Chapter 2

Data and Methodology

2.1 Introduction

This chapter presents details about the study area, study design, its sample size and sample unit. It also explains in brief, the methodology adopted to collect quantitative as well as qualitative data utilized in the study, the duration of fieldwork and lessons learnt during the fieldwork. Later, description is also given about the data processing. Apart from this, a description of the variables incorporated in the study for analysis and the ways to measure them is also elaborated in the chapter. Finally, ethical considerations taken for the present study are discussed.

2.2 Study Area

Delhi, known locally as Dilli and by the official name National Capital Territory of Delhi is the largest metropolis by area in India. The population of Delhi has increased rapidly in last 10 years from 13.8 million in 2001 to 16.7 million in 2011 and is the second largest metropolis by population in India, next to Mumbai. Delhi is most dense state of India as per census 2011. The highest population density is in Delhi’s northeast district (37,346 per sq km). The growth rate in 2011 is 17.64 percent in comparison to 21.15 per cent in 2001. The literacy rate is 86 percent and has shown an overall improvement of 5 percent from the last time. Estimated figures say that 200,000 to 300,000 people a year settle in Delhi permanently from other states in India as migrants. These people come in search of employment and education opportunities and become the permanent resident of Delhi. A large portion of New Delhi’s population is formed by this section of migrants coming from other states. The population of Delhi is expected to rise by 40 percent by the year 2020.
Delhi is the eighth largest metropolis in the world by population with 16.75 million inhabitants in the territory and nearly 22.2 million residents in the greater National Capital Region urban area (which also includes the cities Noida, Greater Noida, Ghaziabad, Gurgaon, Faridabad along with other smaller nearby towns) (World Urbanization Prospects 2009).

History
Delhi has a vibrant history among prominent cities or towns of India. Delhi was the capital of several empires in ancient India and has over 60,000 recognized monuments built over several millennia. It is believed to be the site of Indraprastha, founded by the Pandavas of the Mahabharata around 5000 BC. Delhi derives its historic importance from its position in northern India between the Aravalli Hills to the southwest and the Yamuna River on whose western banks it stands. This enabled it to dominate the old trade routes from northwest India to the plains of the Ganges. As a result, it has always been an important cultural and intellectual centre.

Geographical and climate settings
The National Capital Territory of Delhi is spread over an area of 1,484 km² (573 sq mi), of which 783 km² (302 sq mi) is designated rural and 700 km² (270 sq mi) urban. Situated on the Yamuna River (a tributary of the Ganges River), Delhi is bordered on the east by the state of Uttar Pradesh and on the north, west and south by Haryana. The region has a humid subtropical climate. Summers are long and extremely hot and winters are chilling.

Administration
The Delhi metropolitan area lies within the National Capital Territory of Delhi (NCT). The NCT has three local municipal corporations: Municipal Corporation of Delhi (area is 1,397.3 sq km), New Delhi Municipal Council (42.7 sq km) and Delhi Cantonment Board (43 sq km). The
Municipal Corporation of Delhi (MCD) is one of the largest municipal corporations in the world comprising approximately 96 per cent of the area and providing civic amenities to an estimated 13.78 million people (MCD, 2006). The capital of India, New Delhi, falls under the administration of New Delhi Municipal Council (NDMC).

Delhi has four major satellite cities, which lie outside the National Capital Territory of Delhi. These are Gurgaon and Faridabad (in Haryana), and New Okhla Industrial Development Authority (Noida) and Ghaziabad (in Uttar Pradesh). Delhi is divided into nine major districts: Central Delhi, New Delhi, West Delhi, East Delhi, North Delhi, North East Delhi, North West Delhi, South Delhi and South West Delhi.

**Figure 2.1:** Map showing the nine districts of Delhi
Economy

With an estimated net State Domestic Product (FY 2007) of Rs. 1,182 billion (US$23.97 billion) in nominal terms and Rs. 3,364 billion (US$68.22 billion) in PPP terms, Delhi is the largest commercial center in Northern India. According to the economic survey of Delhi, 2006-2007, Delhi had a per capita income of 66,728 INR (US$1,353.24) at current prices, the third highest in India after Chandigarh and Goa. Delhi's workforce constitutes 32.82% of the population showing an increase of 52.52% between 1991 and 2001 (Census of India 2001).

Delhi's large consumer market, coupled with the easy availability of skilled labour, has attracted foreign investment in Delhi. Delhi has India's largest and one of the fastest growing retail industries (The Economic Times 2008). As a result, land prices are booming and Delhi is currently ranked the 7th most expensive office hotspot in the world, with prices at $145.16 per square foot.

In recent years, Delhi's service sector has expanded exponentially due to the large skilled English-speaking workforce that has attracted many multinational companies. Key service industries include information technology, telecommunications, hotels, banking, media, tourism and life sciences.

Demographics

Today, half of Delhi’s population is from outside Delhi. The city features a multi-ethnic population with diverse religious composition. Being the political and economic hub of northern India, the city attracts workers – both blue collar and white collar – from all parts of India, further enhancing its diverse character. As of 2011 (SRS Bulletin), birth rate, death rate and infant mortality rate (per 1000 population) are 18.1, 4.4 and 33.0 respectively. According to
1999–2000 estimate, the total number of people living below the poverty line, defined as living on $11 or less per month, in Delhi was 1,149,000 (which was 8.23% of the total population, compared to 27.5% of India as a whole) (Economic Survey of Delhi 2005-2006).

The official record states that 82 percent of the population follows Hinduism, 11.7 percent are Muslims, Sikhs compose of 4.0 percent of the total population, Jains are 1.1% whereas 0.9 % of the community is Christians. Other minorities include Buddhists and Jews (Census of India 2001).

Delhi's relatively high per capita income, better living standards, high economic growth, greater access to education, employment opportunities, modern consumer goods, new ideas and modern lifestyles attract youth from rural areas in neighboring states such as Rajasthan, Punjab, Haryana, Uttar Pradesh and Bihar. Due to the high migration rate, in 2001, the population of Delhi increased by 285,000 and by an additional 215,000 as a result of natural population growth (Economic Survey of Delhi 2005-2006) – this made Delhi one of the fastest growing cities in the world. After Mumbai and Tokyo, Delhi is expected to be the third-largest agglomeration in the world by the year 2015 (World Urbanization Prospects 2003).

Nearly 62% of the growth of population of Delhi during the past four decades (6.89 million) was due to natural increase (this includes the natural growth of the migrant population) and 38% (3.24 million) due to net in-migration.
Table 2.1: Volume of Net Migration to Delhi (in, 000)

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Migration to Delhi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961-1971</td>
<td>633</td>
</tr>
<tr>
<td>1971-1981</td>
<td>952</td>
</tr>
<tr>
<td>1981-1991</td>
<td>1306</td>
</tr>
<tr>
<td>1991-2001</td>
<td>1600</td>
</tr>
</tbody>
</table>

Source: Census of India, Registrar General of India

Although the relative contribution of in-migration to this growth has declined, the absolute number of migrants has increased over the years.

2.3 Study Design and Sample Size

2.3.1 Why working women’s hostels

It was easy for the researcher to capture single migrant working women from the hostels rather than going and interviewing them individually from the offices and other dwellings like paying guests accommodations or rented flats. Though it would have been beneficial to interview these girls from the respected places, it would have been time consuming and at the same time no appropriate list is available for such residents. List of working women’s hostels was easily retrieved from the concerned officials. The study was exploratory in nature for a particular group of women. Therefore, working women’s hostels was an obvious choice.

Interviews were conducted on the hostel premises as during the pre-test a trial was made to interview the women in the offices and because of time constraints they were not able to provide the researcher the required time. At the same time there were too many personal questions which the sample was not comfortable answering in front of their colleagues. Some
questions were related to their office environment and bosses, making the office an inappropriate site.

2.3.2 Respondents

The present study was carried out to explore the risk taking behaviours among unmarried female migrant workers staying in working women’s hostels in Delhi. Women who had migrated to Delhi without family for employment were chosen for the study. Following are the inclusion and exclusion criteria of the respondents for the current study.

Inclusion criteria

1. Should be unmarried and between the age-group of 18-30 years
2. Should have spent at least six months in Delhi

Exclusion criteria

1. Women who were less than 18 Years and more than 30 years of age
2. Migrant women who were married, widowed and divorced/separated
3. Migrants who had not completed six months of stay in Delhi

2.3.3 Sample size

A total sample of 400 respondents was fixed for the present study taking into consideration the available resources and the time limit.

2.3.4 Sample selection

At the first stage, Social Welfare and YWCA Departments were contacted and they were briefed about the study and were requested for their cooperation. They provided the interviewer with a list of 24 working women’s hostels located in different parts of Delhi. Before entering each of
the hostels, permission was taken from the Director and wardens of the hostels. Thereafter, the hostels were visited and the wardens were contacted for seeking permission to interview the girls residing in the hostels. The purpose of the study was explained to the wardens. Wardens were requested to facilitate meetings of the interviewer with the girls.

Nine of the hostels turned out to be student’s hostels or were being closed or dislocated. So the remaining 15 working women’s hostels were targeted for the study. One of the hostels was selected for the pretest and it was decided to conduct the study in the remaining 14 hostels. In two hostels, wardens did not give permission and the interviewer was able to cover 12 hostels only for the study. The list of all the selected hostels is given in Appendix I.

Thereafter, a list of the number of girls, their marital status and occupation status was obtained from the warden. Keeping in view the number of hostels covered and the required sample size, 40 women aged 18-30 years from each of the 12 hostels were targeted for the interview. This was done to take care of non-response which was assumed to be around 10 to 20 percent. An invitation for unmarried working women to participate in the interview was conveyed through the warden.

In the second stage, two to three meetings were arranged in each of the hostels to brief the girls about the study. They were fully informed about the nature of the study, research objectives and confidentiality of the data. Once they were convinced, a convenient time was decided upon and they were requested to assemble in the hostel common room for filling up the questionnaires.
Once the participants assembled, the questionnaires were distributed and the emphasis was placed on explaining the contents of the questionnaire, respondent’s right to refuse and verbal consent. The interviewer was present throughout the survey. The interviewer took care of any doubt or clarifications of the respondents. If the potential responses were absent or if sufficient girls were not present upon the decided time, then a second or third visit was scheduled. A minimum of two to three sittings were arranged in each of the hostels for filling up the questionnaires from the girls. In total, 450 working women agreed to participate in the survey but only 362 completed the questionnaire. The response rates were 80 percent.

Therefore, the study consisted of a survey of 362 unmarried working women, selected through convenient sampling procedure from 12 working women’s hostels in Delhi.

2.4 Study Methods

Both quantitative and qualitative research approaches were adopted for the study. In the quantitative approach, structured, self-administered questionnaire with 362 young working women staying in working women’s hostels were used and were provided in English language. In the qualitative approach, direct observation method, key informant interviews and focus group discussions were conducted to supplement the findings with the quantitative information.

2.4.1 Quantitative Phase

The amount and complexity of data to be collected favored the self-administered questionnaire method. The nature of the questions was extremely personal and sensitive; therefore it was thought that the respondents would find it easier and more comfortable to write down the answers than verbally report them to the interviewer. For this purpose, a structured self-
administered questionnaire was used for the data collection. Only a few selected questions were kept open ended.

The questionnaire was divided into six sections and collected information on a wide range of issues such as social environment, knowledge, attitudes, sexual and reproductive experiences and key behavioral outcomes (e.g., condom use, current sexual activity). The survey questionnaire comprised of the following sections:

**Section I** contained information regarding the background characteristics of the respondents. It covered questions on age, education, nature of work, salary from the present job, income from other sources, religion, quantity and frequency of remittances sent to home and frequency of communicating and visiting the native place. Family and social group information such as economic condition of the household, characteristics of parents, extent of religiosity at family level, inter-personal relation among the parents, type of restrictions, and membership and office holding in social groups and clubs was also collected.

**Section II** included questions to assess information about the migration history. Questions cover purpose of migration, time of arrival of migrants, number of moves before coming to the city, place of stay after coming to the city, waiting time for job after arrival to the city and life at the destination after movement.

**Section III** contained information regarding the hostel facilities and environment. It covered questions about present living conditions of the migrants in the hostel assessing facts regarding the number of people sharing living arrangements, guest facilities, mode of entertainment in the
hostel, rules and regulations in the hostel, relationship with the warden and other staff members and abuse in the hostel.

Section IV contained information regarding the working conditions and environment in the office. Questions assess occupational facts such as office timings, overtime, satisfaction with job, relationship with boss and other staff members and abuse in the office.

Section V investigated social networking and lifestyle. It covered questions on size of peer network, activities performed with friends, role of friends in influencing the respondent’s behaviour, habits like smoking, drinking and visiting clubs, discos, bars and other free time activities, dating behaviour, marriage plans, knowledge about reproductive and sexual health matters such as pregnancy and sex related matters, condom use and attitude of respondents towards substance use and sexual matters. The questions were statement oriented; the areas covered to assess the attitude were substance use, pre-marital sex, and behaviour of close friends.

Section VI explored the awareness about RTIs/STIs and HIV/AIDS. Questions assess knowledge and myths, prevalence of RTIs/STIs among the sample population, health problems such as reproductive, sexual and mental health, and perceived risk of HIV.

2.4.2 Qualitative Phase

2.4.2.1 Direct observation and field notes

Observation about relevant behaviors- the way people live and work always provide additional information about the subject being studied. The field notes, which were taken down during the
period of fieldwork, were instrumental during analysis and interpretation of the results, as they helped in recalling the incidents that took place at the time of data collection.

An observation technique was used to understand the hostel structure, living environment, whether it was worth living in a hostel, living arrangement which includes the type of room facility available for the girls, and living condition to assess the extent of cleanliness in the hostel and hygiene in the mess, security and entertainment facilities. During each visit, the researcher also went around the hostel premises and observed girls’ behaviour to learn more about the places where young girls meet their friends, boyfriends and the activities they perform with them.

2.4.2.2 Key informant interviews

Key informant interviews were held with the warden and staff members of the hostels. Twelve interviews were conducted with the wardens of each of the hostels and they were asked about the rules and regulations of the hostel, the timings about entry in to the hostel, mess facility, type of room facility, monthly rental charges, visitor facility and role of management in making the stay comfortable for the girls. Specific questions related to various behaviors like drinking and smoking habits among the girls, activities with friends, time generally girls return to the hostel, days when girls are absent from the hostel were discussed with the staff members of each of the 12 hostels.

The researcher also gathered information from the hostel security guard and paan walas near the hostel. They were asked about the general timings of the girls going out and coming inside the hostel, what kind of girls generally come late and is it their routine habit, whether they return to hostel on their own or someone accompanies them, do girls go out with their male
friends, up till what time generally they meet outside or near the gate with their male friends, do they show some physical proximity with their male friends and if they had seen them engaged in smoking or taking alcohol/drug. The security guards were further asked whether they intervene, if they find the girls being engaged in doing unusual acts with their male friends.

2.4.2.3 Focus group discussions

A focus group discussion helps in exploring people’s opinions, attitudes and beliefs regarding a specific topic. It provides an opportunity to the participants to give their views more freely and agree and disagree with each other without the fear of being judged by others. In the present study, 12 focus group discussions were conducted with a small group of six to eight women in each of the selected hostels. An attempt was made to capture girls from different occupational backgrounds. Women who volunteered to participate in the discussion were contacted. A series of discussions ranging from 45 minutes to 1 hour were held with each group. The FGDs were held to explore girls’ views on topics such as behaviour of the warden and staff members towards them, problems faced by girls in the hostel and office, gender differences in occupation, attitude towards initiation of substance use and premarital sex, perception regarding live-in-relationship, sex education, with whom do they feel free to talk about romantic relations and sex, what according to them is risky sexual behaviour and their attitude towards people suffering with AIDS.

2.5 Pre-testing

The questionnaire was pretested extensively for content and form. The pretest was done on twenty working women who were asked to report whether they understood all the items or there was any statement, which they did not understand, and also to estimate a range for the duration
of each questionnaire. This was also done to check the difficulty of the language of the items. Further revisions were made in the light of the comments from interviewers and low priority items were removed from the survey.

### 2.6 Field procedures

Fieldwork for the present study was undertaken between February and May 2005. The interviewer made at least four to five attempts for contacting the girls from each of the 12 hostels, with each visit made at a different time of day and on different days. The rationale was that the interviewer must vary the times visited in order to meet the girls. The presence of particular people wandering about or sitting during the survey could influence responses. So, to assure privacy during the survey, the respondents were made to sit in the hostel common room and no hostel staff member was allowed to be present in the room. The respondents were also not allowed to take the questionnaires to their rooms. Consistency checks were performed at the time of collection of the questionnaires from each of the girls.

### 2.7 Measurement of variables

Various variables as identified in the conceptual framework were defined and measured as follows.

#### 2.7.1 Demographic Measures

Variables used for measuring demographic characteristics included age, ethnicity, educational attainment, nature of work and place of origin.

#### 2.7.2 Psychosocial Measures:

Variables used for measuring psychosocial measures included:
**Home Religiosity and Self-Religiosity:** The influence of religious values and religiosity of an individual on risk attitudes and risky behaviour has been well established by many studies (Kinsey, et al. 1953; Dedma 1959; Spanier 1973; and Zucerman, et al. 1976). Parents with highly religious beliefs are likely to influence children indirectly through their attitudes and directly by placing children in an environment that facilitates the transmission of restrictive values of adolescent sexuality (Udry and John 1987).

In the present study, religiosity of respondents has been assessed in terms of their reported self-religiosity and their perception of home religiosity. Responses were sought on a three-point scale such as not at all religious, somewhat religious and highly religious.

**Family environment:** Comfortable family environment has been shown to have negative influence over risk involvement (Nwcomer and Udry 1984; Hogan and Evelyn 1985; Miller et al. 1986). The present study used perceived family environment as a variable based on a three-point scale such as comfortable, uncomfortable and neither comfortable nor uncomfortable and perceived family restrictions based on a three-point scale such as very strict, somewhat strict and not at all strict.

**Living conditions:** Items employed to assess current living conditions in the hostel were food quality and quantity, timing for food, cleanliness, number of girls in each room, bathroom facility, availability of water and electricity, safety, guest facility, phone facility and timings for calls, visitor timings, and relationship with the hostel inmates and hostel in-charge, TV facility and its timings for watching and other recreational facilities. For each of these variables two responses were sought as satisfactory and unsatisfactory.
**Working conditions:** Variables such as working conditions and work place were used interchangeably. The first set of variables dealing with the structure of work included average hours worked per day, overtime, average monthly income, composition of office staff and seating arrangement.

The second set of variables which were classified as defining the work environment includes level of comfort at work with office colleagues and superiors, the level of satisfaction with income and work.

**Abuse within hostel and office:** Abuse was assessed as either verbal/mental or emotional/sexual.

### 2.7.3 Environmental variables

Studies indicate a significant relationship between environmental variables and risk knowledge, attitude and behaviour (Rakesh 1992; Hogan and Evelyn 1985). In the present study these variables have been measured in terms of place of residence and place of work.

**Peer influence:** In the present study, peer influence was measured in terms of the number of close friends, frequency of respondent’s interaction with peer, activities they perform and places they visit with peer.

**Erotic exposure:** Research indicates a clear relationship between the exposure to erotic material and risk involvement (Berger et al. 1972 and Rakesh 1992). Erotic exposure was assessed on the
basis of frequency of watching pornographic photos, posters, adult movies, blue films, sex material on the internet, and reading magazines and books.

**Risk taking behaviour:** The risk taking behaviour was assessed in terms of six items:

1. **Tobacco:** Tobacco consumption and more particularly smoking are considered to be a gateway drug, that is, it may induce them to try other drugs.

2. **Drug use:** Drug use is a major concern these days, with an increasing number of young people experimenting with multiple types of drugs such as opium, heroin, etc. Research indicates that drugs play a role in enhancing sexual self-efficacy, reducing fears of performance inadequacy, heightening experiences and increasing potential for sexual violence (Homel et al. 1992).

3. **Alcohol:** Too much alcohol leads to loss of judgment; this in turn could lead to unsafe sex, unwanted pregnancies and an increased probability of being involved in forced sex. Few studies have shown the association between alcohol use and risky sexual behaviour (Justus et al. 2000 and Devieux et al. 2002).

4. **Multiple drug use:** Those who smoke cigarettes are more likely to use illicit drugs; drink heavily, and use some other drugs. The use of one drug is more likely to lead to multiple drug use. Individuals who combine drugs or alcohol with sexual activity are more likely to engage in high-risk sexual activity (Stall, Ron, et al. 1986).

5. **Physical intimacy:** In the present study, first the respondents were asked about their attitude towards premarital and extramarital sex. Later they were asked about their own behaviour, whether they have ever been involved in any kind of physical intimacy which
involves hugging, kissing or penetrative sex. If yes, then the type of partner, no of partners, place, reasons for sex, whether protective methods used or not and whether it was forced or with their own consent.

6. **Homosexual partner:** Physical intimacy with a partner of same sex.

**Awareness of all modern spacing contraceptive methods:** It includes oral pills, IUD and condom.

**Knowledge about condom use:** In the present study knowledge about condom use was assessed on the basis of four statements: whether condoms should always be put on before sexual intercourse starts, whether condoms can be used more than once, whether condoms are effective in preventing pregnancy and whether condoms protect against STIs and HIV infection.

**Comprehensive knowledge about HIV/AIDS:** It was measured on the basis of information obtained regarding respondents knowledge of HIV prevention and transmission. It includes (i) knowledge of two ways of preventing HIV (specifically, consistent condom use and monogamous sex with one uninfected partner) and (ii) rejection of most common misconceptions about HIV transmission (namely, that HIV could be transmitted through a mosquito bite, sharing utensils/food with persons who are infected with the virus, sharing clothes with the infected person and hugging a person who has AIDS).

**Knowledge about RTI/STI, HIV/AIDS and safe sexual practices:** Literature has supported the notion that if HIV/AIDS knowledge is high among people there will be less involvement in risky
behaviour. In the present study the respondents were asked about their knowledge of modes of transmission, prevention, awareness, misconceptions and source of information.

**Experience of RTI/STI symptoms:** Experience of any self-reported symptoms of RTI/STI during the six months preceding the survey.

**Risk of HIV/AIDS:** Whether there is consistent use of condom in all sexual encounters.

**Treatment seeking behaviour:** In the present study treatment-seeking behaviour has been studied through the following variables: whether they went for the treatment, whom did they consult, type of treatment they received, completed course, whether they are continuing with the treatment, who initiated the treatment, whom did they consult before treatment was sought, perceived satisfaction of treatment, perceived effectiveness of treatment and opinion about treatment.

### 2.7.4 Construction of scale and indices

A reliability test is essential in the construction of index. It was examined using the SPSS package to check whether the variables which are clubbed together are adequate for constructing a single index. Alpha values were obtained and the value nearing 1.0 showed a perfect combination of variables for the index. Following indices were constructed.

**Family bonding index:** Family bonding index was based on four questions: frequency of respondents sending money to the native place, frequency of communicating with native place, frequency of visiting native place and frequency of family members visiting the respondent. The variables were given scores ranging between ‘1’ and ‘4’ according to the intensity on a four-
point scale and were then summed up to get the total value of the index. The index was categorized as ‘low bonding’ and ‘high bonding’. The Cronbach’s alpha vale for the composite index was 0.87.

Hostel living condition index: An index of living conditions was computed to understand the facilities in the hostel on the basis of the selected variables i.e. timing for food, food quality and quantity timings for calls, TV facility and timings for watching, visitors timings, availability of water and electricity, guest facility, bathroom facility hostel, room and toilet/bathroom cleanliness, safety, behaviour of the warden, staff and hostel inmates, and other recreational facilities. The variables were given scores ‘0’ and ‘1’ according to the intensity on a two-point scale and then were summed up to get the total value of the index. The index had a Cronbach’s alpha as 0.89. Thereafter, it was divided into two groups of ‘satisfied’ and ‘unsatisfied’.

Job stress index: An index for job stress was computed on the basis of 16 items. Namely: my job involves lot of traveling, my job is very time demanding, my job makes me feel bored, my job makes me feel calm, my job makes me feel content, my job needs lot of physical hard work, my job involves lot of mental stress, my job makes me feel frustrated, my job is well paid, my job makes me feel angry, my job is challenging, my job completely utilizes my skills, my job makes me feel relaxed, there is little chance to go higher in my job, I am very much satisfied with my job and my job keeps me away from home more than I want. The index comprises of both positive and negative statements. Items either measured agreement with negative statements about job stress (e.g. “My job makes me feel frustrated”), confidence in the positive statement or agreement that my job is well paid. The latter items were reverse coded so that high composite scores indicated more job stress. Cronbach’s alpha for the composite index was 0.65. The scores
were given ranging between ‘1’ and ‘4’ according to the intensity in a four point scale from strongly agree to strongly disagree. The items were then summed up to get the total value of the index and divided into three categories of ‘low stress’, ‘moderate stress and ‘high stress’.

**Aspiration index:** An index of aspiration was constructed taking into consideration 20 items namely higher education, good job, high paid job, educated husband, rich husband, own house, big house/bungalow, lots of money, lots of jewellery, mobile phone, home theatre, computer, car, luxury car, foreign visit, staying in big hotels, imported goods, city life and enjoying partying in clubs, discos. The index explores how much importance each item has in their lives. The scores ranged between ‘1’ and ‘4’ according to the intensity on a four-point scale. A similar procedure adopted in the computation of earlier scales was applied. The index had a Cronbach’s alpha value of 0.913. It was categorized as ‘low aspiration’, ‘moderate’ and ‘high aspiration’.

**Attitude towards substance use and sex index:** For this index, responses to the 18 questions were converted to a Likert scale ranging from 1 (most conservative) to 4 (most permissive). The items were then summed up to get the total value of the index where high composite scores indicated more positive attitudes. Cronbach’s alpha for the composite indicator was 0.89. The index was divided into two categories: ‘permissive attitude’ and ‘conservative attitude’.

**Attitude towards condom use:** The scale was assessed by six items, using a three-point scale. Items either measured agreement with negative stereotypes regarding condom use (condoms reduce sexual pleasure, when a relationship moves from casual to serious it is no longer necessary to use a condom, a woman loses a man’s respect if she asks him to use a condom, those who suggest condom use do not trust their partners and a young woman who carries condoms in her purse is easy), confidence in the effectiveness of condoms or agreement that
individuals who use condoms are responsible. The latter items were reverse coded so that higher composite scores indicated more negative attitudes. Cronbach’s alpha for the composite indicator was 0.62. The index was divided into two categories of ‘positive attitude’ and ‘negative attitude’.

**Perceived risk for HIV infection:** Perceived risk for HIV infection was assessed by two items: the perceived risk of getting HIV and worry about getting HIV. The responses were converted to a three-point Likert scale ranging from 0 (not at all worried) to 3 (very much worried). The items were then summed up to get the total value of the index where high composite scores indicated high risk. Cronbach’s alpha for the composite index was 0.66. The index was divided into three categories viz., ‘low risk’ and ‘moderate risk’ and ‘high risk’.

**Knowledge about reproductive physiology index:** Women were asked to assess the accuracy on five statements on reproductive physiology, namely, that a woman can become pregnant at first intercourse, that a woman can get pregnant even if she washes herself thoroughly after sex, that a woman can’t get pregnant if a man withdraws before ejaculating, pregnancy is most likely to occur in midcycle and a woman is virgin as long as she doesn’t have sexual intercourse. A summary index was devised that assigned a score of ‘1’ for each correct response and ‘0’ for each incorrect or don’t know response, yielding a score ranging between 0 and 1. The scale was divided into three categories: ‘low/no knowledge’, ‘moderate knowledge’ and ‘high knowledge’.

**Knowledge of contraceptive methods index:** Respondents’ familiarity with nine contraceptive methods was assessed. For each method known a score of ‘1’ was given. The items were then summed up to get the total value of the index where high composite scores indicated high knowledge. Cronbach’s alpha for the composite indicator was 0.80. The index was divided into three categories: ‘low/no knowledge’, ‘moderate knowledge and ‘high knowledge’.
**HIV/AIDS transmission and prevention knowledge Index:** The index consisted of 15 items concerning modes of HIV transmission (e.g., “Can HIV be transmitted by hugging a person who is infected?”) and prevention (e.g., “Is it possible to protect oneself from HIV infection by having sex with just one partner who is not infected and who has no other partners?”). Respondents designated these statements as true or false. All correct responses were scored as ‘1’; wrong responses were coded as ‘0’. Cronbach’s alpha value for the composite index was 0.896. The index was divided into three categories of ‘low knowledge’, ‘moderate knowledge’ and ‘high knowledge’.

**Mental health Scale:** To capture the mental health status of the young migrant female workers, a 58-item standardized mental health scale developed by Raj and Raakhee (1997) has been used for the present study. The scale consists of five components, attitude towards self, integration, autonomy, perception of reality and environmental mastery. There were 12 statements (equal number of negative and positive statements), which measure each of the five components. The Mental Health Scale was successfully used in a PhD thesis entitled “Sex workers in Kerala: A contextual study of their life, work and Reproductive health (Nair 2002). The items were based on five point Likert approach i.e., strongly agree, agree, undecided, disagree and strongly disagree.

To test the consistency of the scale, factor analysis was conducted to clarify scale domains. The scale was scored so that a greater number represents higher anxiety levels. All the items that were originally facing in the opposite direction were switched for the analysis.

**Construct Validity:** A series factor analysis was conducted with 58 original items to test whether separate domains exist within the construct of mental health. The first factor analysis
produced 10 factors, out of which only three factors were considered based on the reading on scree plot, which indicated, three items with substantial explanatory power. All the items with a negative correlation score were dropped from the analysis; likewise the items which explained less than 0.30 correlations were dropped from the analysis. Following this process, 36 items were retained for the further analysis.

**Figure 2.2:** Scree Plot

![Scree Plot](image)

The second factor analysis produced 7 factors and on the basis of scree plot three factors were considered for selecting the items. Following the earlier procedures 23 items were retained out of 36 items for the further analysis.

A final factor analysis was run with only 23 of 58 items. The factors remain unchanged in the final analysis and all the 23 items were considered for the scale. These three factors explained 36 percent of variance.
**Internal consistency:** Internal consistency of the three factors, with 23 items was ascertained by cronbach alpha value using reliability analysis. The internal consistency of the selected items was 0.76.

A scale was developed with a minimum value of 61 and maximum value of 108. Women who scored 61 had the lowest anxiety level and women scored 108 on the scale were considered with high anxiety level. To facilitate bivariate and multivariate analyses, the scale was dichotomized as ‘no/low anxiety’ (61-85) and ‘high anxiety’ (86-108).

### 2.8 Data Management and Analysis

Data entry and processing operations began shortly after the completion of the survey and it took around three months. The completed questionnaire was entered into the computer immediately after a manual edit and validation. Open-ended questions were coded after the completion of fieldwork and the data was entered and analysed using the Statistical Package for Social Sciences (SPSS). A data entry validity check was performed for all the questionnaires. Data analysis was carried out using both bivariate and multivariate techniques. Multivariate techniques used in the analysis were binary logistic regression and factor analysis. As discussed earlier, factor analysis with the ‘principal component’ method was used to construct the ‘Mental Health Scale’.

#### 2.8.1 Binary logistic regression

When the dependent variable is a categorical variable having only two categories, the binary logistic regression is considered over the simple multiple regression. In such cases, it seems preferable to fit some kind of sigmoid curve to the observed points.
The basic form of the logistic function is

\[ P = \frac{1}{1 + e^{-z}} \]  \hspace{1cm} \text{………………………………………………(1)}

where \( z \) is the predictor variable and \( e \) is the base of the natural logarithm (Retherford and Choe 1993).

If the numerator and denominator of the right hand side of (1) are multiplied by \( e^z \), the logistic function in (1) can be written alternatively as

\[ P = \frac{e^z}{1 + e^z} = \frac{\exp(z)}{1 + \exp(z)} \]  \hspace{1cm} \text{…………………………………(2)}

From (1), it follows

\[ 1 - P = 1 - \frac{1}{1 + e^{-z}} \]  \hspace{1cm} \text{………………………………………………(3)}

\[ = \frac{e^{-z}}{1 + e^{-z}} \]

Dividing (1) by (3) yields

\[ \frac{P}{1 - P} = e^z \]  \hspace{1cm} \text{………………………………………………(4)}

Taking natural logarithm of both sides of (4), we obtain

\[ \log \frac{P}{1 - P} = z \]  \hspace{1cm} \text{………………………………………………(5)}

The quantity \( \frac{P}{1 - P} \) is called the odds and the quantity \( \log \frac{P}{1 - P} \) is called the log odds or the logit of \( P \). Thus

\[ Odds = \frac{P}{1 - P} \]  \hspace{1cm} \text{………………………………………………(6)}
Suppose that \( z \) is a linear function of a set of predictor variables:

\[
z = b_0 + b_1 x_1 + b_2 x_2 + \cdots + b_k x_k \tag{7}
\]

where \( x_1, x_2, \ldots, x_k \) are predictor variables.

Substituting (7) in (5), we obtain

\[
\log \frac{P}{1-P} = b_0 + b_1 x_1 + b_2 x_2 + \cdots + b_k x_k \tag{8}
\]

\[
\log itP = b_0 + b_1 x_1 + b_2 x_2 + \cdots + b_k x_k \tag{9}
\]

Equations (8) and (9) are in the familiar form of an ordinary multiple regression equation. The logit model is an additive model, as in ordinary multiple regression.

### 2.8.2 Factor Analysis

Factor analysis is based upon setting up a statistical model of the data. Each variable is modeled as a linear combination of a small number of ‘factors’ with the addition of a random component term, a little like regression analysis (Cooper and Weekes 1983). So the factor analysis model has the form:

\[
X_1 = k_{11} F_1 + \cdots + k_{1m} F_m + u_1
\]

\[
X_2 = k_{21} F_1 + \cdots + k_{2m} F_m + u_2
\]

where \( m \) denotes the number of factors in the model and \( m \leq \) number of variables. Unlike regression analysis, the factors \( F_1, F_2, \ldots \) are hypothetical variables.

In the limiting case when the number of factors equals the number of variables, the random component terms disappear and the factor analysis model reduces to the principal component model (Cooper and Weekes 1983).
2.9 Field Experience

It was a great challenge for the researcher to collect information from the working women due to their busy and hectic schedule. For making an entry into the hostel, firstly the researcher had to convince the Director and the warden and had to take permission from them. Unless and until they granted the permission, the researcher was not allowed inside the hostel or to talk to the girls. Thanks to them for allowing the researcher to collect the data and providing the necessary support.

Initially it was very difficult to get the girls for the interview, as most of the girls used to set out for work early in the morning and return to the hostel late in the evening. Only those respondents who had evening shifts were available. So the researcher made a step to approach the girls at different points of time in a day and on different days. It is worth mentioning that the researcher had to make visits during the late evening hours to meet the girls.

The researcher used to make informal visits to the hostel to build a rapport with the girls. During the meetings, the women used to inquire about the purpose of the study and possible benefits they would be getting after this study. But as these women were educated, it was easy for the researcher to convince them that the study is purely for research. The researcher explained the purpose of the research and sought their consent for participating.

A proper place for protecting the privacy and confidentiality of the discussion was chosen where warden and other staff members of the hostel were not allowed. The girls were very comfortable filling in the questionnaires, but sometimes a few girls hesitated in answering the section on sexual behaviour. It was quite challenging for the researcher to convince those girls.
2.10 Ethical consideration

A code of ethics was taken into consideration to ensure participants protection. Particular care was taken to design the questionnaire in order to inquire about women’s experience of sexual behaviour in a sensitive manner. At the beginning of the survey, participants were informed that the questions were extremely personal and sensitive. To ensure anonymity of the participants’ only verbal consent was taken and the names were never recorded. Every effort was made to maintain privacy during the course of filling of the questionnaires. Measures were taken to protect the confidentiality of participants’ responses.