and about 70.0 per cent live in rented house. It prove that off-site worker has their own house but majority of the worker whether they are off-site or on-site most of them don't have their own home and dwell in rented house or temporary settlement at construction site. It seems these workers are unable to have their own home due to their low income status or their migratory natures that discourage them to purchase or build their house at urban areas.

Similar to other studies *(Tiwary et. al 2012, Pattanaik 2009)* present study reveals the most of the construction worker (> 70%) were employed in unskilled work like load carrier and the mason. In gender perspective of construction work, female worker are mostly engaged in the unskilled work such as the Load carriers etc, whereas, male worker mostly works in mansion and load carries but some proportion of the male worker also employ in the skilled driven work which is not observed in case of women worker. The result of our study also shows, half of the workers (51.60%) are unskilled and nearly 40 per cent are observed with semi-skilled. Thus, it demonstrates construction work is dominated by the unskilled or semi-skilled worker.

The daily wages are very dynamic in construction sector. It not only varies according to nature of the construction work but also vary place of the worker. In construction sector, worker generally works more than the normal working hour and in that case, their daily wage decides not by working per day but the number of the working hour. Thus, daily wages are varied not only by the nature of the construction work but also by the types of workers in same work. Present study reveals that male worker, skill worker, off-site worker who includes non-migrant & permanent migrant worker acquire higher daily wage as compared to their counterpart *(Mukherjee 2009).*

The average daily wages are observed slightly higher in this study as compared to the other studies (Srivastava & Jha 2014, Akram (2014). there could be two reasons for this, one, present study included the off-site worker (*Labour Chowks Worker*) those generally get

higher wage as compared to their counterpart due to their bargaining power. Second, this study also focuses on high skilled worker such as the machine operators, supervision worker; those are neglected in most of the studies. One interesting fact also reveals from the field study, the site worker earn more monthly income from construction work as compared to off-site worker despite their low daily wages. On-site worker generally do more work in term of number of days in a month and overtime compared to off-site worker.

Health vulnerability among worker is also determine by the working and living conditions. The result also found that most of worker (57.5%) resides on the construction site, whereas, Off-site worker are observed to live mostly in slum and non-slum area. But a small proportion of commuter workers have their residence in rural area. These workers get work mostly at labour chowks. These off-site workers are observed to live in the Pacca and Semi-Pacca and Kutcha house but the site worker are only lived in the temporary "Jhuggis" at construction site. Only 12 per cent of the workers are observed with have more than one room in their house and the remaining 88 per cent are found with have only one room, out of that 58 per cent have only temporary dwelling room as "Jhuggies" which is a very small room made by the tin shed, tent/plastic sheet, or bricks.

In respect to availability of facilities at their residence, only small proportion of construction worker has the toilet facility. Around half of the workers are found with shared or public toilet. But the use the public/shared toilet is found very low due to very unhygienic conditions. Similarly nearly 80 per cent worker said that they don't have bathroom facility at their current residence. Even, the on-site worker and female workers are more suffered due to unavailability of the toilet and bathroom facility. The tube-well and the pipe-water are the major source of drinking water among worker. Tube-well is main source for on site worker but in case of the off-site worker, pipe-water is main source. In case of the electricity, nearly 93 per cent workers are found with have the electricity facility in their residence but field observation reveals that onsite worker are provided electricity only for 3-4 hour at the evening by employer or contactor. Therefore, they can't enjoy the electricity for whole night. Thus, the poor living conditions of these basic household facilities pose health risk among the construction worker particularly onsite worker.

The result of study also confirms that most of the workers (64%) work more than 20 days in a month. The on-site migrant worker observer to do more work than off-site worker in a month because they are generally employed in big construction projects which continue for longer time period. While, in opposite side, the off-site worker has less chance to work in a month due to footloose nature of their job. The overtime is also common among onsite construction worker. On site workers are found to work more than 10 hour in a day as compared to the off-site worker. Thus, the construction worker mostly of the time engaged in overtime but this phenomenon is observed more among onsite worker. This heavy work load can be the cause of musculoskeletal health problems among construction worker *(Bhattacharya & Biswas 2011)*

Work exposure also impact on the health status among the worker. Nearly one-third of construction worker are have more than 10 year exposure to work. Whereas, around one-fourth share of all worker are said that they have 2 to 10 years work exposure. Off-site worker are seem to have more experience of construction work in comparison on site worker. This could be possible as on site worker are young and migrant while off-site worker are mostly old, non-migrant and permanent migrant. But, despite this low exposure to work, on site worker are found more vulnerable for occupational health problems due to overtime work load. In respect to work condition at work site, finding of present study also substantiate that worker find construction work is very dreadful in regard to riskiness for injuries/accident, dust and noise pollution which has the great impact on their health status.

Thus, present chapter concludes that not only the demographic and socioeconomic status but also work and living conditions in construction work can compel the health vulnerability among the migrant construction worker. Onsite-worker has been observed more vulnerable in regards to their socioeconomic and living and working condition compare to the off-site worker due to their migratory nature.

CHAPTER V

Health Problems and Health Seeking Behaviour of Migrant Construction Worker

5.1: Introduction

The *"Health is My Capital"* is well said Chinese proverb which considered health as wealth not only for itself but also for their family (Tam et al. 2017). It highlights the significance of health among the people. Therefore, whenever a person falls ill or injured, instantaneously, he starts to take some step to recover from the illness. There are differences in health seeking behaviour among the people from same region. This health behavior of people is shaped by not only individual characteristics e.g. age, sex, marital status, education, but also environmental and societal factor e.g. social customs, living and working environment, and healthcare system's characteristics. Thus, people's health seeking behaviour is result of interaction among theses individual, socio-cultural, environmental and health system related factors (Moore 1969, Andersen and Newman 1973, Tipping & Segall 1995).

The health seeking behaviour can be varied for different subgroup of population such as, aged population, woman, and worker. In case of worker, migrant construction workers are most vulnerable regarding to their health not only due to their living and working condition but also for their migration characteristics. At one side, construction work impose the occupation health risk on them, on other side, their mobility also has impact on their healthcare seeking behaviour. Therefore, in present chapter we tried to explore health problem as well as their health care seeking behaviour of construction worker.

This chapter has five main sections. First section gives detail about food intake and health habits among construction worker, while second section focuses on health problem and injuries among migrant construction worker. As construction workers are more vulnerable to occupation health problem therefore, in this section author try to find out prevalence of injuries and health among worker according to nature of work and types of worker. third section discuss about health status of construction worker. This section not only explores their current health status but also try to evaluate impact of migration and work on their health. As health system related factor also play important role to determine health seeking behaviour among population. Therefore, in fourth section an attempt is made to assess availability, accessibility, affordability of healthcare for the migrant construction worker. The last section of this chapter focuses on health seeking behaviour among construction worker.

In this section, the author not only tries to find association among various socio-economic, work and healthcare factor to their treatment seeking behabiour by using the chi-square test but net effect is also tired to calculated through the logit model.

SECTION- 5.2: HEALTH HABITS AND FOOD INTAKE AMONG ONSTRUCTION WORKER

5.2.1: Food Intakes among Migrant Construction Worker

A nutritional food intake among worker not only determines their health status but also has impact on output of work. In case of construction worker, *Du Plessis and Incolink (2011)* said in their study about diet and nutria status among worker that " The nature of construction industry is such that it requires concentration and moderate to high levels of physical activity, and consequentially worker need a diet which can support these required high energy demands" (pp.1)[1]. Thus, it shows that a nutritional food is essential for work among construction worker which determines their health status.

In study it has been also tried to assess nutritional status among construction worker by their food intake index. A composite food intake index is constructed by using the weighted score method. The score is given different essential nutritional items such e.g. Milk, Ghee, Eggs, meats, fruits, Green Vegetables, and pulses/beans. The "0" score is given for no intake, "1" for occasionally intake, "2" for at least once in a week, and "3" for daily intake of all these nutritional food items. After calculating their total score which range from 1 to 18 it is categorized into three group one > 6 is termed as the "Low food intake", 6 to 12 "Medium food intake" and above 12 score is termed as "High food intake" .

Table 5.1 explains food intake among construction worker. It is clearly demonstrate in table that almost two third of construction worker have medium level of food intake. Only 6.6 per cent of worker takes high nutritional food in their daily food consumption. However on site worker (73.8 %) have high medium level of food intake in comparison to offsite worker (64.9 %). Around one fourth of both offsite and onsite worker have low level of food intake which make them and their children vulnerable to malnutrition and hampered their health growth. A very low proportion of onsite worker (4.2 %) has high level of food intake; however for offsite worker it is found nearly 10 per cent which is more than double than onsite worker. It

[1] Du Plessis, K., & Incolink, V. (2011). Diet and nutrition: A literature review of factors influencing blue-collar apprentices. *Incolink, Victoria: Australia*. pp.1,accessed from http://www.nutritionaustralia.org/sites/default/files/Diet%20and%20nutrition%20chapter%20from%20Apprentices%20-%20young%20people%20in%20transition.pdf

reveals that on-site workers are more vulnerable to their health due to low level high food intake as compared to off-site worker.

Table 5.1: Food Intake among Migrant Construction Worker

Construction Worker Characteristics		Food Intake (%)		
		Low	**Medium**	**High**
Types of Worker	Off-Site Worker	25.3	64.9	9.8
	On-Site Worker	22.1	73.8	4.2
Migration Status	Permanent/Non-Migrant	28.7	56.3	14.9
	Temporary Migrant	22.2	73.2	4.6
	All MCWS	**23.4**	**70.0**	**6.6**

Parentheses () figures are the number of samples
Source: Field Survey, 2015-16.

According to types of migration status of construction worker, 73.2 per cent of temporary migrant has medium level of food intake where as only 56.3 per cent of permanent and non migrant worker have medium level of food intake. Permanent and non migrant workers (14.9 %) are observed with consuming high nutritional food as compared to temporary migrant (4.6 %). Almost one fourth of both permanent/non migrant and temporary migrant have low level of food intake. Thus, the result suggest that majority of the construction worker consumed very low or medium level nutritional food in their daily diet and only very small proportion of construction worker takes high nutritioanl food in their dietary pattern. Similarly off-site and permanent / non-migrant worker consume more nutritional food in their daily dietary pattern than temporary and on-site worker. Thus, it seem that on-site worker are more vulnerable for their health not only due to their poor living and working condition but also for their poor nutritional intake.

5.2.2: Health Habits among Migrant Construction Worker

The health habits such as the alcohol consumption, tobacco chewing and the smoking reflect the health behaviour of individual. Generally, these practices have immense impact on health status of people. These health behaviours are prevailed among certain people with specific background. Therefore, its analysis in the context of social-cultural and enviornamental will be significant for a study of health seeking behaviour.

Table 5.2: Health habits among Migrant Construction Worker (in percentage)

Health Habits	Off-Site Worker	On-Site Worker	All MCWs
Alcohol Drinking	24.2	25.9	25.2
Smoking	37.1	25.5	30.4
Tobacco chewing	53.1	55.5	54.5
Total	**100(194)**	**100(263)**	**457**

Parentheses () figures are the number of samples
Source: Field Survey, 2015-16.

Table 5.2 presents health habits in term of drinking alcohol, smoking of cigarette/Bidi and chewing tobacco among migrant construction workers. In tobacco chewing, some of worker prefer to *Gutkha* which is also a types of tobacco. More than 50 per cent of construction worker chews tobacco. There is not much difference between off site (53.1 %) and on-site worker (55.5 %) in term of chewing the tobacco.

But, in case of smoking, off-site worker are seem to more habitual for smoking than on-site worker. Around 37 per cent of off-site workers respond that they do smoking (mostly "Bidi") whereas, in case of on-site worker, only one-fourth proportion (25.5%) does smoking. While for alcohol drinking, both on-site and off-site worker seem to have same proportion to drink alcohol. Thus, nearly one-forth proportion of worker said that they drink alcohol. In all construction worker, Tobacco chewing is practice the highest followed by smoking (30.4 %) and alcohol drinking (25.2 %) respectively. Smoking is more common among off-site worker than onsite worker, whereas, tobacco chewing is more common among on-site worker. Thus, theses health habits can make construction worker more vulnerable for their health status.

SECTION- 5.3: HEALTH PROBLEMS AMONG MIGRANT CONSTRUCTION WORKER

5.3.1 Injuries and Disability among Migrant Construction worker

Construction work is one of the biggest sectors for occupational health risk among worker. Occupation health is defined as health of an individual which is determined by primary by living and working conditions. All work has certain level of health impact on worker which some time turn into health hazard in from of injuries and disability among worker. (Akram 2014).

Generally, worker in construction sector has more probability to have occupational health risks as they engage to work at height, and deal with heavy load material and work with machineries. Accident and injuries are common among worker at construction site. Studies (Adane et al. 2013) shows that it is impossible to calculate accident among construction worker but each year on average around 55,000 workers are dead due to accident at construction sites all over the globe. Thus, it reveals construction work has more relevance than other work in respect to occupation health.

Table 5.3: Injury among Construction Workers in last One Month (in percentage)

Worker's Characteristics		**No Injury**	**Injuries**	**N**
Sex	Male	60.0	40.0	412
	Female	68.9	31.1	45
Worker	On-Site Worker	61.2	38.8	194
	Off-Site Worker	60.3	39.7	263
	All MCWS	**60.8 (278)**	**39.2 (179)**	**457**

Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

The statistics in table 5.3 shows the prevalence of injuries among construction worker according to sex and types of worker. The result of this able confirm that construction work highly vulnerable for injuries among worker as nearly 39 per cent construction worker reported that they had injury among construction worker in last one month. A large proportion of both female and male worker reported occurrence of injury in last one month which is found around 31 per cent and 40.0 per cent respectively. Female worker are observed to experience low injuries as compared to male worker. It could be due to male are employed also in risky works like the plumber, the electrician, the carpenter and machine operator etc.

When, it appears to see the prevalence of injuries according to types of worker. Both onsite and off-site worker are experienced almost same and high percentage of injuries prevalence. This shows that whether it is on-site worker or off-site worker, they experience they experience high injuries in their work which make them vulnerable for their health. In case of intensity of injury, nearly three-forth worker reported their injuries as minor injury and rest of worker (26%) considered their injury as major injury. The field observation in construction work shows minor injuries are common and sometime worker doesn't consider

minor injury as health problem but they also say that sometime due to lack of proper care a minor injury impact their life style and work.

Fig.5.1: Type of Injury among Construction Workers

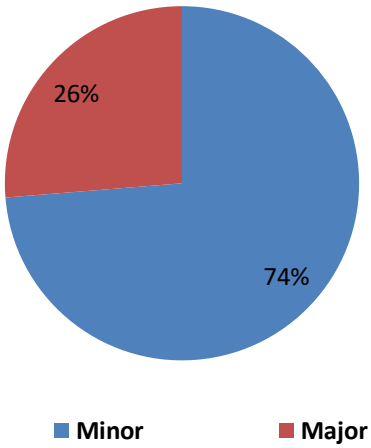


Table 5.4: Disability among Construction Workers (in percentage)

Worker's Characteristics		NO	Yes	N
Sex	Male	96.4	3.6	412
	Female	97.8	2.2	45
Types Of Worker	On-Site Worker	97.7	2.3	194
	Off-Site Worker	94.8	5.2	263
	all MCWs	**96.5**	**3.5**	**457**

Source: Field Survey, 2015-16.

Disability among construction worker has been illustrated from table 5.4. It is clear from table that very low proportion of both male and female reported themselves person with disability. Only 3.6 per cent of male are disable which is slightly higher than female (2.2 %). According to types of worker, 5.2 per cent of off-site worker are found with disability where as only 2.3 per cent of onsite worker are found person with disability. It may be due to reason that person with disability have low chances of getting job at construction site. There could be another explanation for this fact that, in on-site worker, majority of worker are temporary migrant. So a person with disability has less probability to migrate to continue their work in construction site. But in case of off-site worker, this could be not apply and disable person continue to work after sometime from disability.

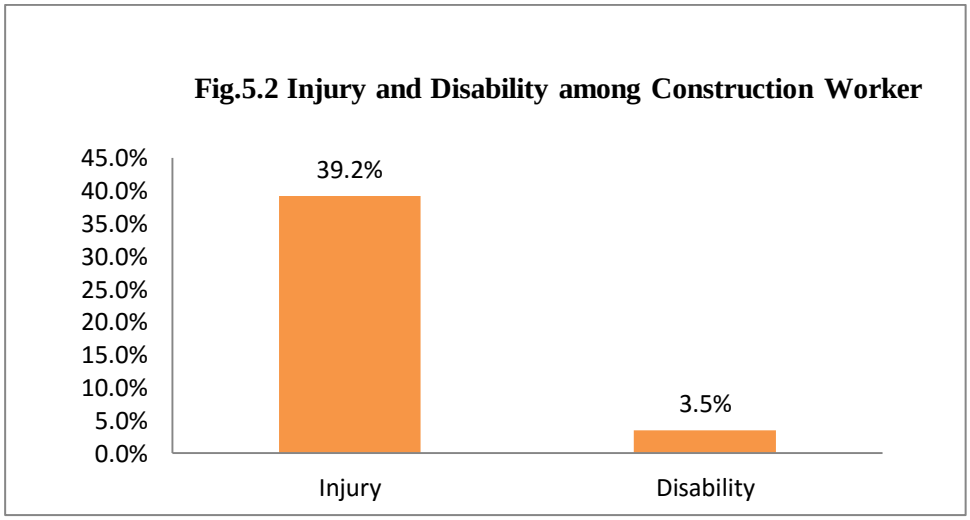


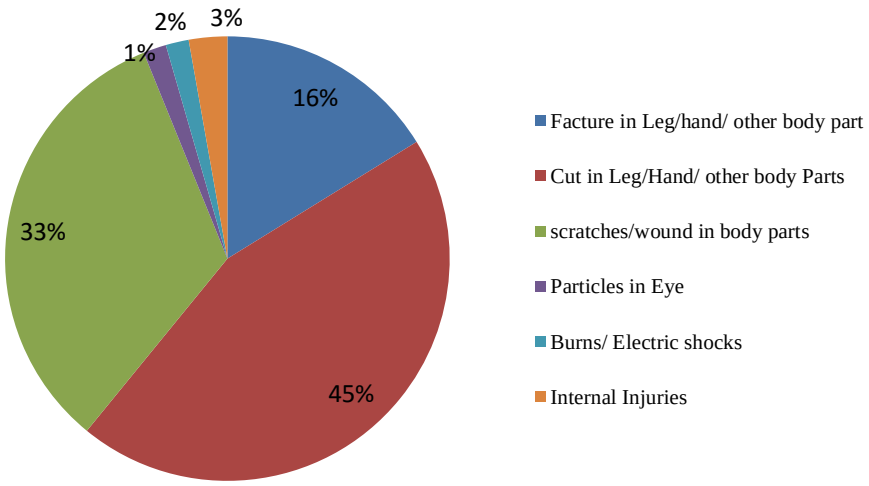
Table 5.5: Nature of Injuries among the Construction Workers according to Sex

	Male (%)	Female (%)	All MCWs (%)	N
Facture in Leg/hand/ other body part	16.4	14.3	16.2	29
Cut in Leg/Hand/ other body Parts	44.2	50.0	44.7	80
scratches/wound in body parts	32.7	35.7	33.0	59
Particles in Eye	1.8	-	1.7	3
Burns/ Electric shocks	1.8	-	1.7	3
Internal Injuries	3.0	-	2.8	5
Total (N)	**100 (165)**	**100 (14)**	**100**	**179**

Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

Table 5.5 illustrate about nature of injuries among construction worker according to their sex. 44.7 per cent of total migrant construction worker injured in from of cut in leg/hand/other body parts, followed by scratches/wound in body parts (33%) and fracture in leg/hand/other body parts (16.2%). Thus, almost 94 % of migrant worker injured due fracture, cut and scratches in leg/hand/other body parts. A small proportion of the worker has faced injuries like particles in eye, burns/electric shocks and internal injuries.

Fig. 5.3 : Nature of injuries among the construction workers



In respective to gender perspective, all females reported injuries due to three ways i.e. cut in leg, hand or other body parts (50 %), scratches/wound in body parts (35.7%) and facture in leg, hand or other body parts (14.3%). Similar pattern has been observed in male also who are primarily injured due cut in their body parts (44.2 %), followed by scratches/wound in body parts (32.7 %) and fracture in leg or hand or other body parts (16.4 %) respectivley. No women reported injuries due to particles in eye, burns/electric shocks and internal injuries. However, very low proportion of male also has reported injuries due to particles in eye (1.8 %), burns/electric shocks (1.8 %) and internal injuries (3.0 %) that constitute only 6.6 per cen. It may be due to fact that generally, women are not engaged in risky work like the electrician, the carpenter, the plumber, the welder and machine operator etc. Thus, other studies (*Adane et al. 2013, Akram (2014))* on construction worker related to injury in work also support finding of present study that more than 35 per cent of worker experience work related injuries and male worker are more vulnerable to face injuries as c compared to female worker.

Table 5.6 present details on the injuries among construction worker according to types of construction work. It has been found that about 50 per cent of reported injuries occurred in load carrier or “Beldar”. Whereas, Mason’s work (22.3 %) is another important work which cause second most largest share of injuries among workers. The iron and steel work is another important work in which around 11 per cent worker experienced injuries.

Fig.5.4: Share of Injury Among Construciton Worker accoding to their Occupation

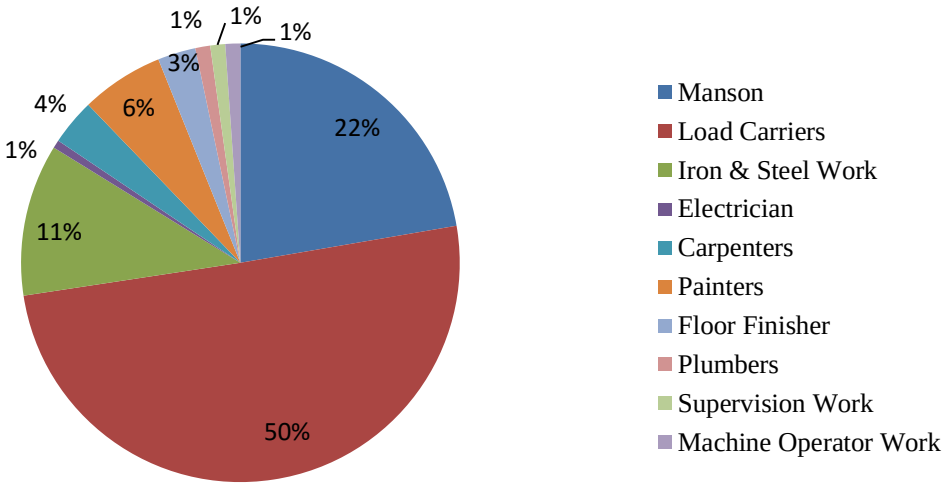


Table 5.6: Injury according to Types of Construction Work (in percentage)

Nature of construction work	Injury (%)	N
Mason	22.3	40
Load Carriers	50.3	90
Iron & Steel Work	11.2	20
Electrician	0.6	1
Carpenters	3.4	6
Painters	6.1	11
Floor Finisher	2.8	5
Plumbers	**1.1**	2
Supervision Work	1.1	2
Machine Operator Work	1.1	2
Total	**100**	**179**

Source: Field Survey, 2015-16.

The statistics shows that a significant proportion of the injury affected worker belongs to the painter (6.1 %) and carpenter (3.4 %). While, a small share of worker belongs to other types of construction worker e.g. electrician, floor finisher, plumber, supervision work and machine operator work those each of them experience less than 3 per cent injuries due to work. In instead of their work nature, these workers have faced less injury. This could be due to very less number of cases in the study.

5.3.2 Illness among Migrant Construction Worker

Illness is one of the parameter to assess health status of the people. Illness is a condition in which an individual feels pain or anxiety but unaware about cause of the pain or anxiety or discomfort. As worker's living and working condition has impact on health status. Similarly migration also has impact on health and visa versa. The studies (Urquia & Gagnon 2011) on healthy migrant hypothesis state that migrant people are healthier than the native people. As construction worker are both migrant and worker, Therefore, migrant and worker both has impact not only on their health status but also determine their health-seeking behaviour . Therefore, the author has tried to explore illness among construction worker to see health vulnerability among migrant construction workers. In this section, author tries to assess health problems among worker by two parameters. First, illness among construction worker in last one month and second disease/illness during hospitalization in last one year are used as to see health problems among worker.

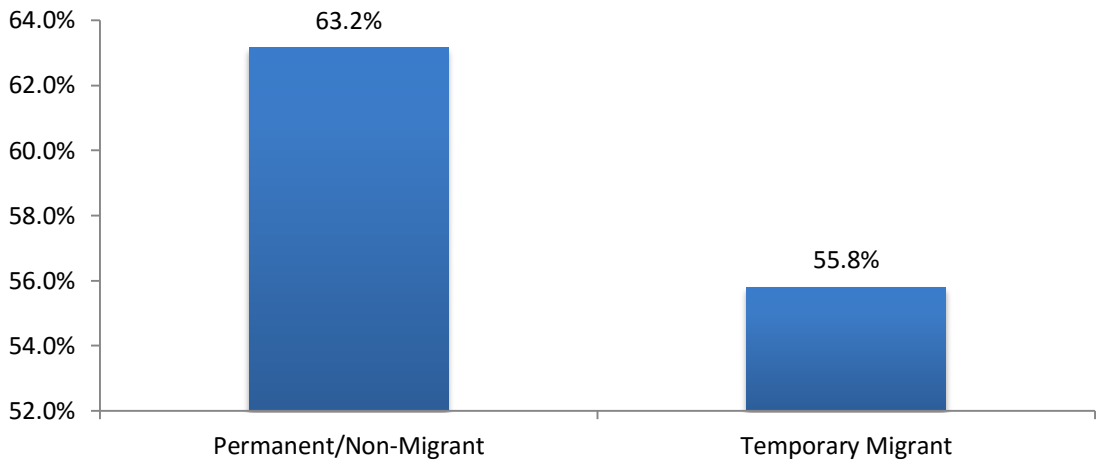
Table 5.7: Illness among Migrant Construction worker

Background Characteristics		**Any Illness In Last 30 Days (%)**				
		No	**Yes**	χ^2	**P-Value**	***d.f.***
Type of Worker	Off-Site-Worker	38.1	61.9	0.110	0.066	2
	On-site Worker	45.6	54.4			
Migration Status	Non-migrant	40.6	59.4	1.049	0.592	2
	permanent Migrant	40.6	59.4			
	Temporary Migrant	43.5	56.5			
Cities	Noida	43.9	56.1			
	Bhiwadi	50.9	49.1	14.012**	0.003	3
	Delhi	28.1	71.9			
	Gurgaon	47.0	53.0			
	Total (N)	**42.5 (194)**	**57.5 (263)**	**100**	**N= 457**	

Significance levels p <0.05=, p<0.01 =**, p<0.001=****
Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

Table 5.7 presents illness prevalence among construction workers. It shows around 58 per cent of construction worker experience illness in last one month. According to types of workers, off-site worker have experience more illness during last month as compared to on-site worker. Nearly 62 per cent of off-site worker faced illness in last one month whereas; in on-site worker this proportion was observed only 54.4 per cent. Similarly, temporary migrant are found with less illness as compared to non-migrant and permanent migrant worker. Both sub group non-migrant and permanent migrant worker around 59.4 per cent each of their share experience illness. While, only 56.5 % of temporary migrant construction worker has found with a illness in last one month. Thus, these results suggest that both non-migrant and permanent migrant and off-site worker have high probability to experience an illness. While their counterpart on-site worker who are mostly temporary migrant, has less probability to fall ill. These results are similar to other studies *(Lu & Qin 2014)* those are associated with the *"healthily migrant hypothesis"* which proves that migrant people are healthier than counterpart non-migrant.

Fig. 5.5: Health Problms (Illness) Experence among Construction Worker accoding to Migration Status



In figure 5.6, illness among construction worker is shown by the cities in NCR. The results shows a association and found significant (χ^2 =**14.012**** and d.f. = 2) for illness among four cities. Delhi's construction workers are found to experience highest illnesses among all four cities. Nearly 72 per cent of workers have suffered with illness in last 30 days. While in case of Noida and Gurgoan, in both cities similar share of construction worker (53%) are found to

experience illness in last one month. Construction worker in Bhiwadi seem to have the lowest illness as compared to all other cities. Thus, the result suggests that construction worker in big city like Delhi has higher chances for illness while, worker in small cities like Bhiwadi can be less affected from illness. In this fact the cities living and environmental condition can be the most

Fig.: 5.6: Illness Among the Construction Workers in Selected NCR Cities

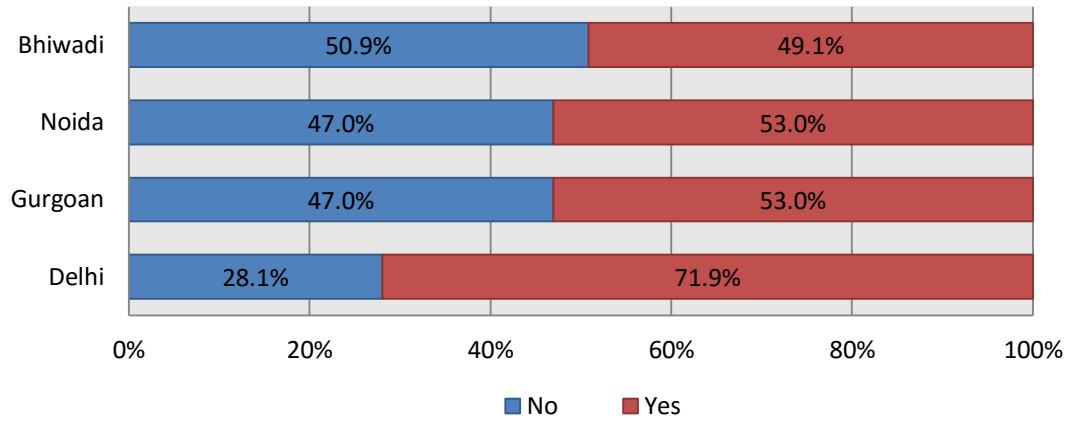


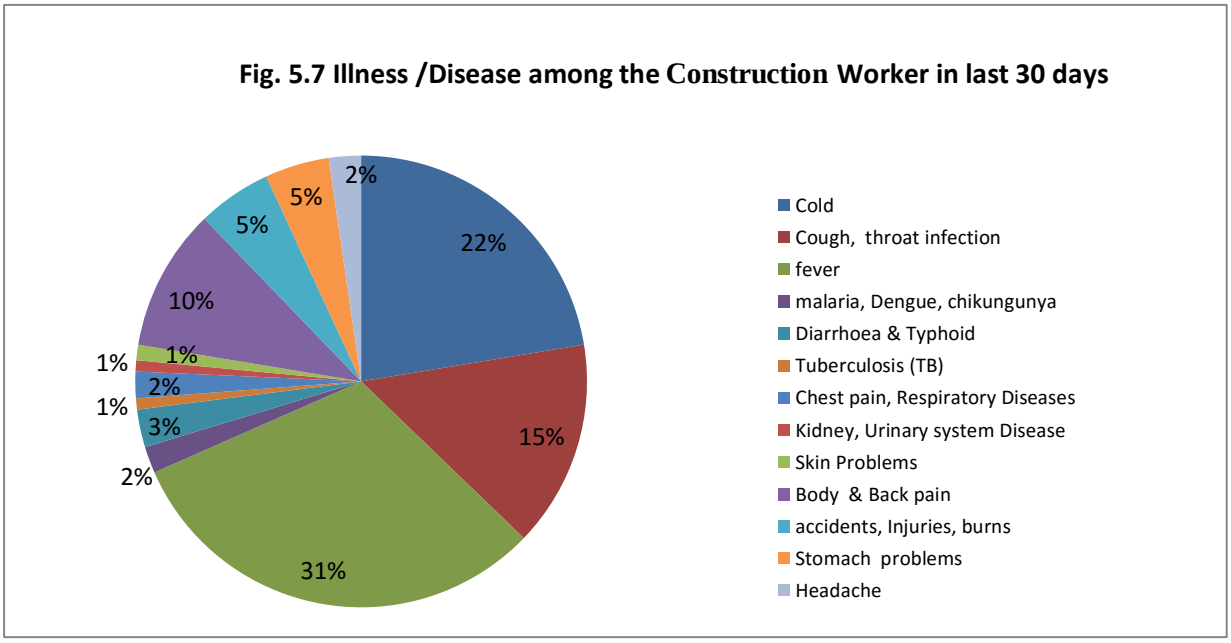
Table 5.8 and figure 5.7 gives a picture on nature of illness/disease among construction worker who had experienced illness last one month by construction worker. It is clear from table that fever is the most important disease which causes to illness about 31.2 per cent of total construction worker. Other major diseases are Cold; Cough and Throat infection and body and back pain among construction worker which constitute about 47.0 per cent of disease togetherness. Accident, injuries & Burns is another category of disease which however, cause illness to only 5.3 per cent worker but treatments to this disease is very costly and not easily available at government's primary and community health centers. Malaria, Dengu & Chikungunia; Diarrhoea & Typhoid; Tuberculosis; Chest pain & Respiratory disease; Kidney & Urinary system Disease; Skin problem; and Headache are cause to illness less than 3 per cent in each category. It reflects that seasonal diseases such as the cold and cough, fever are most affect worker as survey is carried out in winter season. Other important major causes for the illness among worker are the body pain and the accidental injuries. It shows those workers are most affected by occupational health problems which are determined by their working conditions

In gender perspective, it can be said male (31.8 %) are more prone to Fever rather than female (26.7 %) which is also the highest cause to illness among both male and female. Cold is observed second important cause of illness among male (24.5 %) rather than female (6.7 %) where as female (16.6 %) reported body pain e. back or body pain which is second another illness among female. It may be due to fact that female construction worker in India have high occurrence to deficiency of minerals and vitamins like iron, calcium, magnesium and Vitamin D. These minerals and vitamin are needed to be strong bones and healthy body. Cough and Throat infection cause illness among male and female, is 15.0 per cent and 13.3 per cent respectively. No woman has been found suffering due to Kidney & Urinary system disease; and Respiratory Diseases. However, less than 2 per cent of male reported these two diseases, but it could be associated due to bad health habits e.g. alcohols, smoking that are common in male.

Table 5.8: Nature of Illness /Disease among the Construction Worker during In Last One Month

Illness /Disease	Construction Workers (%)			
	Male	**Female**	**All MCWs**	**N**
Cold	24.5	6.7	22.4	59
Cough, & Throat Infection	15	13.3	14.8	39
Fever	31.8	26.7	31.2	82
Malaria, Dengue, & Chikungunya	1.7	3.3	1.9	5
Diarrhoea & Typhoid	2.1	6.7	2.7	7
Tuberculosis (TB)	0.4	3.3	0.8	2
Chest Pain, Respiratory Diseases	1.3	6.7	1.9	5
Kidney & Urinary System diseases	0.9	-	0.8	2
Skin Problems	1.3	-	1.1	3
Body and Back Pain	9.4	16.6	10.2	27
Accidents, Injuries, & Burns	5.2	6.7	5.3	14
Stomach Problems	4.3	6.7	4.6	12
Headache	2.1	3.3	2.3	6
Total	**100**	**100**	**100**	**263**

Source: Field Survey, 2015-16.



5.3.3: Disease/ Illness Experienced by Construction Worker during Hospitalization

Hospitalization is also a parameter to assess health problems among people. In case of worker, who are more vulnerable for occupational health problem, study their hospitalization will be helpful to measure their health status. Hospitalization of worker not only has impact on their health but also has regressive impact on economic condition of household by increasing health expenditures and income loss.

The Table 5.9 presents hospitalization among worker due to various illness or diseases. In all workers around 16 per cent has been hospitalized during last one year. It also reveals that female workers (31.1%) are more hospitalized than male construction worker (14.1%). Their share of hospitalization is observed just double than male construction worker. Nearly more than one-fourth of migrant construction worker (26.4%) has been hospitalized due to fracture, Burns & Electric shock due to accident/injury followed by fever (25.0 %) and Stomach pain, intestine & Liver problem (9.7 %) respectively. Other health problems which cause hospitalization among construction worker are Breathlessness, Lung, Tuberculosis (TB) (8.3%); Diarrhoea & Jaundice (6.9%); Weakness, Faint & Anaemia (5.6%).

In case of female worker, the largest proportion of women construction workers (42.9%) are hospitalized due to Pregnancy and delivery related health complication followed by Fever (14.3 %) and Stomach pain, intestine & liver problem (14.3%) which are equally caused to

hospitalization among female construction worker. The statistics reveals that women worker mostly hospitalize due to pregnancy related health problems. It is astonishing that no women construction worker were hospitalized due to fracture, Burn & electric shocks due to accident whereas, male worker (32.8%) reported it as the largest cause to hospitalization in last one

Table 5.9: Diseases/Illness Experienced by Construction Worker during Hospitalization in last One Year

Illness/Diseases	Male (%)	Female (%)	All MCWs
Fever (e.g. Malaria and Dengue)	27.6	14.3	25
Diarrhoea & Jaundice	6.9	7.1	6.9
Breathlessness, Lung & T.B. Problem	10.3	-	8.3
Blood Pressure	1.7	-	1.4
Headache, & Epilepsy	3.4	7.1	4.2
Pregnancy complications, Child Delivery & Uterus damage	-	42.9	8.3
Facture, Burns, & Electric shock due to accidents/Injury	32.8	-	26.4
Stomach Pain, Intestine & Liver Problems	8.6	14.3	9.7
Stone in kidney	-	7.1	1.4
Tumour in body	3.4	-	2.8
Weakness, Faint & Anaemia	5.2	7.1	5.6
Hospitalization	**31.1**	**14.1**	**15.8**

Source: Field Survey, 2015-16.

year. It proves that male workers are employed with high risk construction worker done. Second biggest cause for hospitalization among male construction worker is fever (27.6 %) followed by Breathlessness, Lung & Tuberculosis related health problems (10.3%) and Stomach pain, intestine and liver (8.6 %) respectively.

Thus, the result of hospitalization show that occupational health problems e.g. accidents injuries, burns and electric shocks and fever such as Malaria and Dengue are major causes for hospitalization among worker. This pattern also observed among male worker, but, in case of women construction worker, pregnancy related health problems are observed the major cause for hospitalization.

5.3.4 Economic Burden due to Health problem among the Construction Worker

Health problem not only has a negative impact on health status of people but also cause the economic cost or burden to their family. Studies also reveals that monetary cost determine health seeking behaviour among people particularly among poor people. In case of labour

population, health expenditure has double burden among worker as first it has burden to pay medical expenditure and second, it hamper their daily working income due to illness.

Table 5.10: Economic Cost of Health Problems among Construction Worker (in Rs.)

Health Expenditure (Rs.)	Off-Site Worker	On-Site Worker	All MCWs
Average Treatment cost for illness	657.82	448.63	536.02
Average income loss due to illness	2519.64	1422.44	1964.59
Average hospitalization Expenditure	12,981.82	10,610.26	11,697.22
Total	**100(194)**	**100(263)**	**N=457**

Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

Table 5.11: Source of Medical Expenditure of Hospitalization among the Construction Worker (in percertage)

Source	Off-Site Worker	On-Site Worker	All MCWs
Household income or Saving	21.2	30.8	26.4
Money borrowed from others	75.8	64.1	69.4
Assets sold	3.0	5.1	4.2
Total	**100(194)**	**100(263)**	**N=457**

Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

Table 5.10 provides details on health expenditure and income loss due to the health problem among construction worker. A construction worker bears an average Rs. 536.02 to illness in last one month. Off-site worker seems to pay more for treatment as compared to their counterpart onsite. This could be due to that they had experienced more illness than on-site worker. A construction worker averagely lost Rs.1964.59 due to illness. Similarly, above pattern had also been observed in offsite worker due to illness. In case of hospital expenditure, average hospital expenditure among worker is observed around Rs. 11,697.22 which is very high for them to bear it. Similarly to treatment cost for illness, off-site worker bear more hospitalization expenditure than on-site worker. It could be due to fact that off-site worker (17%) are more hospitalized than on-site-worker (14.8%) or on-site worker return to their home during serious illness and cost for them at their home could be low as compared to

urban centers resident worker. Most of workers (69.4%) don't have money to pay for hospitalization expenditure; therefore, they borrow money from other person or sell their assets. Only one-third proportion of worker use their household income or saving for hospitalization expenditure (Table 5.11). Thus, similar to other studies *(Nair 2000)* these unorganized workers are more vulnerable to affordability problem regarding to health expenditure.

SECTION- 5.4: HEALTH STATUS OF MIGRANT CONSTRUCTION WORKER

World Health Organization (WHO, 2006) defines health as "a state of complete physical, mental, and social well-being and not merely absence of disease or infirmity" (pp.1)[2]. Health status is considered not only prevalence or absence of illness among population but also it is a integrated concept which also include life expectancy or self-reported health state and the physical and mental well-being. There are numerous measures to assess health status of a population e.g. life expectancy, morbidity incidence, mortality, but self-reported perceived health status of self by individual is one of the most used method in the epidemiological research (Miilunpalo, Vuori, Oja, Pasanen, & Urponen, H. (1997). In this study, it has been also tried to assess health status of construction worker by applied self-reported perceived health status according to their perception on themselves health.

5.4.1. Current Health Status of Construction Workers

Table 5.12 and figure 5.8 provide picture of current health status of construction worker. To see association between worker characteristic and health status, the chi-square test has been applied. Overall nearly 59 per cent of construction worker reported their health as excellent /good and 18.2 per cent reported poor. While around one-forth (26%) worker reported its health as moderate. In case of sex, association is not found between current health status and sex of work. Male worker (56.3%) reported more excellent or good their health while female worker (22.2%) reported higher poor as their current health status.

[2] WHO. (2006). *Constitution of the World Health Organization – Basic Documents*, Forty-fifth edition, Supplement, October 2006, pp.1. Geneva: World Health Organization(WHO), accessed from http://www.who.int/governance/eb/who_constitution_en.pdf

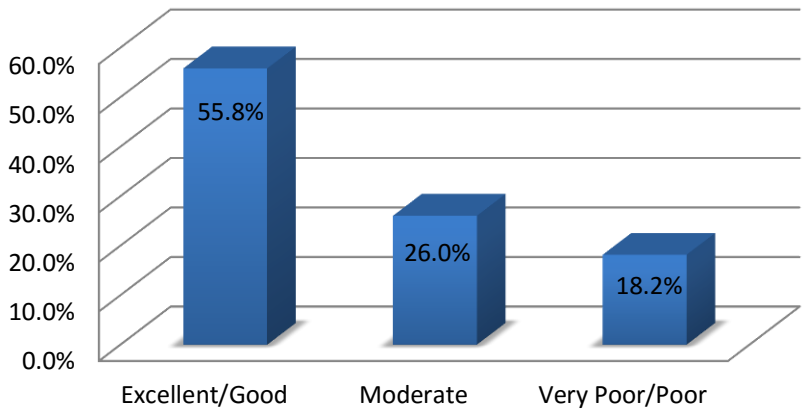
Table 5.12: Current Health Status of Construction Workers

Background Characteristics		Current health Status (%)			*Chi-Square Test*		
		Excellent/ Good	Moderate	Poor/ Very Poor	χ^2	P-Value	*d.f.*
Sex	Male	56.3	26.0	17.7			
	Female	51.1	26.7	22.2	0.657	0.720	2
Types of worker	Off-Site Worker	49.0	23.2	27.8	21.232***	0.000	2
	On-site Worker	60.8	28.1	11.0			
Migration Status	Non-migrant/permanent Migrant	47.1	25.3	27.6	6.727**	0.035	2
	Temporary Migrant	57.8	26.2	15.9			
All MCWs		**55.8**	**26.0**	**18.2**	**N=457**		

Source: Field Survey, 2015-16, *Significance Levels p <0.05=*, p<0.01 =**, p<0.001=****

In case of on-site and off-site worker, results are found highly significant (χ^2=21.232***, d.f.=2) to current health status. Nearly 61 per cent of on-site worker reported that their health as excellent or good, while off-site worker, it is observed only 49 per cent. Similarly, only 11 per cent worker said that their current health was poor while, it was around 28 per cent off-site worker. Similar to worker's types, migration and current health status also has a significant relationship (χ^2=6.727**, d.f.=2). Temporary migrant worker (57.8%) is reported more excellent or good as their current health as compared to non-migrant or permanent migrant (47.1%). Thus, results support healthy migrant hypothesis. Thus, these statistics reveals that male worker, on-site worker and temporary migrant workers are healthier as compared to their counterpart in term of current heath status.

Fig.5.8: Current Health Status of Construction Worker



5.4.2. Health Status of Construction Workers since Joining Work and Migration

In study, the impact of migration and work on health status also is examined. Table 5.13 shows result of impact of work on health status. Among all workers, around 48 per cent worker reports that their health has become worse since joining the work and only 22.8 per cent told that their health has become better. The migration status and types of worker has been observed significantly associated with health status.

Table 5.13: Health Status of Construction Workers since Joining the Work

Background Characteristics		Health Status since Joining the Work (%)			*Chi-Square Test*		
		Better	**Moderate**	**Worse**	χ^2	***P-Value***	***d.f***
Sex	Male	22.3	29.1	48.5	0.450	0.799	2
	Female	26.7	26.7	46.7			
Type of worker	Off-Site Worker	14.4	21.1	64.4	35.285***	0.000	2
	On-site Worker	28.9	34.6	36.5			
Migration Status	Non-migrant/Permanent	16.4	12.7	70.9	13.530 **	0.001	2
	Temporary Migrant	23.8	31.9	44.3			
All MCWs		**22.8**	**28.9**	**48.4**	**N = 457**		

Source: Field Survey, 2015-16, *Significance levels p <0.05=*, p<0.01 =**, p<0.001=****

Table 5.14: Health Status of Construction Workers after the Migration

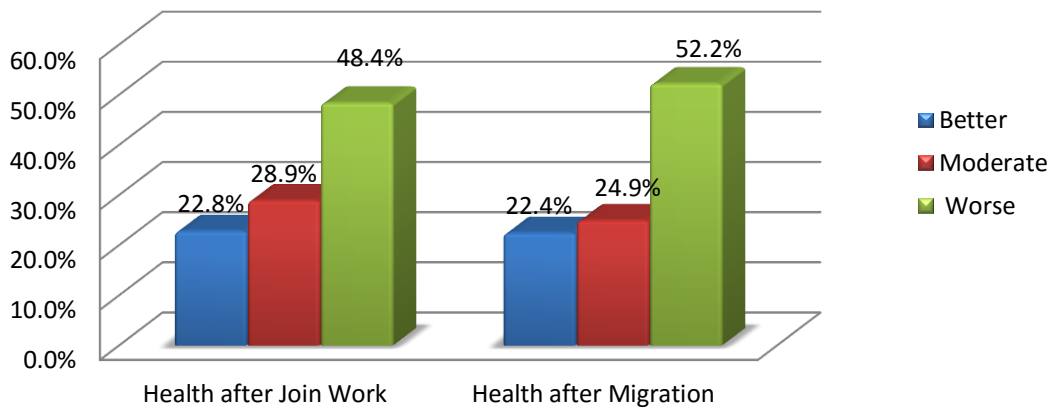
Background Characteristics		Health Status after Migration (%)			*Chi-Square Test*		
		Better	**Moderate**	**Worse**	χ^2	***P-Value***	***d.f***
Sex	Male	22.6	25.0	52.4	0.075	0.963	2
	Female	24.4	24.4	51.1			
Type of worker	Off-Site Worker	12.3	19.1	68.5	29.418***	0.000	2
	On-site Worker	29.3	28.5	42.2			
Migration Status	/Permanent Migrant	12.7	14.5	72.7	10.638***	0.005	2
	Temporary Migrant	24.3	26.5	49.2			
All MCWs		**22.8**	**24.9**	**52.2**	**N = 425**		

Source: Field Survey, 2015-16, *Significance levels p <0.05=*, p<0.01 =**, p<0.001=****

Female worker had experienced better health as compared to male worker after joining the work. On other hand, more male worker (48.5%) has reported worse current health after joining of work as compared to their counterpart. in case of types of worker, on-site worker are observed with reporting more better health as compared to off-site worker, similar in case of reporting worse health status after joining the work, off-site worker are seem to worse health as compared to their counterpart. while, in respect to migration status, non-migrant or permanent migrant worker reported that their health is become worse as compared to temporary migrant worker after joining the work.

In case of migration's impact on health of worker (Table 5.14) reveals that female worker's health is less affected due to migration as compared to male worker. While, health of off-site worker seem to have more affected due to migration than on-site worker. Similarly permanent migrant's health is observed to be more affected due migration as compared to temporary migration health. Migration status and types of worker have a significant association with health status. Overall 52.2 per cent worker reported their health status become worse after their migration, while nearly 23 per cent said that their health become well after migration.

Fig.5.9: Health Status of Construction Worker after Work Joining and Migration



5.4.3: Association of Illness with Socioeconomic, Work and Migration Characteristics

Present study focuses on health problem among construction worker, to find association between socioeconomic and working and living condition to illness. It is helpful to understand their health seeking behaviour.

Table 5.15: Illness among the Construction Worker according to their background characteristics

Background characteristics of MCWS		Illness in last 30 days (%)		*Chi-Square Test*		
		No	**Yes**	χ^2	*P-value*	*d.f*
Sex	Male	43.4	56.6			
	Female	33.3	66.7	1.698	0.192	1
Age	15-25	45.9	54.1			
	26-35	47.0	53.0	6.313*	**0.097**	3
	36-45	36.5	63.5			
	46-65	30.2	69.8			
Caste	S.C/S.T.	39.1	60.9			
	OBC	41.7	58.3	3.018	0.221	2
	Others	50.6	49.4			
Religion	Hindu	43.7	56.3			
	Muslim	38.2	61.8	0.955	0.328	1
Education Level	No education	42.2	57.8			
	Primary	37.1	62.9			
	Middle	36.3	63.7	6.451*	**0.092**	3
	Secondary & above	51.7	48.3			
Monthly Income (Rs.)	2000 - 5000	33.6	66.4			
	5001 - 8000	42.2	57.8			
	8001- 11000	38.0	62.0	21.466***	**0.000**	3
	11000-18000	72.3	27.7			
Types of Worker	Off-Site Worker	38.1	61.9			
	On-Site Worker	45.6	54.4	2.559	0.110	1
No. of Working Day in a Month	5-15	28.9	71.1			
	16-20	41.2	58.8	8.342**	**0.015**	2
	21-30	46.6	53.4			
Exposure to Work	< 2 Year	53.1	46.9			
	2-5 Year	42.1	57.9			
	6- 10 Year	44.7	55.3	9.505*	**0.023**	3
	> 10 year	33.1	66.9			
Migration Status	Permanent /Non-Migrant	37.9	62.1			
	Temporary Migrant	43.5	56.5	0.899	0.343	1
Food Intake Index	Low	38.5	61..5	6.061*	0.014	1
	High	50.7	49.3			
	Total (N= 457)	**42.5 (194)**	**57.5 (263)**		**N= 457**	

Significance levels p <0.05=, p<0.01 =**, p<0.001=****
Parentheses ( ) figures are the number of samples
Source: Field Survey, 2015-16.

Table 5.15 shows relationship and association between background characteristics and the illness among construction worker. Association has been tested with the help of Chi-square test.

It is clear from table that female (66.7%) fall more ill than male (56.6 %). It may be due to low level nutrition value of vitamin and minerals and pregnancy complications. However, chi-square test is not significant which shows no association between illness and sex variable. The highest proportion of construction worker aged 45-65 years (69.8 %) has been recorded ill has been followed by aged 35-45 years (63.5 %), 15-25 years (54.1 %) and 25-35 years (53.0 %) respectively. It shows as age increase the worker has more chance more chances to suffer from an illness. According to caste, Both Scheduled Caste (SC) and Scheduled Tribe (ST) (60.9 %) has high ratio to be ill than OBC (58.3 %) and others (49.4 %) respectively. SC and ST are deprived section of society, hence has low level of food security. 61.8 per cent of Muslim got ill than 56.3 per cent of Hindu. Migrant worker, who has at least secondary level of education, has less suffer from illness, that is only 48.3 per cent in comparison to middle (63.7 %), primary (62.9 %) and no education (57.8%) respectively. Off site worker (61.9 %) has higher level of illness than onsite worker (54.4 %). 62.1 per cent of permanent or non migrant worker fall ill in comparison to temporary migrant worker (56.5 %). Chi-square test results that age, caste, religion and education level, types of worker and migration status has no association with illness.

Occurrence of illness increases as monthly income of construction worker deceases. Construction worker with monthly income between Rs. 11000-18000 (27.7 %) has the lowest percentage of illness. Worker, who has monthly income between Rs. 2000-5000 (66.4%), has the highest percentage of illness in last 30 days. It is more than double for worker who has monthly income between Rs. 2000-5000 in comparison to Rs. 11000-18000. However, there is not much difference of percentage of illness for worker having monthly income with Rs. 2000-5000 (66.4%), Rs. 5000-8000 (57.8%) and 8000-11000 (62.0%). Income is observed with high significantly associated with the illness. Both in on-site and off-site worker more than 50 per cent of worker suffer from illness. Number of working days has been found associated with illness through chi square test (χ^2=8.342**) with medium level of significance. It is found that as number of working days increase, illness among construction worker decrease. It may be said in this ways also, that low occurrence of illness, increase fair chances of monthly income by increase days of working. Worker, who worked only for 5-15 days (71.1%) in month, has highest percentage of illness, followed by 16-20 working days (58.8 %) and 21-30 working days (53.4 %) respectively.

It is clear from statistics as the worker exposure to work increase it has been found more suffer with illness. It may be concluded from this relationship that long time of exposure to work in dusty and polluted environment make worker to prone to disease or illness. Chi-square test gives value (9.505) that proves association between work exposure and illness among construction worker with low of significance level. In case of food intake, worker with low food intake are suffered more with illness whereas, worker who take high nutritional food intake are found with low illness suffering It could be said that low level of food intake cause to lack of resistant power of body that make construction worker to vulnerable to suffer with illness. Food intake has a significant association with illness.

Thus, result of above table shows that age, education income, working condition e.g. number of working days worker exposure and the food intake has a significant association with illness

5.4.4: Factors Affecting illness among Construction Workers

The table 5.16 presents results of logistic regression for illness among construction worker. this model is statistically moderate significant. The dependent variable of illness is coded in '0' and '1', which imply that '1' of the presence of illness and '0' if absent of illness.

Results show that female construction workers are more exposed to being ill as compared to their counterpart. According to age of construction workers, older workers aged 45-60 years have considerable impact of being older. They are more likely to be affected from illness as compared to other workers. It is expected and consistent with earlier study. Results show that workers belongs aged 46-60 years are 1.4 times more likely to suffer from illness, while, workers belongs who belong to age group of 26-35 years and 36-45 years are also more likely to get ill as compared to age group of 15-25 years, after controlling other explanatory variables. Social status of construction workers also determines status of illness. Workers belongs to schedule caste and schedule tribes are the highest vulnerable as compared to other social categories of construction workers. Being Muslim, construction worker is more vulnerable as compared to Hindu workers. Muslim workers are 1.4 times more likely to get ill as compare to Hindu workers. Educational status of construction workers also determines the status of fitness. Hence education played a vital role in health of construction workers. It is observed that worker belongs to primary education are 1.2 times more likely to get illness as compared to illiterate workers while middle educational category of workers are 1.4

Table 5.16: Result of Logistic Regression Model for Illness (No-0, Yes-1) among Construction Worker according to their Background Characteristics

	Explanatory Variable	Exp(B)	Sig. Level	S.E.
Sex	Male *(RC)*	1	-	-
	Female	1.774	0.125	0.374
Age	15-25 *(RC)*	1	0.694	-
	26-35	0.885	0.644	0.265
	36-45	1.060	0.851	0.311
	46-65	**1.403***	0.039	0.420
Caste	S.C/S.T. *(RC)*	1	0.285	-
	OBC	0.867	0.575	0.255
	Others	0.618	0.116	0.306
Religion	Hindu	1	-	-
	Muslim	1.449	0.193	0.285
Education level	No education *(RC)*	1	-	0.435
	Primary	1.216	0.501	0.290
	Middle	1.497	0.183	.0303
	Secondary & Above	0.951	0.861	0.287
Monthly income (Rs)	2000- 5000 *(RC)*	**1***	0.023	-
	5001-8000	0.775	0.329	0.261
	8001-11000	0.960	0.908	0.347
	11001-18000	**0.296****	0.004	0.423
Work Exposure	< 2 year *(RC)*	1	0.149	-
	2 – 5 year	1.513	0.156	0.292
	6 – 10 year	**1.467***	0.048	0.304
	>10 Year	**2.079***	0.023	0.323
Overtime	No *(RC)*	1	-	-
	Yes	**1.048***	0.025	0.214
Types of worker	Off-site Worker *(RC)*	1	-	-
	On-Site Worker	0.751	0.259	0.254
Food Intake Index	Low *(RC)*	1	-	-
	High	**0.746***	0.031	0.294
	Constant	1.353	0.473	0.421
	-2 Log Likelihood	580.591		
	Nagelkerke R^2	0.119		
	Model Chi-Square (d.f)	42.488** (19)		
	N	457		

Note: Significance Level p<0.05*, p<0.01 **, p<0.001***, *(RC)* - Reference Category
Source: Computed from Field Survey Data, 2015-16.

times more likely to get illness. Monthly income of construction workers shows that increasing income is associated with decreasing probability of getting illness. Workers who earned 5001-8000 are less likely to affect from illness, while workers belongs to 11001-18000 are least likely to get affected from any kind of illness as compared to the poorest category of construction workers. Number of years to exposure in construction market has considerable impact on illness. Results show that migrant worker who have more exposure in construction work, have high probability to being ill. They are two times more likely to get illness as compared to those workers who are less exposed (< 2 years) in construction work. Moreover, workers belongs to category of 6-10 years are 1.4 times more likely to get illness as compared to those workers who are less exposed (< 2 years) in construction work. Expectedly, workers who exercise overtime work in construction field are more likely to be affected from illness as compared to those who does not exercise overtime work. Similarly, on-site workers are less likely to be affected from illness as compared to those who worked on off-site construction. Food intake index for construction workers show that workers belongs to high value of index have lower probability of being illness as compared to those who belongs to low value of food intake index.

Thus, results suggests that in socioeconomic factor age, education, income and food intake are emerged as predictor of illness while in work characteristics, exposure to work and the overtime by worker have significant impact on probability to be get illness.

5.5: Healthcare Availability, Accessibility, Affordability among Construction Worker

Table 5.17 explains availability, accessibility, affordability of health care amenities and health insurance among construction worker through many dimensions. It is found that the largest proportion of construction worker (72.4 %) confirmed that they know location of health care unit nearby his/her current residence or construction site. A fair proportion of construction worker (15.5 %) was not aware of place of health care unit, followed by workers (12.0 %) who reported that there was no heath care unit near his/her construction site. Above data shows that universal and ubiquitous health care facilities are not available even in Metro cities of India which make construction worker to vulnerable to illness/disease and loss of income.

Table 5.17: Health Care Availability, Accessibility, Affordability and Health Insurance among the Construction Worker (in percentage)

Healthcare System Characteristics	Off-Site Worker N=194	On-Site-Worker N=263	All MCWs	N
Availability of Health Facility Nearby areas (N=457)				
No	19.6	6.5	12.0	55
Yes	77.8	68.4	72.4	331
Don't Know	2.6	25.1	15.5	71
Transportation Problem (N=457)				
No	74.7	76.0	75.5	345
Yes	25.3	24.0	24.5	112
Affordability Problem in Last one Year (N=457)				
No	41.2	57.8	50.8	232
Yes	58.8	42.2	49.2	225
Timing of Govt Health Facility Continent (N=291)				
No	81.9	93.4	87.3	254
Yes	18.1	6.6	12.7	37
Timing of Private Health Facility Continent (N= 166)				
No	12.8	11.0	11.4	19
Yes	87.2	89.0	88.6	147
Visit of Health Worker at residence (N=457)				
No*	35.1	46.4	41.6	190
Yes	64.9	53.6	58.4	267
Aware about Health Insurance (N=457)				
No	71.1	70.7	70.9	324
Yes	28.9	29.3	29.1	133
Covered Under any Health Insurance Scheme (N=457)				
No	92.8	87.5	89.7	410
Yes	7.2	12.5	10.3	47
Utilization of Health Insurance (N= 47)				
No	64.3	78.8	74.5	35
Yes	35.0	21.2	25.5	12

* Unaware (don't know) about health worker's visit are also considered as the no visit of health worker in their current residence.

Source: Field Survey, 2015-16.

In regard to types of construction worker, low proportion of onsite worker (68.4 %) were known to location of health unit nearby his/her construction site in comparison to offsite worker (77.8 %). It may be due to fact that higher proportion of onsite construction worker in comparison to offsite worker is the migrant from long distance and also in temporary nature. It is clearer through table that 25.1 per cent of construction worker don't know location of health care unit in comparison to negligible part of offsite worker (2.6 %). It may be due to that off site worker are mostly non migrant, permanent migrant and commuter. That's why, 19.6 per cent of offsite construction worker reported unavailability of health care unit nearby his/her residence in.

Almost one fourth of construction worker (24.5 %) faced problem to reach health care unit which shows that a large proportion of construction worker is prone to health problem and have lack of accessibility to utilize health facilities. It shows that universal health facilities are far from reach of migrant construction worker. Both onsite and offsite worker follow the same pattern as followed by all construction worker. It can be concluded that both offsite and on site worker have less accessibility to health amenities.

In case of affordability of health care, more than half of construction worker (50.8 %) is deprived to utilise health services. It is very high to on site construction worker (57.8 %) than 41.2 per cent of offsite. This may be due to fact that onsite worker has to send a large amount of money to his/her home to sustain his/her dependent which is compensated by compromising to his/her health.

When, construction worker was asked about suitability of timing of government health facility, a very large proportion of construction worker (87.3 %) reported that timing of government health facilities is not suitable to him/her. It is due to same working hours of worker and government health continents. Due to loss of work and income, worker does not access to government health centre. Almost 94 per cent of onsite worker does not find timing suitable to treatment at government hospital, which about 12 per cent more than offsite worker (81.9 %). Onsite worker has to bear this problem at large than offsite worker because of fear of loss of job due to absent at work site. When same question in regard to private health facilities were asked, answer was very affirmative. 88.6 per cent of construction worker finds timing of health services suitable to his/her. Almost same pattern has been observed in both offsite and onsite worker. Private health service providers have flexibility of timing and also available for long hours in a day even in early morning and late night.

Almost 41.0 per cent of construction workers were not visited by health worker at their current residence. There is about 11.0 per cent difference in off site and onsite worker.

Higher proportion of onsite worker (46.4 %) was not visited by any health worker his/her residence. Onsite workers are mostly in temporary and circular nature of migration, which may be cause of low level of attendance of health worker at their residence.

It clear from table that almost 71.0 per cent of construction worker is not aware about any kind of health insurance. Almost same proportion of offsite and onsite workers was unaware of health insurance. Same time, almost 90.0 per cent were not covered under any health insurance scheme. Larger proportion of onsite workers (92.8 %) was not covered under any insurance scheme than offsite worker (87.5 %). Onsite worker are mostly migrated and comes from other state which keep them out to be covered under health insurance scheme. Another side, high probability of non migrant and permanent nature of migration among offsite worker makes it possible to them to be in contact with local leader and social worker who help them to make available such services.

Migrant who were covered under any health insurance scheme, 74.5 per cent out of total covered workers had not utilised health insurance service. Again, non-utilisation of health insurance scheme is high for onsite worker (78.8 %) rather than offsite worker (64.3 %). Again, more migratory nature of onsite workers, lack of contact with local leader, non availability of information to utilise health insurance scheme can be put as causes to low level of utilization of health insurance.

5.5.1: Healthcare Facility Preferred By Construction Workers

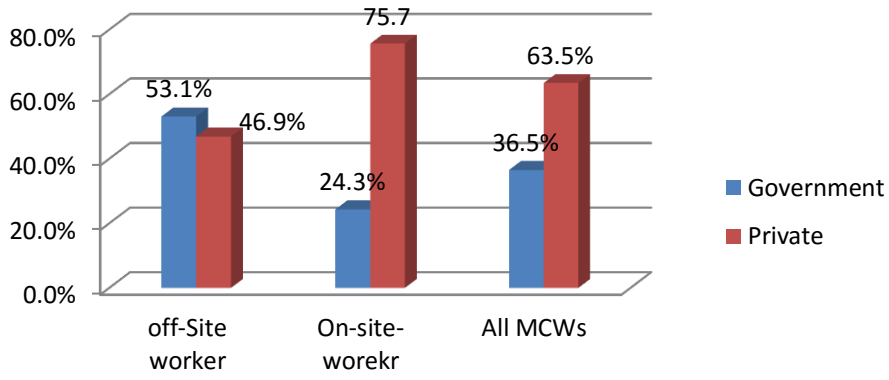
Table 5.18 illustrates that type of health centre which is preferred by migrant construction worker during any health problem. 63.5 per cent of migrant worker prefers to go private hospital/centre instead to go to government hospital/centre. Almost 76.0 per cent of onsite worker preferred to private centre which is very high in comparison to offsite worker (46.9 %).

Table 5.18: health facility preferred by MCWs during health problem (in percentage)

Health facility	**Off-Site Worker**	**On-Site- Worker**	**All MCWs**	N= 457
Government	53.1	24.3	36.5	167
Private	46.9	75.7	63.5	290

Source: Field Survey, 2015-16.

Fig. 5.10: Health Facility Prefered by MCWs during any Health Problem



5.5.2: Reason for Not Using Government Health Facility

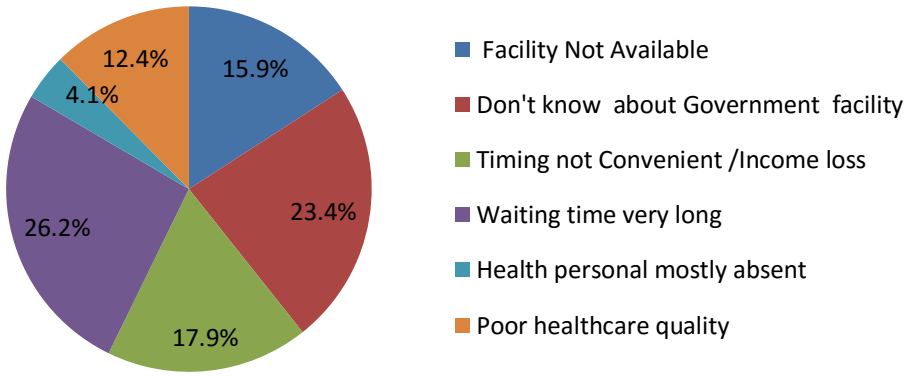
Migrant construction worker provides number of reasons to non utilisation of government health facilities. It can be seen through Table 5.19 that there is too long waiting time has been cited as the most important reason to not utilise government health facilities by one fourth of migrant workers. It is followed by not knowing about government facilities (23.4 %), timing not convenient/income loss (17.9 %), facilities not available (15.9 %) and poor health quality (12.4 %) respectively. 33.0 % of offsite worker cited too long waiting time as prime cause where as 31.2 % of onsite worker did not utilise government hospital due to not knowing about government facilities. Due to their migratory and circular nature of migration, onsite worker has low level knowing about government facilities. Another important reason to not utilise government health facilities is timing not convenient/income loss and too long waiting time has been cited respectively by offsite (20.9 %) and onsite worker (23.1 %) respectively. It is good finding that where as onsite worker (31.2 %) cited not knowing about government facilities as prime cause, it is the least important cause for offsite worker (6.6 %). It is noticeable that absent of health personal has been cited not as important reason by both onsite (2.5 %) and offsite worker (7.7 %).

Table 5.19: Reason for not using Government Health facility among MCWs (in percentage)

Reason	Off-Site Worker	On-Site-Worker	All MCWs	N= 290
Facility Not Available	17.6	15.1	15.9	46
Don't know about Government facility	6.6	31.2	23.4	68
Timing not Convenient /Income loss	20.9	16.6	17.9	52
Waiting time very long	33.0	23.1	26.2	76
Health personal mostly absent	7.7	2.5	4.1	12
Poor healthcare quality	14.3	11.6	12.4	36

Source: Field Survey, 2015-16.

Fig. 5.11: Reason for Not using Govermnet healht facility by MCWs



5.6: Health Seeking Behaviour among construction workers

Health-seeking behaviour is generally describes as the remedial actions that are taken by an individual during their ill-health. In this section author tries to explore healthcare seeking behavior adopted by the construction worker during their suffering from the illness.

Table 5.20: Healthcare-seeking by Construction worker for illness in last 30 days (in percentage)

	Off-Site-Worker	On-Site-Worker	All MCWs	N
Health care sought for Illness (N = 263)				
No Treatment	21.7	8.4	14.4	38
Home Remedy	0.8	2.1	1.5	4
Buy Drugs From Shop	20.8	23.8	22.4	59
Went To Local Doctor	20.8	35.0	28.5	75
Went To Health Facility	35.8	30.8	33.1	87
Reason for Not Seeking any healthcare (N= 38+4 =42)				
Illness Not Serious	81.5	100	88.1	37
No Health Facility Available Nearby	3.7	-	2.4	1
Financial Problems	11.1	-	7.1	3
Lack Of Time	3.7	-	2.4	1

Source: Field Survey, 2015-16.

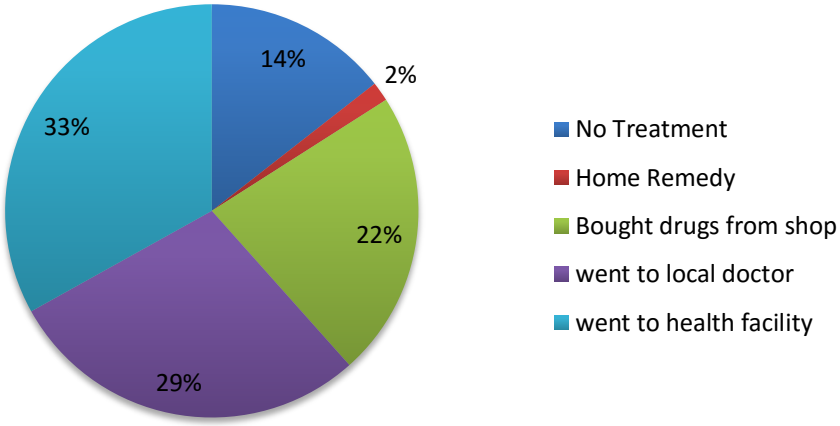
Table 5.20 illustrates about healthcare seeking behaviour among construction worker adopted during the suffering from illness. Around 14 per cent of construction worker did not seek any kind of treatment during illness and only 1.4 per cent opted for home remedy or treatment. These two health behaviour of construction worker are caused due to many reason. Illness is not taken serious by construction worker is the most important reason to not seeking a healthcare during illness. It constitutes 88.1 per cent of total worker who did not seek for treatment or opted for home remedy. Another noticeable reason to not seek any sort of treatment during illness is financial problem, which 7.1 per cent of total not seeking treatment and home remedy cited as reason. Other reasons which are found but least important are unavailability of health facilities nearby and lack of time.

Almost 84.0 per cent of construction worker seek some kind of health treatment. 33.1 per cent of total construction worker told that they went to health care facilities followed by visit to local doctor (28.5 %) and buy drugs from store (20.8%) respectively.

According to types of worker, almost 28 per cent of off-site worker did not seek any kind of health care during illness whereas, only 8.4 per cent of onsite worker behaved in this manner. The largest proportion of offsite worker (35.8 %) went to healthcare facilities followed by both buy drug from shop (20.8 %) and went to local doctor (20.8 %), equally cited as their option. In case of onsite worker, second and third important way to seek health care was going to health care facilities (30.8 %) and buy drug from shop (23.8 %) respectively. It can

be concluded that almost 40.0 per cent of total migrant worker did not take treatment under any kind of registered medical practitioner. It is about 43 per cent for offsite worker and 33 per cent for onsite worker. It puts worker on risk in regard to their health. However, it is difficult to say that person who goes to health care facilities and local doctors, whether they are registered medical practitioner or not.

Fig. 5.12: Health Care Seeking by MCWs for Illness in last one Month



5.6.1 Health Seeking Behaviour and Socioeconomic, Work and Migration

In this section association between healthcare seeking behaviour and various socioeconomic, worker and migration characteristics are discussed. Chi-square test is applied to this relationship between these variable.

Table 5.21 presents association between socioeconomic, demographic and treatment sought by construction worker during illness. In this analysis no variable are found significant in chi-square test. Male worker (17.2%) had been observed with no treatment seeking as compared to female worker (6.7 %). male worker prefer to go health facility during

Table 5.21: Treatment Sought by MCWs according to their Socioeconomic and Demographic Characteristics (in percentage)

Socioeconomic & Demographic Characteristics	No Treatment*	Buy Drugs from Shop	Went to Health Facility	Went to Local Doctor	χ^2	*P-Value (d.f.)*
Sex						
Male	17.2	23.2	33.0	26.6	4.944468	0.1759 (3)
Female	6.7	16.7	33.3	43.3		
Age						
15-25	10.0	16.3	40.0	33.8		
26-45	20.9	23.5	29.4	26.1	11.675840	0.0696 (6)
46-65	6.7	33.3	33.3	26.7		
Caste						
S.C/S.T.	17.9	21.1	29.5	31.6		
OBC	11.8	26.8	35.4	26.0	7.684487	0.2621 (6)
Others	24.4	12.2	34.1	29.3		
Religion						
Hindu	18.5	21.5	33.0	27.0	4.347392	0.2263 (3)
Muslim	7.9	25.4	33.3	33.3		
Education						
No education	10.1	20.2	33.7	36.0		
Primary	14.8	21.3	29.5	34.4	14.0659	0.1200 (9)
Middle	15.8	26.3	40.4	17.5		
Secondary & above	26.8	23.2	28.6	21.4		
Media Exposure						
No	14.1	23.2	33.1	29.6		
Partially	17.3	25.3	33.3	24.0	3.03294	0.805 (6)
Full	19.6	15.2	32.6	32.6		
Monthly Income						
2000 - 5000	20.8	18.2	37.7	23.4		
5001 - 8000	13.2	22.5	34.9	29.5	6.825011	0.337 (6)
8001 - 11000	15.8	28.1	22.8	33.3		
	16.0	22.4	33.1	28.5	N=263	

* Due to very less cases of home remedy (N= 4) it is included with no treatment seeking.
Note: Significance Level $p<0.05$*, $p<0.01$ **, $p<0.001$***,
Source: Field Survey, 2015-16.

illness. whereas, female preferred to visit local doctor. Young working group construction worker are found with largest share of no treatment. At younger aged (15-25 years) worker preferred to go to health facility. The older age worker (46-65 years) got their treatment from health facility and buy drugs from shop. In respect to caste, about 60 per cent of schedule caste and schedule tribes (SC/ST) worker sought their treatment from health facility and local doctors. This trend also has been observed among other castes of construction work. Similar

pattern has been identified among worker with religion. Hindu worker are found higher to not using any treatment as compared to Muslims. Education is also not found significant in chi-square. Similar to education, media exposure doesn't show any significant relationship with treatment sought by worker during illness. There is no significant association between income and illness. It shows that as monthly income increase no treatment for illness shows decreasing trends. While treatment by local doctor shows a increasing pattern.

5.6.2: Health Seeking Behaviour and Work and Migration status

Table 5.22 show that only types of worker has a significant association with healthcare seeking. Off site worker mostly seek treatment form health facility whereas, on-site worker mostly preferred to go for local doctor and health facility but in health facility they prefer mostly the private due to their time constraint.

Table 5.22: Treatment Sought by MCWs according to their Work and Migration Status (in percentage)

Work & Migration Characteristics	No Treatment*	Buy Drugs from Shop	Went to Health Facility	Went to Local Doctor	χ^2	*P-Value (d.f.)*
Types of Worker						
Off-Site Worker	22.5	20.8	35.8	20.8		
On-Site Worker	10.5	23.8	30.8	35.0	**11.2207***	0.01059 (3)
Skill Status of Worker						
Unskilled	15.3	18.8	32.6	33.3		
Semi-Skilled	15.4	26.9	36.5	21.2	8.48867	0.20444(6)
Skilled	26.7	26.7	13.3	33.3		
Overtime in Work						
No	18.5	26.7	32.6	22.2	7.218512	0.06525(3)
Yes	13.3	18.0	33.6	35.2		
Migration Status						
Permanent /Non-Migrant	22.2	14.8	38.9	24.1	4.585303	0.204807 (3)
Temporary Migrant	14.4	24.4	31.6	29.7		
Duration of Migration (N=244)						
< 1 & 1 Year	21.1	26.3	31.6	21.1		
2-5 Years	7.7	21.2	26.9	44.2	8.056214	0.234014(6)
> 5 Year	16.8	23.1	33.5	26.6		
All MCWs	**16.0**	**22.4**	**33.1**	**28.5**	**N=263**	

* Due to very less cases of home remedy (N= 4) it is included with no treatment seeking.
Note: Significance Level p<0.05*, p<0.01 **, p<0.001***,
Source: Field Survey, 2015-16.

Similarly skilled worker mostly prefer to go local doctor whereas, semi-skilled or unskilled worker use health facility and local doctor. In case of overtime work has been done by worker, he mostly seeks a treatment from local doctor. Worker with no overtime mostly prefer to go health facility to treatment of illness.

In migration characteristics, permanent and temporary migrant worker mostly prefer to take a treatment from health facility but temporary use less as compared to non-migrant and temporary migrant worker. Temporary migrant worker who lives mostly on site, also go to local doctors or to buy drugs from store. While, in case of duration of migration, worker with less than one or one year are observed more with no treatment seeking as compared to worker with longer duration of migration. Worker with 2 to 5 year duration of migration mostly prefer to go local doctor while worker with more than 5 year migration seeks treatment mostly from health facility.

Table 5.23 presents detail on healthcare sought by migrant construction worker during illness in last one month according to health problem and healthcare related characteristics. In need factor, types of illness (major/minor) and duration of illness has significant association with treatment sought by construction worker. In case of major illness, worker (55%) prefer to go mostly health facility and local doctor, while for minor illness they buy drugs at store for their illness and a significant proportion of worker (32.5%) don't seek any treatment. In respect to duration of illness, for illness with duration of 1 to 3 days most of them prefer to go a local doctor or bugs drugs from a store which constitutes around 60 per cent of worker. As duration of illness increase then the worker mostly try to seek treatment from a health facility. The availability of health facility in nearby their residence has positive impact in utilization of healthcare from health facility. In case of non-availability of health of nearly 47 per cent of worker prefer to buy drugs from store for treatment of his/her illness. Availability of health facility has association with treatment sought by worker. In respect to affordability and transportation problem with healthcare facility, it has been observed with significant association with treatment seeking. Health worker visit at residence has a positive impact on utilization of health facility and local doctor. Health insurance coverage also don't show a significant impact on use of health facility as it is not found significant.

Table 5.23: Treatment Sought By MCWs according to Health Problem and Health Characteristics (in percentage)

Health Related Characteristics	No Treatment Sought[#]	Buy Drugs From Shop	Went To Health Facility	Went To Local Doctor	χ^2	*p-value(d.f.)*
Types of Illness						
Minor	32.5	42.3	8.1	17.1	**134.2829*** **	0.000 (3)
Major	1.4	5.0	55.0	38.6		
Duration of Illness						
1-3 Days	18.6	27.1	21.2	33.1		
4-7 Days	15.1	24.7	31.2	29.0	**30.434*** **	0.000(6)
> 7 Days	11.5	7.7	63.5	17.3		
Availability of Health Facility						
No	18.8	46.9	9.4	25.0		
Yes	14.4	17.0	41.2	27.3	**29.37314*** **	0.000(6)
Don't Know	21.6	29.7	10.8	37.8		
Transportation Problem						
Yes	19.0	24.1	31.0	25.9	0.79262	0.8512(3)
No	15.1	22.0	33.7	29.3		
Affordability Problem						
No	13.4	27.7	26.8	32.1	6.43874	0.0921(3)
Yes	17.9	18.5	37.7	25.8		
Visit of Health Worker						
No#	17.9	24.5	34.9	22.6	3.100859	0.37633(3)
Yes	14.6	21.0	31.8	32.5		
Covered Under Health Insurance						
No	14.8	23.3	33.5	28.4	2.76758	0.42886(3)
Yes	25.9	14.8	29.6	29.6		
All MCWs	**16.0**	**22.4**	**33.1**	**28.5**	**N=263**	

#unaware about health worker's visit is also considered as the no visit of a health worker in their residence.
* Due to very less cases of home remedy (N= 4) it is included with no treatment seeking.
Note: Significance Level p<0.05*, p<0.01 **, p<0.001***,
Source: Field Survey, 2015-16.

5.6.3: Determinant of Healthcare Seeking Behaviour among Migrant Construction Worker

Factors affecting treatment seeking behavior of construction worker are depicted in table 5.24 by odds ratio obtained through binary logistic regression. In this logistic model, dependent variable is health seeking behavior which coded in '0' and '1' for the purpose of analysis. '0' denote no treatment and '1' denotes any kind of healthcare sought. Model is highly signigicant (χ^2 =86.6869***) and Nagelkerke R-Square (R^2 = 0.4804) reflect a moderate level relationship between dependent variable and independent variables.

Results show that females are 1.3 times more likely to receive health care treatment as compared to male. Workers, who belong to older category of age i.e. aged 46-60 years, have the highest probability to receive any kind of health care treatment as compared to aged 15-25 years. Social category of worker also influence treatment seeking behavior as results show that worker belongs to 'other backward caste' have higher probability to receive health care treatment as compared to schedule caste and schedule tribes. OBCs are about 2 times more likely to seek health care as compare to SCs/STs. It can be observed from analysis that educational attainment is very important player for treatment seeking behavior. Expectedly, highly educated workers have higher probability of treatment seeking behavior. Primary educated people are 2.3 times more likely to get treatment while middle and above educated workers are 2 times more likely to treat himself as compare to illiterate workers. Along with education, wealth status of construction worker is also an important player for health seeking behavior. Results show that probability of health seeking behavior is increasing with increase in income. Workers belong to income between Rs. 5001-8000 are 2.5 times more likely to receive health as compared to the poorest worker who belongs to Rs. 2000-5000. On the other hand, worker earning more than Rs. 8000 are about 2 times more likely to receive treatment seeking behavior for their health as compare to the poorest worker. Surprisingly, temporary migrant workers who are engaged in construction activities are more likely to treat themselves as compared to those workers who are permanent migrant.

On-site workers are observed 3 times more likely to adopt healthcare treatment as compared to worker who resides off-site. It is expected that workers who suffer from major type of illness, can have higher probability to treat themselves. Result shows that workers suffering from major illness are 7.3 times more likely to adopt health-seeking treatment as compared to those workers who are suffering from minor illness. Similarly, duration of illness also affect treatment-seeking attitude of construction worker. Workers who experienced more than seven days of illness have highest probability to treat themselves as compare to workers who suffered less time period of illness. On other hand, workers who suffer 4-7 days of illness are 1.6 times more likely to seek treatment for their health. Workers who have easily accessible transportation facility have higher probability to treat themselves as compared to workers who experienced transport problem.

Table 5.24: Result of Logistic Regression Model for Healthcare seeking Behaviour among Construction Worker according to their Background Characteristics

Explanatory Variable		Exp(B)	Sig. Level	S.E.
Sex	Male *(RC)*	1	-	-
	Female	1.384	.741	.984
Age	15-25 *(RC)*	1	.050	-
	26-45	.444	.131	.537
	46-65	2.852	.294	.998
Caste	S.C/S.T. *(RC)*	1	.275	-
	OBC	1.930	.201	.514
	Others	.829	.787	.694
Education Level	No education *(RC)*	1	.227	
	Primary	2.368	.122	.557
	Middle & Above	2.089	.204	.580
Monthly Income (Rs)	2000- 5000 *(RC)*	**1**	.273	
	5001-8000	2.515	.109	.575
	> 8000	1.909	.329	.662
Migration Status	Non/Permanent migrant *(RC)*	1	-	-
	Temporary Migrant	1.269	.696	.608
Types of Worker	Off-site Worker *(RC)*	1	-	-
	On-Site Worker	**3.047***	.040	.636
Overtime	No *(RC)*	1	-	-
	Yes	**0.827***	.036	.486
Types of Illness	Minor	1	-	-
	Major	**7.394*****	.000	.807
Duration of Illness	1-3 days *(RC)*	1	.090	
	4-7 days	**1.611***	.039	.498
	> 7 days	1.682	.052	.722
Availability of Health Facility	No *(RC)*	1	.368	-
	Yes	**0.593***	.042	.711
	Don 'know	0.275	.039	.938
Affordability Problem	No *(RC)*	1	-	-
	Yes	**0.374***	.048	.497
Transportation Problem	Yes *(RC)*	1	-	-
	No	1.581	.403	.548
Health Worker Visit In Residence	No *(RC)*	1	-	-
	Yes	**1.581***	.030	.484
	Constant	.702	.776	1.246
	-2 Log Likelihood = 144.314		Nagelkerke R^2 = 0.4804	
	Model Chi-Square (d.f) = 86.6869***(20)		N= 263	

Note: Significance Level p<0.05*, p<0.01 **, p<0.001***, *(RC)* - Reference Category
Source: Computed from Field Survey Data, 2015-16.

Result shows that workers who have no transport problem are 1.5 times more likely to treatment seeking behavior as compared to workers who face transportation problem. Finally, visit to residence of migrant workers is also examined in analysis for treatment seeking behavior. Results show that workers who visit to their residence are 1.5 times more probability to treat themselves as compared to those workers who does not visit to their residence.

Thus, result of model shows that work, need factor and health characteristics have great impact on healthcare seeking behaviour. In work characteristics, overtime by the worker and in need factor, seriousness of illness and duration of illness emerged as significant predictor of healthcare behaviour. Similarly, in healthcare related characteristics availability of health facility, affordability of healthcare and health worker visits in residence area affect healthcare seeking among construction worker.

5.7: Conclusion

In his behavioural model of healthcare utilization, Andersen describes that health seeking behaviour is determined by three sets of factors i.e. predisposing, enabling and need factors. It shows that health problem also determines treatment seeking behaviour. Therefore, to assess health status and problem among construction worker will be relevant. The result of study suggests that construction worker consumed very low or medium level nutritional food in their daily diet and only very small proportion of construction worker takes high nutritional food in their dietary pattern. Similarly off-site and permanent / non-migrant worker consume more nutritional food in their daily dietary pattern than temporary and on-site worker. In respect to health habits, Tobacco chewing is the most practiced (54.5%) among construction worker, followed by smoking (30.4 %) and alcohol drinking (25.2 %) respectively. Smoking is more common among off-site worker than onsite worker, whereas, tobacco chewing is more common among on-site worker. Theses health habits make construction worker more vulnerable to their health status.

In regarding to Health problem, finding of present study supports literature that (*Adane et al. 2013, Akram 2014)* construction worker are highly vulnerable for injuries. Nearly 39 per cent construction worker are found with injuries in last one month. Female worker are observed to experience low injuries as compared to male worker due to nature of work. Almost 94 % of migrant worker injured due fracture, cut and scratches in their body parts. The field observation reveals minor injuries are common but worker doesn't consider it as serious

health problem which sometime impact their life style and work due to become a major problem. The Load carrier and mason's work is observed with biggest share of injuries among worker. Only 3.5 per cent of worker found with disability and off-site and female are most affected by disability as compared to their counterpart.

In case of illness, nearly 58 per cent of construction worker is found to experience illness. Results also suggest that non-migrant or permanent migrant and off-site worker have high probability to experience an illness than their counterpart. These findings support the *"healthily migrant hypothesis"* (*Lu & Qin 2014*). Construction worker who work in big city like Delhi has higher chances for illness compared to small cities, which reflect city's living and working environmental has its impact on their health. According to nature of disease, seasonal diseases e.g. cold and cough, fever and occupation health problem e. g. body pain and the accidental injuries are observed major causes for illness among worker. Both male and female worker are affected by fever but a significant proportion of female worker is affected by occupation health problems which reflects that construction worker pose health risks. Occupational health problems e.g. accidents injuries, burns and electric shocks and fever such as Malaria and Dengue are found major causes to hospitalization among worker. This also applies to male worker but in case of woman worker, pregnancy related health problems are observed as major cause. It reveals that occupational health problems play a vital role to determine their health status. Illness and hospitalization cause economic burden on construction worker not only in form of health expenditure but also in form of income loss and job loss.

In respect to current health status, results support healthy migrant hypothesis. Male worker, on-site worker and temporary migrant workers are found healthier as compared to their counterpart. When impact of migration and work on their health is studied, majority of worker responded that their health distorted after migration and joining the work.

The result of cross tabulation shows in socioeconomic characteristics age, education, income, nutritional food intake and number of working days, exposure to work in work characteristics have a significant association with illness. Multivariate analysis for suffering from an illness suggests that theses socioeconomic and worker related factor are emerged as significant predictor of illness suffering among the construction worker.

In relation to healthcare system characteristics, mostly of worker said that health facility is available in their nearby but on-site are worker are found unaware due to their migratory

nature. As construction work is concentrated in urban areas therefore, worker are affected less to transportation problem. But, nearly 50 per cent worker faced affordability problem regarding to healthcare. More than 80% worker said that timing of government health facilities is not convenient, while, private health faculty's timing is convenient for them. It creates a barrier among migrant worker to access government health facilities. The visit of health worker is also found low particularly in case of on-site worker. health insurance also has impact on utilization of healthcare, in worker, only one-third of worker are aware about health insurance and only 10.3 % are covered under a health insurances schemes. Out of that only one-fourth worker utilize it. The result also suggests most of worker prefer to go private health facility but off-site worker generally prefer government health centers. Major reasons for not using government health facility are observed waiting too long and unaware about the facility. On-site worker are most affect due to unawareness about it.

Result of healthcare seeking shows that most of them seek their treatment from local doctor and health facility but a small proportion of worker prefer to buy drugs for their illness. On-site worker mostly seek their treatment from local doctor, while, off-site prefer to go mostly health facility. Illness is not considered as serious is observed major reason for not seeking any treatment by construction worker. The result of association among socioeconomic and demographic factor show that health seeking behavior varies with these socioeconomic and demographic characteristics but none of them observed as to have a significant association with them whereas, in work and migration characteristics, only worker's type has been observed significantly associated with treatment seeking for illness.

In need factor, types of illness (major/minor) and duration of illness are significantly associated with treatment. In case of major illness, worker (55%) prefer to go mostly health facility and local doctor, while for minor illness they buy drugs from store for their illness and a significant proportion of worker (32.5%) don't seek any treatment. The availability of a health facility in nearby residence has positive impact in utilization of healthcare from health facility.

The result of multivariate analysis suggests overtime in work, type of illness, duration of illness; availability and affordability of healthcare and health worker visit are emerged as significant predictor of healthcare behaviour among construction worker. Thus, it shows that work, need factor and health characteristics play a significant role to determine health seeking behaviour.

CHAPTER VI

Summary and Conclusion

"Health is Wealth" is a famous saying which highlights significance of health among the people. Therefore, health is considered as paramount aspect for life. Each nation tries to provide basics health care facilities in order to improve health statistics of its population. Health status of individual determines not only by socioeconomic, demographic factors but also environmental and health care system related factors. Health seeking behaviour is significant aspect of health. It includes illness and health beliefs which are shaped by various socioeconomic and healthcare related determinants. Studies demonstrate that health seeking behavior is varied among different population groups. It is behavioral phenomena which is determined by different individual, environmental and health system related factors (Andersen 1995). Due to these characteristics health seeking behaviour vary among different subgroups of population e.g age, woman, migrant and worker population.

Migrant construction worker is one of the most vulnerable group among population regarding to their health. In India, there are around 30-40 million migrant worker. Construction industry is the biggest source of employment in urban informal (Deshingkar & Akter, 2009; Thorat, and Jones, 2011). Migrant construction worker are vulnerable due to not only for their low socioeconomic condition but also for their working and living conditions. Migratory nature of construction worker imposes health vulnerability among them. At one side, their living and working conditions increase probability to impose health risks as there are mostly worker with 3D Jobs (Dirty, Dangerous and Demeaning) while other side, their alien nature at urban centres due to migration, make them more vulnerable to access healthcare facilities.

Present study has attempted to understand health vulnerability among migrant construction worker with regards to assess their health problems and health seeking behavior. Through this study, we tried to see a relationship between heath seeking behaviour and migration, socioeconomic status and working and living conditions of migrant construction worker. Present chapter is divided into two major sections. In first section, we discussed about major finding of study and last section provides some policy implication and suggestion to make study fruitful.

6.1: Major finding of study

This section has major three sub-sections. In first subsection, the author discusses major finding of chapter third which deals with migration dynamics of construction worker. Second sub-section discusses about finding of chapter fourth which covers socioeconomic, living and working conditions. And in last sub-section we converse finding of fifth chapter which deals with health problem and health seeking behaviour. Chapter fifth basically not only discussed health problem and health seeking behaviuor but tries to establish a correlation with socioeconomic and living and working conditions of migrant construction worker.

6.1.1: Migration Dynamics among Construction Worker

Present study explains migration dynamics among construction worker which is a board objective. Before analyzing health seeking behavior, study tried to see migration pattern. Following are the major finding of chapter third regarding to migration dynamics-

- Construction work is dominated by migrant worker and majority of them belong to temporary migrant worker. While small city like Bhiwadi observd with highest share of non-migrant whereas, in big cities like Delhi has attracted more temporary as well as permanent migrant worker.
- In respect of the origin place, nearly 96 percent migrant construction workers come from rural areas.
- In NCR, nearly 97 percent of construction workers are migrated from the Empowered Action Group states (EAGs). They are lagging behind in their socio-economic development. But around three-fourth of the migrant construction workers migrate from three states Bihar (33.4%), Uttar Pradesh (29.2%), and Madhya Pradesh (11.8%).
- Construction worker travels long distance to acquire work in construction sector. A temporary migrant travel longer distance, while permanent migrant come mostly from shorter distance.
- Work or employment emerged as prominent pull factor for migration among workers, whereas, inadequate income at native place and poverty work as push factor for their migration. In case of gender, work or employment remain the major reasons for migration for both men and women worker, but, a significant proportion of women also move with their family during migration in construction sector to provide extra income support for their family.

- The temporary migrant workers are mostly newly or early migrant workers; those are recently migrated whereas, their counterpart permanent migrant are observed having more migration experience as they are migrated long before. Temporary migrant worker is more tend to start their migration at early age in contrast to permanent migrant.
- In case of work status before migration, most of migrant workers were engage in construction work before migration. Permanent migrant workers turn towards construction work more than the temporary migrant workers after their migration.
- Majority of construction worker said that they stayed more than one place during their migration process. When worker come directly or after stay only one or two places they prefer mostly cities those have greater economic importance like Delhi and Gurgaon.
- Contractor plays a significant role in migration of construction worker. Permanent migrant mostly, prefers to migrate themselves or with their family and relatives, while, the temporary migrant is more dependent on contractor and village co-worker or friend.

6.1.2: Socio-Economic and Demographic Characteristics of Migrant Construction Worker

In this study, it is an objective to analyze socioeconomic condition of construction worker. Major finding related to their socioeconomic and demographic status are given below-

- On-site-worker, are mostly belongs to joint family, while, off-site-workers comes mostly under nuclear family.
- Most of construction worker belong large size family members. It reflects as size of family increase more people start to employ in construction work.
- On-site worker can be seen as living alone due to their migratory nature, whereas, majority of off-site worker reside with their family as they are non-migrant or permanent migrant.
- Male is dominant among construction worker as head of their household which reflect patriarchal character of worker community.
- Male and younger population is more to take part in construction work as compared to their counterpart female and older people.

- In respect to social group, Construction work is dominated by backward and suppressed community such as OBC and scheduled Caste.
- Most of the construction worker belongs to have very low education. Similar to education status, temporary and onsite worker are observed with low exposure to mass media compared to permanent and off-site worker.
- The result proposes majority of construction work are landless or have very less land. On-site worker are observed with more land as compared to off-site worker.
- Off-site workers are can be seen with their own house but majority of construction worker whether they are off-site or on-site, most of them don't have their own home and dwell in rented house or temporary settlement at construction site.

6.1.3: Living and Working Conditions of Migrant Construction Worker

In regarding to objective of living and worker condition following are major findings.

- Construction work is mostly dominated by unskilled or semi-skilled workers.
- Wages are very dynamic in construction sector. It not only varies according to nature of construction work but also vary according to place of worker. Male worker, skill worker, off-site worker acquire higher daily wage as compared to their counterpart.
- Most of on-site worker resides in temporary "Jhuggis" at construction site. While, off-site worker live mostly in slum and non-slum area.
- Construction worker are lagging behind to access basic household facilities such as toilet, bathroom. On-site worker and female workers are more suffered due to unavailability of toilet and bathroom facility. Poor living conditions of household facilities pose health risk among them particularly among site workers.
- On-site migrant worker has been observed to do more work than off-site worker as they are mostly employed in big and longer time continue running projects. While, off-site worker has less chance to work in a month due to footloose nature of their job.
- Overtime is common in construction work but this phenomenon is observed more among on site worker.
- Off-site worker have more experience of construction work in comparison to on site worker. This could be possible as site worker are young and migrant while off-site worker are mostly old, non-migrant and permanent migrant.

- Construction work is very dreadful in regard to riskiness for injuries/accident, dust and noise pollution. It can cause more health risk.

In conclusion, it can be said that on-site-worker are more vulnerable in regards to their socioeconomic and living and working condition compare to off-site worker due to their migratory nature.

6.1.4: Health problem among Migrant Construction Worker

In respective to objective of, to study health problems among construction worker following major finding are observed from present study.

- Construction worker consume very low or medium level nutritional food in their daily food diet. Off-site workers, who are mostly permanent / non-migrant worker, consume more nutritional food than temporary and on-site worker.
- In respect to health habits, Tobacco chewing and smoking are the most practiced among construction worker.
- Construction worker highly vulnerable for injuries as 39 percent construction worker are found suffered from injuries. Female worker are less affected by injuries as compared to male worker due to nature of work.
- Disability also seems major health problems among worker as nearly 3.5 % workers are reported with disability.
- Illness or disease imposes great health risks for construction worker. Non-migrant or permanent migrant or off-site worker has high probability to experience an illness than their counterpart. These finding support the “healthily migrant hypothesis”.
- Construction worker from big city e.g. Delhi has higher chances for illness compared to small cities, it reflects city’s living and working environmental has its impact on their health.
- In nature of illness, seasonal diseases e.g. cold and cough, fever and occupation health problem e. g. body pain and the accidental injuries are observed major causes for illness among worker. A significant proportion of female worker is affected by occupation health problems. It shows female are more vulnerable for their occupation health.
- Occupational health problems and fever such as Malaria and Dengue are found major causes for hospitalization among worker. It reveals that construction workers are highly vulnerable for occupation health risk.

- Illness and hospitalization cause economic burden on construction worker not only as health expenditure but also in form of income loss and job loss.
- In respect to current health status, Male worker, on-site worker and temporary migrant workers are found healthier as compared to their counterpart. But migration and work has been observed as to distort their health.
- In socioeconomic variables age, education, income, nutritional food intake and number of working days, exposure to work have a significant association with illness. Multivariate analysis also suggests that socioeconomic and worker related factors are major predictor for illness among construction worker.

6.1.5: Healthcare Related Characteristics among Migrant Construction Worker

Following finding has been observed regarding to objective of to assess healthcare availability accessibility, and affordability -

- In case of availability of health facility and transportation problem, they are not found as big issue for worker but on-site worker are unaware about it due to their migratory nature.
- Affordability of healthcare seems an issue to migrant construction worker.
- Inconvenient of timing of government health facility observes as major barrier for access health care. This case is not found in regard to private health facility.
- Visit of health worker observe low particularly in case of on-site worker.
- Workers are mostly unaware about health insurance and only one-tenth of all workers are found with cover under health insurance.
- Most of the worker prefers to go private health facility during illness but off-site worker generally prefer government health centers. Most significant reasons to not using government health facility are observed as too long waiting time and unawareness about the facility.

6.1.6: Healthcare seeking among Migrant Construction Worker

To analysis health seeking behavior among construction worker, was one of major objective of this study. In respect to this objective following finding are observed-

- Majority of worker seek treatment from local doctor and health facility but a small proportion of worker prefer to buy drugs for their illness.

- On-site worker mostly prefer to go local doctor for treatment seeking, while off-site mostly visit health facility for treatment.
- Illness not considered as serious can be cited as major reason for not seeking any treatment by construction worker.
- Association among socioeconomic and demographic factor show that healthcare seeking behavior varies with socioeconomic and demographic characteristics. But in work and migration characteristics, only worker's type has been observed as a significant association with treatment seeking for illness.
- In need factor, such as types of illness (major/minor) and duration of illness have significant association with treatment seeking and for health care factor, only availability of a health facility has show a positive impact in utilization of healthcare from health facility.
- The result of multivariate analysis suggests overtime, type's of illness, duration of illness availability and affordability of healthcare and health worker visit are emerged as significant predictor for determining healthcare seeking behaviour among construction worker. Thus, it shows that work, need factor and health characteristics play a significant role to determine healthcare seeking behaviour

6.2: Policy Implication and Suggestion

The result of study shows migrant construction worker are the most vulnerable to their health issues. Their health vulnerability is not only affected by low socioeconomic status but also their poor living and working conditions and its migratory nature increases risk for their poor health status. Therefore, following policy implication and suggestion will be helpful to minimize their health vulnerability and strengthen their health seeking behaviour.-

- Construction worker has high probability for fatal injuries due to work nature, therefore, safety gears should be mandatory to use at work time among worker.
- Worker in construction work are prone to injuries due to work, therefore, a first aid kit measure should be compulsory. Most of work site doesn't have any first aid kit particularly at individual construction site.
- Occupation health problems among worker can be minimised by regulating the working conditions at work site such as regulating working hour.
- Majority of construction worker reside on work site or nearby work site where living condition and basic facilities are found in dreadful condition , those impose health risk

not only work but also for their family. Therefore, need to make an effort for improve living conditions at work site.

- Migrant worker are alien for cities and they are mostly unaware about healthcare system in migrated city therefore, there is urgent need to make urban public healthcare system inclusive for them.
- Migrant construction worker utilise less the public health care facility due to their time constraint. Therefore, Effort should be made to make this public healthcare facility convenient for them.
- Health worker visit has a positive impact on the utilization of public healthcare, therefore, a regular visit of health worker can improve their health seeking behaviour.
- In keeping the occupational health vulnerability among migrant construction worker, health camps should be organised at the work site with help of civil society.
- These worker are mostly unaware about health insurance and has low coverage, therefore, a mechanism system should be placed for them regarding to health information which can provide information to them.

Thus, present study suggests that construction worker is highly vulnerable to their health problem and mostly rely on private healthcare system. Therefore, a concrete effort should be made by applying above discussed suggestion to make urban public health system more inclusive for this outsider population.

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Appendixes II

HEALTH SCHEDULE

MIGRANT CONSTRUCTION WORKER

Hello !

I……., is a PhD research scholar at Jawaharlal Nehru University, New Delhi. We are conducting a survey regarding to Health issues of the migrant construction workers. In this survey, we will ask you some information regarding to personal detail, your work, and migration and health issues to fill this questionnaire. Your answers will be used only for research purpose.

In this whole process will take nearly 10-15 minutes to complete this schedule. Whatever information you provide will be kept confidential and will not be shown to other persons. To make your study successful, please be entirely frank and open in your comments and answer each question as fully as you can.

In this connection, do you want to ask me anything?

May I begin the interview now?

Thank you!

Unite of Sample: Construction worker who are working in construction work since last 12 months.

Whether Construction Worker's agree for interview ? Yes ……1 […….]

No ……...0 […….]

City	
State	
Area where survey conduced	
Place from sample collected*	

Name of Respondent	
Current Address	
ContactNo.	

**Place :* *Construction Site-1, Labour Chock -2*

A. Individual Characteristics

Q. No.	Questions	Code
1	Place of current Residence	Rural……1 Urban ……..2
2	Living with family or alone?	Living alone ……1 Living with family ……..2 Living with others ……...3
3	Type of family	Joint……..1 Nuclear …….2
4	Head of the family	
5.	No. of person dependent on you in family	

Q. No.	Questions	Code
1	Caste	ST. 1 SC…2 OBC .3 Others …4
2	Religion	Hindu..1 Muslim….. 2 Others ..3
3	Media Expose	*Items* *Daily* *at least once in a Week* *Never* T.V./Raidio: ……. …… …… Newspapers : …… …… ……...

Background Characteristics of worker and its Family Members

Name (Firs one always be a respondent)	Age	Sex	Marital status	Education *(Last passed class)*	Occupation	Avg. Monthly Income (Rs.)	Relation to family Head
1.							

D. Current Residence Household Characteristics

S. No.	Questions	Code
1.	Area where you currently live	Rural area……1 Slum area…….2 Non-Slum Area ……3 constitution site ……4 } Urban Area
2	What kind of house you live?	Owned ……1 Rented …….....2 Temporary house at Site ……..3
3	Type of current house where you lieve?	Kutcha ……1 Semi-Pucca……..2 Pucca ……3
4	Roof of house	
5	Total No. of member live in this house	
6	Total No. of rooms & window in House	Rooms : ……. Windows : ……..
7	House is protected from Cold/Rain/heat/Dust/Wind	Yes -1 No – 0 Heat : …….. …….. Rain : …….. …….. Cold : ……. ……. Wind/Dust: …… ……
8	Atmosphere surrounding your House	No Polluted smell/smoke/dust……1 Sometime polluted smell/smoke/dust……..2 Always pollute smell/smoke/dust ……3
9	Source of drinking water	Pipe Water ……1 Tube-Well/Hand pump ……..2 Tanker ……..3 Other (specify)…….…….
10	Latrine facility	No Toilet /Open……1 Public/shared toilet ……..2 Own toilet……..3

11	Bathroom facility	Separate room …….1 Open in Home …….2 Out of house ……3
12	Separate room for Kitchen	NO ……0 Yes……..1
13	Fuel used for cooking?	Wood/Cow Dung …….1 Kerosene Oil ……...2 LPG …….3 Electricity ……4 *Other (Specify)*……..
14	Source of Lighting	
15	Sewerage Facility	No Sewerage ……0 Open kutcha……..1 Open pucca-……..2 Covered pucca……...3
16	Having land? If **YES** then how much?	Yes…1 No…0 (……)

E. Migration Characteristics : *(If non-migrant then skip this whole section)*

S.No	Question	Code	Skip
1	What kind of Migrant person you are (Migrant Status)? A current place is same as present usual place of residence …… Non-Migrant……1 B. Last usual pace is different from current place but current living as permanent … Permanent Migrant ….2 C. worker intend to migrated to last usual place of residence(home or any other place Temporary Migrant…..3		
2		Rural…1.(Vill._Name):…… Urban…2.(Name)…… District:…….. State (Specify): ……	
3	When you left your origin place	…….	
4	After how much time you generally visits your home	Daily return ……1 Other (Specify) ……..	

5	Distance from your origin place to this city ……..Km		
6	Age at time of first migration ……. Years		
7	Reason of migration ……		
8	How many place you have changed before you come to this place for work	Come Directly…….. 1 Stayed one place ……2 Stayed two place ……3 Stayed three place ……..4 Others (Specify)…….....	
9	With whom you migrate to this city?	Alone ……..1 With family……2 With friend ……3 With contractor ……..…4 Other (Specific)…….....	
10	Whether you got any **Journey allowance** if come with contactor	No…….2 Yes……3	
11	Before you migrated this city what you was doing for living *(Specify)*	No Work ……..0 Same work ……..1 Other(Specify)……....	
12	Any change in your overall living condition after the Migration	Became worse ……1 No Improvement ……2 Improved …….3	

Remark related to Migration by Respondent

……
……
……
……
……

F. Work Details

S. No.	Questions	Code	Skip
1	What kind of work you do (Name of work)	……	
2	Skill status of worker	Unskilled ……..1 Semiskilled ……..2 Skilled ……3	
3	3.a Average Working hours 3.b Rest hours 3. c Working day per week? 3.d Average No. of working days in a month	…….. :…… ……. …….…….....	
4	Daily wage/income (Rs)	……..Rs	
5	Minimum wage in this city/States (leave this) Whether under paid or not (Yes/No)	……	***Skip this***
6.	Any other work except the construction work? if **yes** then what kind of work you do and how much you get from it?	No ……0 Yes …….1 ***If No then Skip Next one*** Job …… Income (Monthly) ……..Rs.	
7	Overtime work? If **Yes** then how much hour you do?	No overtime ……1 Sometime ……2 Most of the time …..3 Daily ……4	……Hr.
8.	When you get the wage?	Daily ……....1 weekly …….....2 Monthly ……...3 When needed ……4	
9	Work experience in this job	……Years	
10.	No. of workers at work place	No. of Workers …… Female worker:…….	
13	Does your work is risky for any injury/accident	No ……..0 Yes ……1	
14.	Noise environment at work place?	Very Noisy ……2 Moderate Noise ……1 Not at all ……0	
15	Dust condition at work place	No dust ……1 Moderate dusty……2 Very dusty …….……..3	
16	Having any account in bank/post office?	Yes ……1 No……..0	

G. Injuries/ Disability among Construction Workers

S.	Question	Code	
1.	**Currently do you have any disability?** If **Yes** then give details below *Problem Occurrence(Yes/No) Name Any Treatment (Yes/No)*) if **Yes** then Specify **Disability :** …… …… …… …… *Note: Type of Disability : Locomotive, speech, seeing, hearing, mental*	Yes…….1 No…….0	
2.	**Injury due to work in last 3 month** Type of Injury Occurrence(Yes/No) Name Any Treatment (Yes/No) if **Yes** then Specify **Minor** …….. …… …… …… **Major** …….. …… …….. …… *Note* : *Minor injury/disability: which you not considered as serious* *Major injury/disability: which you considered as serious*		
3.	Have you faced the situation when your minor injury became so serious that it affected your work/daily routine?	No……..0 Yes……...1	**If No, then skip Q. 4**
4.	Whether you seen hospital/doctor for health care that time?	No……..0 Yes……...1	
5	**Food items and their intake frequency (√)** **Items daily at least once in a week Occasionally Not at all** Milke/Curd …….. ……. …… Ghee …… …… ……. Eggs …… …….. …… Meat …….. …… ……. Fruits …… …….. …….. Green vegetable …….. …….. ……. Pulses/Beans …….. …… …….. Other ……. …….. …… ……..		

H. Availability and Accessibility to Health Care

S.No	Question	Code
1	Any Health facility nearby your residence?	No……0 Yes……1 Don't Know …… 2
2	Distance of health facility from your residence?	
3.	Transportation problem to any reach health facility	Always problem ……..1 Sometime problem …….2 No Problem ……3
4.	Timing of health centre convenient to you	**Govt. Hospital**: No…0, Yes ...1 **Private Hospital:** No…0, Yes ...1
5		
6.	Have you ever unable to afford health care for illness in the last one year?	No ……..0 Yes …….1
7.	Waiting time to see doctor/ physician during **last visit at** a health facility?	
8.	Physician/doctor's behavior during the last time visit?	Very Good ……...1 Good ……...2 Moderate ……..3 Bad ……..4 Very Bad ……..5
9.	Any visit by health worker (such as ASHA/Anganwari Worker etc.) at **your current residence**?	Not at all……..1 Sometime ……2 Most of the time ……...3
10.	Which health facility you chose to go for Health care when anyone get sick in your family?	Government Hospitals …….1 Private hospitals ……...2 Trust/Charitable ……...3
11	If **NOT** going to Government health facility? Why?	No Nearby health facility……..1 Don't Know where is hospital……2 Timing Not convenient ……..3 Waiting time too long…….....4 Personnel mostly absent….. …….5 Poor healthcare quality…….6 Other (*Specify)* ……

12.	Drinking Habit in last three month per week?	No Drink……1 1-3 days per week …….2 >3 days per week ……3
13.	Smoking Habit daily?	No Smoking ……..0 Yes Smoking …….1
14	Tabacco/Guttaka habit	Not at all ……..0 Yes ……..1

I. Health Problam in Last 30 Days ***(If No then Skip this whole section)***

S.No	Question	Code	Response Code
1	Have you fall sick (any illness) in last 30 days	No……0 Yes …….. 1	***If No then Skip this whole section***
2	Name of Illness/ Health Problem	……..	
3.	3.a Whether you seek any treatment	No ……0 Yes ……1	
	3.b If **NOT** then why (Reason) ?		
	3.c If **Yes** then what kind of treatment you sought	Home remedy……1 Buy drugs from shop ……....2 Went to Health facility …….3 Went to local doctors…….4 Other (*specify*) …….....	
4	If went to a health facility, then **type of health care centre**?	Government Health Centre ……1 Private Health Centre…….....2 Charitable/Trust Health Centre …..3	
5	Have you hospitalized that time	No …….0 Yes ……....1	
6	No. of days suffering from illness (Duration of illness)	.days	
7	Total cost of treatment during the illness?	Rs.	
8	Whether contractor/employer paid for your treatment cost that time (Only for MCWs who works under contractor)	No……0 Yes……1 Not applied……2	
9	Job affected due to illness Yes ……..1 No……..2	No. of days affected.. ……. Income loss: ……...Rs. Whether loss the job? (Yes/No): ……	

J. Current Health status in your opinion

1	What do you think about your current health status?	Excellent/very good ……1 Good …….. 2 Fair/Ok …….3 Poor …….4 Very poor …….5
2	What kind of change you see in your health since joining this work?	Much better after joining work…1 Somewhat better …….2 No change ……...3 Somewhat worse…….4 Much worse now…….5
3	What do you think about your health status Now Compared to the period before migration? (Only for Migrant Worker)	Much better after migration.…1 Somewhat better …….2 No change ……...3 Somewhat worse…….4 Much worse now…….5

K. Hospitalization in Last 365 Days

Q. 1 Have you ever hospitalized in last 12 months? (No – 0, Yes -1) …..……. *(If **No** then skip the whole section)*

Q.2 how many times you hospitalized (No. of Hospitalization)? ……

If **Yes** then, Plz mention at least last two health problems/illness when you hospitalized during last 12 months

No. of Hospitali-zations	Name of health problem/Illness	Types of hospital facility	If **NOT** using Govts. Hospitals /clinics, then Why?	Duration of hospitalization (No. of days)	Total Medical expenditure (Rs)	Expenditure other than medical (such as transport, Lodging, other etc.) (Rs)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
I time						
II Time						

Col. 3: Govts Hospital/clinc -1, Charitable/Trust Hospital – 2, Private Hospital/clinic -3; Other (Specify)……..-4

Col.4: No nearby facility- 1, Facility timing not convenient-2, Waiting time too long- 3, Health personnel often absent-4, Poor quality of care-5, facilities not available - 6, other reason (specify)……..-7

S. No. of Health Problem	Medical service charges (e.g. surgery, tests, medicines)	Who was bearer for your medical expenditure	Whether Treatment expenditure covered under Health insurance	Source of medical expenses financing	Did you satisfy with the hospital service	Impact of illness on livelihood	
						No. of day affected due to illness (days)	Loss of Job (*No -0, Yes-1*)
(1)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
I Time							
II Time							

Col. 8: Received free - 1, Partially free - 2, full paid – 3

Col. 9: Employer-1, Govts.-2, covered under inusrence-3, No one (Self)- 4;

Col.10: Not covered-0, partially covered-1, fully covered-2;

Col.11: HH Income/Saving-1, Borrowing Money -2, Sell assets -3, Insurance-4, Other (Specify)……-5;

Col.12: Not satisfied -1, moderately -2, Satisfied -3, Highly Satisfied – 4;

Remark by Respondent about treatment for Health problems (Health seeking behaviour) :

……

L. Health insurance utilization: Rashtriya Swasthya Bima Yojana (RSBY).

Are you Aware about health insurance (No- 0,Yes -1) ***If No then skip all columns***	Are you covered under any health insurance (No- 0,Yes -1) *If **Yes** then Specify*	Have you ever utilized that health Insurance services when hospitalized (No- 0,Yes -1)	Whether You know about the RSBY (No- 0,Yes -1) *If **No** then skip Col. 5, 6 ,7, 8 9*	Source of awareness about the RSBY[1]	Knowledge about benefits of RSBY[2]	Are you enrolled & got a RSBY card (No- 0,Yes -1) If **No** then skip Col. 9	Have you utilized the RSBY services when hospitalized (No- 0,Yes -1)
1	2	3	4	5	6	8	9
	…….. *Specify:*** **……..…… ……. ……..**						

Col. 5: *Media (Newpapers,/ T.V ./Radiao)- 1,* friends & neighborhood *-2, Through Camp by NGOs-3, Government Repersmentive-4, Health Personnal-5, ASHA/* Anganwadi – 6, *Other(……) -7*

Col. 6 : *No knowledge of benefits- 1, RSBY Card -2, Available for BPL & Unorganized workers family with five members-3, cashless hospitalization upto 30000 Rs -4,*

Transportation allowance – 5,

10. Remark by Respondent about Health Insurances(Why you Don't have any Health Insurance)

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Appendixes II

Table 1: Change in Reasons for Migration of Migrants by Last Residence with Duration (0-9 years) India, 2001

Reason for migration	Migrated population (Million)	2001 (%)	1991 (%)	% change during two Census period
1. Work/Employment	14.4	14.7	12.1	**2.6**
2. Marriage	43.1	43.8	44.9	-1.1
3. Moved with households	20.6	21.6	22.5	-0.9
4. Moved after birth	6.5	6.7	N.A	N.A.
5. Education	2.9	3	4.3	-1.3
6. Business	1.1	1.2	2.7	-1.5
7.Other	9.5	9.6	13	-3.4
8. Natural calamities	N.A	N.A	0.5	N.A.
Total	**98.3**	**100**	**100**	**100**

Source: Table D-3, Census of India, 2001

Table: 2 Job's Growth rate by Sector of activity between 1999 and 2004, India.

Sector of activity	Rural	Urban	Over All
Agriculture , & Forestry	1.4	5.5	1.5
Fishing	3	0.7	2.5
Mining	4.3	4	4.2
Manufacturing	4.7	6	5.3
Electricity, Gas & Water Supply	1.5	2.7	2.2
Construction	11.5	**4.3**	**9**
Wholesales & Retail Trade, Repairs Of Motor Vehicles Etc.	7	1.6	3.9
Hotel & Restaurants	5.8	6.1	6
Transport, Storage & Communication	6.4	4.1	5.2
Financial Intermediation	7.8	7.1	7.3
Real Estate, Renting And Business Activities	11.5	13.4	13
Public Administration And Defence	-4.6	-2.2	-3
Education	6	7	6.5
Health & Social Work	5.6	4.8	5.2
Other Community, Social & Personal Services	-4.3	-0.7	-2.8
Private Household With Employed Persons	39	**19.1**	**23.5**
all sectors	2.4	4.3	2.8

Source:Kund, 2007

Table 3: Distribution of Workers by Industrial Occupations, India.

Workers by Occupations	Frequency	Percent
Agricultural	1,93,993	**44.2**
Construction	52,491	**12.0**
Manufacturing	50,497	11.5
Trade	48,353	11.0
Transportation, storage, Accommodation & Communications	35,924	8.2
Mining & Quarrying , Electricity, Water supply, & Sewerage	5,918	1.4
Other services	52,048	11.7
Total	4,39,224	100

Source: Computed form NSSO 68th Round (2011-12) data

Table 4: Construction Workers in urban areas of National Capital Region (NCR), India, 2001

States in NCR	Main CWs	Marginal CWs	Total
Delhi	433716	75380	509096
Haryana	46956	15418	62374
Rajasthan	4764	1134	5898
Uttar Pradesh	54382	15298	69680
Total in NCR	539818	107230	647048

Source: Census of India, General Economic Tables, (B-4 & B-6 Tables), 2001

Table 5: Construction Workers According to Migration Status in NCR

Migration status	No. of MCWs	Percentage (%)
Non-Migrant	15	3.3
Permanent Migrant	62	13.6
Daily Commuters	18	3.9
Temporary Migrant	362	79.2
Total	**457**	**100.0**

Source: Primary Survey, 2015-16

Table 6: Daily Wage according to Nature of Work in Construction Sector

Nature of Work	Daily Wage (Rs) (%)				
	150-200	201 - 300	301-400	401- 600	N
Masons	1.0	21.0	40.0	38.0	100
Load Carriers	26.8	68.9	4.4	0.0	228
Iron & Steel Work	28.6	51.4	8.6	11.4	35
Electrician	0.0	37.5	50.0	12.5	8
Carpenters	0.0	50.0	35.7	14.3	14
Painters	0.0	34.3	51.4	14.3	35
Floor Finisher	0.0	57.1	42.9	0.0	7
Plumbers	13.3	0.0	66.7	0.0	3
Supervision Work	0.0	7.7	30.8	61.5	13
Machine Operator Work	7.1	50.0	21.4	21.4	14
Total (N)	**16.2 (74)**	**50.3 (230)**	**20.1 (92)**	**13.3 (61)**	**457**

Parentheses () figures are the number of samples
Source: Field Survey, 2015-16.

Table 7: Income Characteristics among the Construction Worker

Worker's Income Characteristics	City (%)				Total Sample	
	Delhi	Gurgoan	Noida	Bhiwadi	Percentage	N
Daily Wage (Rs.)						
150-200	12.3	17.4	16.7	18.4	16.2	74
201 - 300	43.9	53.9	49.1	54.4	50.3	230
301-400	32.5	15.7	20.2	12.3	20.1	92
401- 600	11.4	13.0	14	14.9	13.3	61
Monthly income (Rs.)						
2000 - 5000	23.7	31.3	30.7	15.8	25.4	116
50001- 8000	50.9	45.2	45.6	53.5	48.8	223
8001- 11000	19.3	14.8	12.3	15.8	15.5	71
11001 - 18000	6.1	8.7	11.4	14.9	10.3	47
Total	**100**	**100**	**100**	**100**	**100**	**457**

Parentheses () figures are the number of samples
Source: Field Survey, 2015-16.

Table 8: Skill Status of Construction Worker

Skill Status	City (%)					
	Delhi	Gurgoan	Noida	Bhiwadi	Percentage	N
Unskilled	48.20	64.30	46.50	47.40	51.60	236
Semiskilled	43.90	25.20	44.70	47.40	40.30	184
Skilled	7.90	10.40	8.80	5.30	8.10	37
Total	100.00	100.00	100.00	100.00	100.00	457

Source: Field Survey, 2015-16

Logistic regression result of Illness among the construction worker according to their background characteristics

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Sex_female	.573	.374	2.352	1	.125	1.774
age_15-25			1.450	3	.694	
25-35	-.123	.265	.214	1	.644	.885
35-45	.058	.311	.035	1	.851	1.060
45-65	.338	.420	.649	1	.030	1.403
Caste_SC/ST			2.512	2	.285	
OBC	-.143	.255	.314	1	.575	.867
Others	-.481	.306	2.471	1	.116	.618
Religion_Muslim	.371	.285	1.694	1	.193	1.449
Education _No Education			2.728	3	.435	
Primary	.195	.290	.453	1	.501	1.216
Middle	.404	.303	1.771	1	.183	1.497
Secondadry & avobe	-.050	.287	.031	1	.861	.951
Monthly income 2000-5000			9.544	3	.023	
5000-8000	-.255	.261	.954	1	.329	.775
8000 - 11000	-.040	.347	.013	1	.908	.960
11000 - 18000	-1.219	.423	8.295	1	.004	.296
work_exposure _< 2 year			5.329	3	.149	
2-5 year	.414	.292	2.012	1	.156	1.513
6-10 Year	.383	.304	1.585	1	.048	1.467
>10 year	.732	.323	5.148	1	.023	2.079
Overtime_Yes	.047	.214	.049	1	.025	1.048
on-site worker	-.286	.254	1.273	1	.259	.751
food_intake High	-.294	.225	1.708	1	.031	.746
Constant	.302	.421	.516	1	.473	1.353

The first category of each variable is the reference category e.g. male for sex, Hindu for Religion, No for overtime, off-site worker for types of worker, low for food intake.

Source : Computed from field survey data

Logistic regression result of Healht seeking behaviour (0 =No treatmen seeked, 1 = seeked any treatment) among the construction worker according to their background characteristics

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Sex(1)	.325	.984	.109	1	.741	1.384
age_re_new			5.977	2	.050	
age_re_new(1)	-.812	.537	2.284	1	.131	.444
age_re_new(2)	1.048	.998	1.102	1	.294	2.852
re_caste			2.585	2	.275	
re_caste(1)	.658	.514	1.638	1	.201	1.930
re_caste(2)	-.188	.694	.073	1	.787	.829
education_re_new			2.963	2	.227	
education_re_new(1)	.862	.557	2.397	1	.122	2.368
education_re_new(2)	.736	.580	1.611	1	.204	2.089
monthly_incme_new_re			2.596	2	.273	
monthly_incme_new_re(1)	.922	.575	2.572	1	.109	2.515
monthly_incme_new_re(2)	.647	.662	.953	1	.329	1.909
M1_mig_status2(1)	.238	.608	.153	1	.696	1.269
D1_worker_type_area(1)	1.114	.636	3.073	1	.040	3.047
overtime_re(1)	-.190	.486	.153	1	.036	.827
I2aa_illness_types(1)	3.978	.807	24.301	1	.000	53.394
duratio_illness			1.057	2	.090	
duratio_illness(1)	.477	.498	.915	1	.039	1.611
duratio_illness(2)	.520	.722	.518	1	.052	1.682
H1_health_facilityNearby			2.001	2	.368	
H1_health_facilityNearby(1)	-.523	.711	.541	1	.042	.593
H1_health_facilityNearby(2)	-1.292	.938	1.896	1	.039	.275
H6_affordability_healthcare(1)	-.983	.497	3.910	1	.048	.374
transportation_problam(1)	.458	.548	.700	1	.403	1.581
Health_worker_visit(1)	.247	.484	.260	1	.030	1.280
Constant	-.354	1.246	.081	1	.776	.702

a. Variable(s) entered on step 1: Sex, age_re_new, re_caste, education_re_new, monthly_incme_new_re, M1_mig_status2, D1_worker_type_area, overtime_re, I2aa_illness_types, duratio_illness, H1_health_facilityNearby, H6_affordability_healthcare, transportation_problam, Health_worker_visit.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	86.687	20	.000
	Block	86.687	20	.000
	Model	86.687	20	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	144.314[a]	.281	.480

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Appendix III

Surveyed Construction Site in Selected Cites

1) DELHI:

Labour Chowks

- Pipal Chowk, Nearby Nawada Matro Station
- J-J Coloney Labour Chowk, Sector 3, Dwarka
- Uttam Nager Labour Chowk,
- Munirka Labour Chowk
- Mahipalpur Labour Chowk

Construction Sites

- Deen Dayal Upadhyay College building, Secotor -3, Dwarka
- Umang Winter Hill Complex building, Dwarka Mor
- PNB Head Office Building, Plot No.-1A, Sector-22, Dwarka
- Bhagwati Apartment Building, Sector 22, Dwarka
- Nagaland Employee Flats Building, Sector 13, Dwarka
- National Highway Authority of India Building, Plot No.-G3, Sector-10, Dwarka
- City Centre Mall , Plot No.-5, Secotor-12, Nearby sector 12 Matro station, Dwarka
- Ravishanker Society Building, Plot No.-2, Secotor- 13, Dwarka
- DDA EWS Houses Building, Sector 23, Dwarka
- Realty Gallery Building , Sector 13, Dwarka

2) GURGAON

Labour Chowks

- Sikanderpur Chowk, Secotor- 26
- Bhutashwari Mandir Chowk, Patodhi road, Gurgaon
- Tigra Village Labour Chowk, Sector- 57

Construction Sites

- The Cerst Building, Plot No. 15, Udyog Vihar Phase- IV, Sector-54
- DLF Park Place II Building, Sector-54

- Herman City Building, Sector-52
- Universal Square Building, Sector -59,
- Lemon Tree, Hotel Building Sector-60,
- Ireo Skyon Building sector -60
- Urban Pioneer Buildings, Golf Course Road, Sector- 61, 62
- Centre One, Building, Sector – 61,
- Splendid Buildwell Building, Sectore -58
- Ansal Api Versalia 2 Building, Sector – 67

3) NOIDA

Labour Chowks

- Khoda Coloney Chowk, Sector -58
- Mamura Chowk, Sector -66
- Bishanpura Labour Chowk, Sector -58
- Nayabas Labour chowk
- Harola Labour Chowk, Udhyog Marg, Sector – 5
- Harijan Basti Chowk, Sector -37

Construction Sites

- World Trade Tower (WTT) Building, Sector- 16, DSC Marg
- Delhi One Building , Sector -16 B
- BPTP Capital City Centre building, Sector – 94
- Wave-One Shopping Mall building, plot. No. 05, Sector -18
- DLF Mall of India building, Plot No. – 03, Sector – 18
- Logix City Centre building, Sector -32,
- Wave Megacity Centre, Mall building, Plot No.-1, Nearby Noida City Centre Matro station, Sector -32,
- MMR Saha 52nd Avenue, Captain Shashi Kant Marg, Sector-52,
- Golf City building, Plot No. 03, Sector – 75
- JM Orchid Amarpali Silicon City, Sector – 76
- Amrapali Crystal Homes building, Sector -76
- Amrapali princely Estate buildings, Sectore -76

Bhiwadi

Labour Chowk

- Alwar X ring (Alwar Mod), papri marg, Bhwadi.
- Near UTI, Bhiwadi.
- RIICO Chowk, Bhiwadi.
- Mansa Chowk , Bhiwadi.

Construction Sites

- Ashiana Aangan, Near Alwar by pass road, Bhiwadi.
- Star Essentia Saffron Homes, Near Alwar by pass road, Bhiwadi.
- THD Garden, Near Alwar by pass road, Bhiwadi.
- Delight Residences, Near Alwar by pass road, Bhiwadi.
- MVL Coral, Near Alwar by pass road, Bhiwadi.
- Trehan Hill View Garden, Near Alwar by pass road, Bhiwadi.
- Terra City, Near Alwar by pass road, Bhiwadi.
- Omaxe Panaroma City, Near Alwar by pass road, Bhiwadi.
- Avalon Rangoli, Near Alwar by pass road, Bhiwadi.
- R Tech BDI Capital Greens, Naer UIT, Bhiwadi.
- MVL INDI Homes, Near Alwar by pass road, Bhiwadi.