METHODOLOGY

CHAPTER III

METHODOLOGY

The main purpose of the study was to focus on organic building materials, which are being used from ancient times but have not been regarded as a matter of research, particularly for finding out what type of effect they have on the residents living inside the houses made up of these materials.

The research design, conceptual framework showing the relationship of variables and operational definitions of the terms used in the study are explained briefly. The sampling technique, selection and construction of the tool for the data collection and analysis of data are also described for the study.

This chapter presents the procedure adopted for conducting the present investigation in detail under the following heads:

3.1 Research design

3.2 Conceptual framework of the study

3.3 Variables under study

3.4 Operational definitions

3.5 Development of instrument

3.6 Selection of sample

3.7 Method of data collection

3.8 Analysis of data

3.1 Research Design

Exploratory cum Experimental research design was selected to describe, to correlate and to measure effect of organic building materials on housing conditions and psychological behaviour of residents.

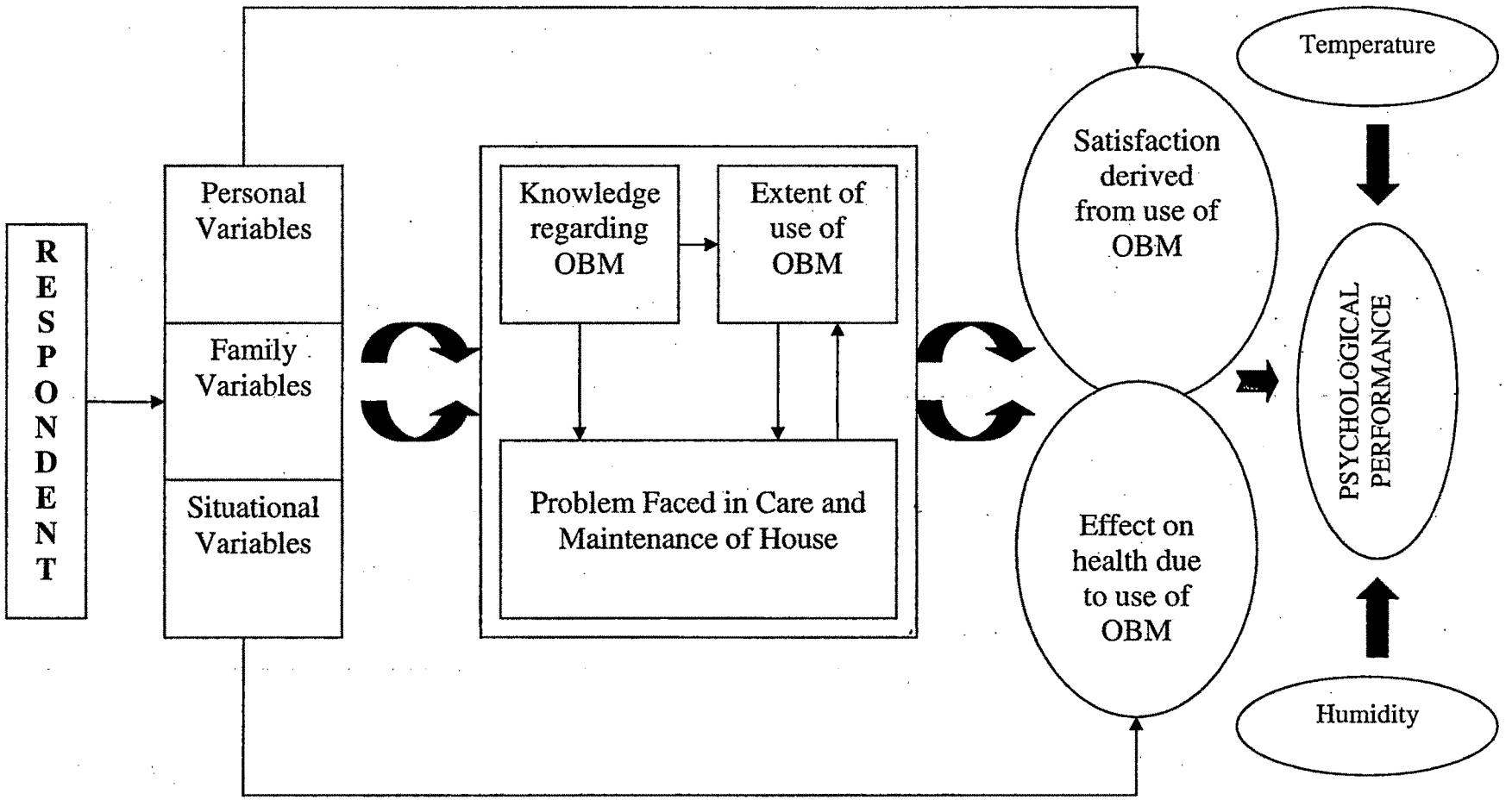
The exploratory research design was chosen as it describes, explores, records, analyzes and interprets conditions that exist. It involves some type of comparison or contrast and attempts to discover relationships between existing non manipulated variables. It also describes, what will happen when certain variables are carefully controlled or manipulated (Kothari, 1990).

The experimental design was chosen to study environmental conditions of house and behaviour of residents. Its main purpose is to describe what will be the impact when certain variables are controlled. Its focus is also on relationships of variables (Singh, 2000). Experiments were conducted on a limited number of respondents for detailed analysis of housing conditions and their interrelationship with performance of people living inside the houses made up of organic building materials.

3.2 Conceptual Framework of the Study

It is conceptualized that respondents' personal, family and situational variables have impact on the intervening variables i.e. their knowledge regarding the building materials, extent of use of organic building materials and problems faced during care and maintenance of home. The impact of these selected intervening variables was also seen directly on satisfaction and effect on health of residents. These intervening variables in turn affect the satisfaction of the respondents with regards to use of OBM. Further analysis was done to find out the impact of temperature and humidity inside the houses on health and human performance of the residents (Figure 4).

Figure 4: Conceptual Framework of the Study



3.3 Variables under Study

It is certainly not possible, theoretical or otherwise to postulate any definite cause effect relationship between any two variables, in particular, in a situation where a number of other factors influence behaviour of individuals to a most pronounced degree (Sharma, 1993).

There are several factors which rationalize the study. Hypothetical relationships of these variables for the study are presented here (Figure 5).

Independent Variables

Variables not having any dependency over any other variable are independent variables. Independent variables selected for the present study are as follows:

1. Personal Variables

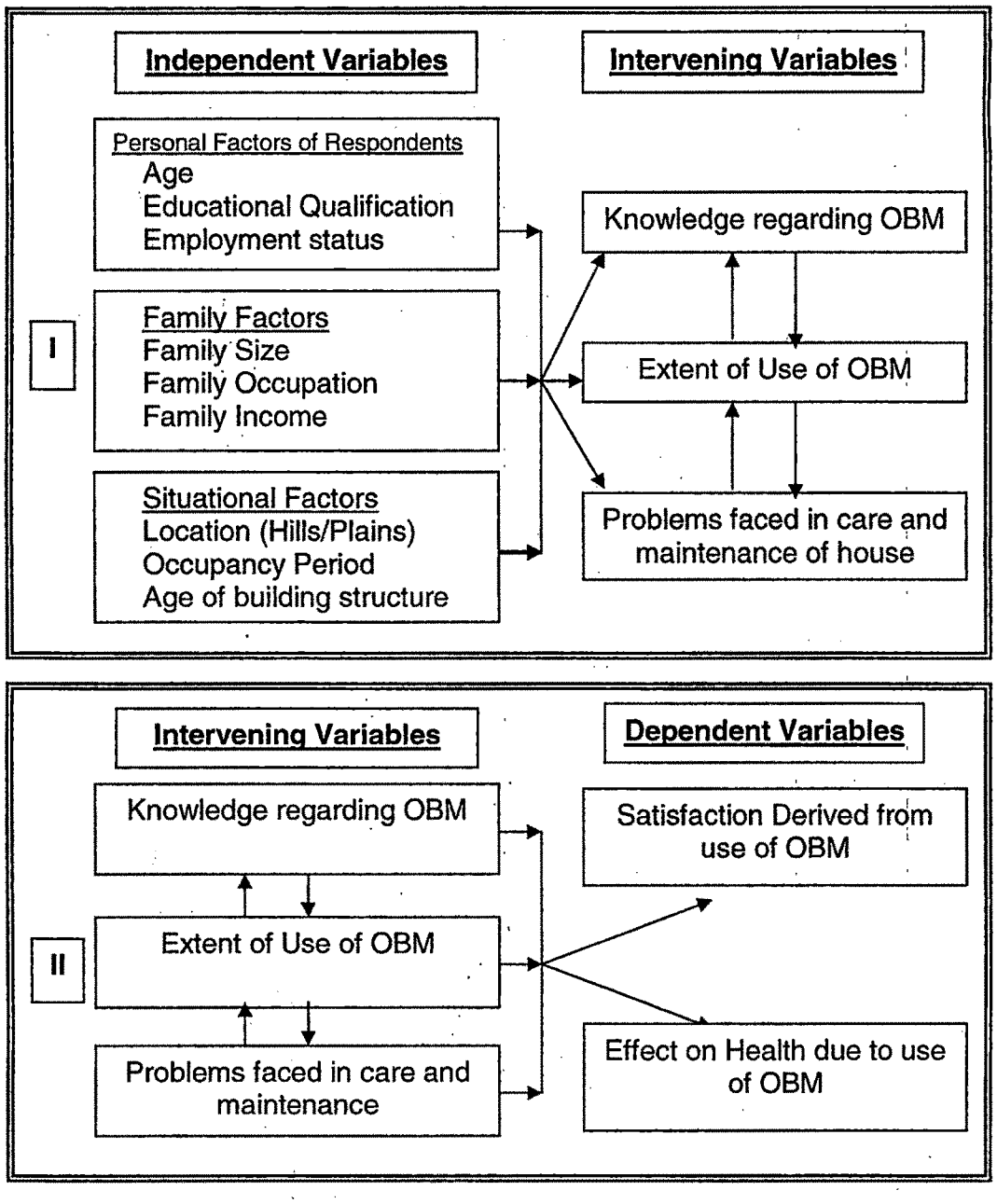
This category of independent variables includes age, educational qualification and employment status of respondents.

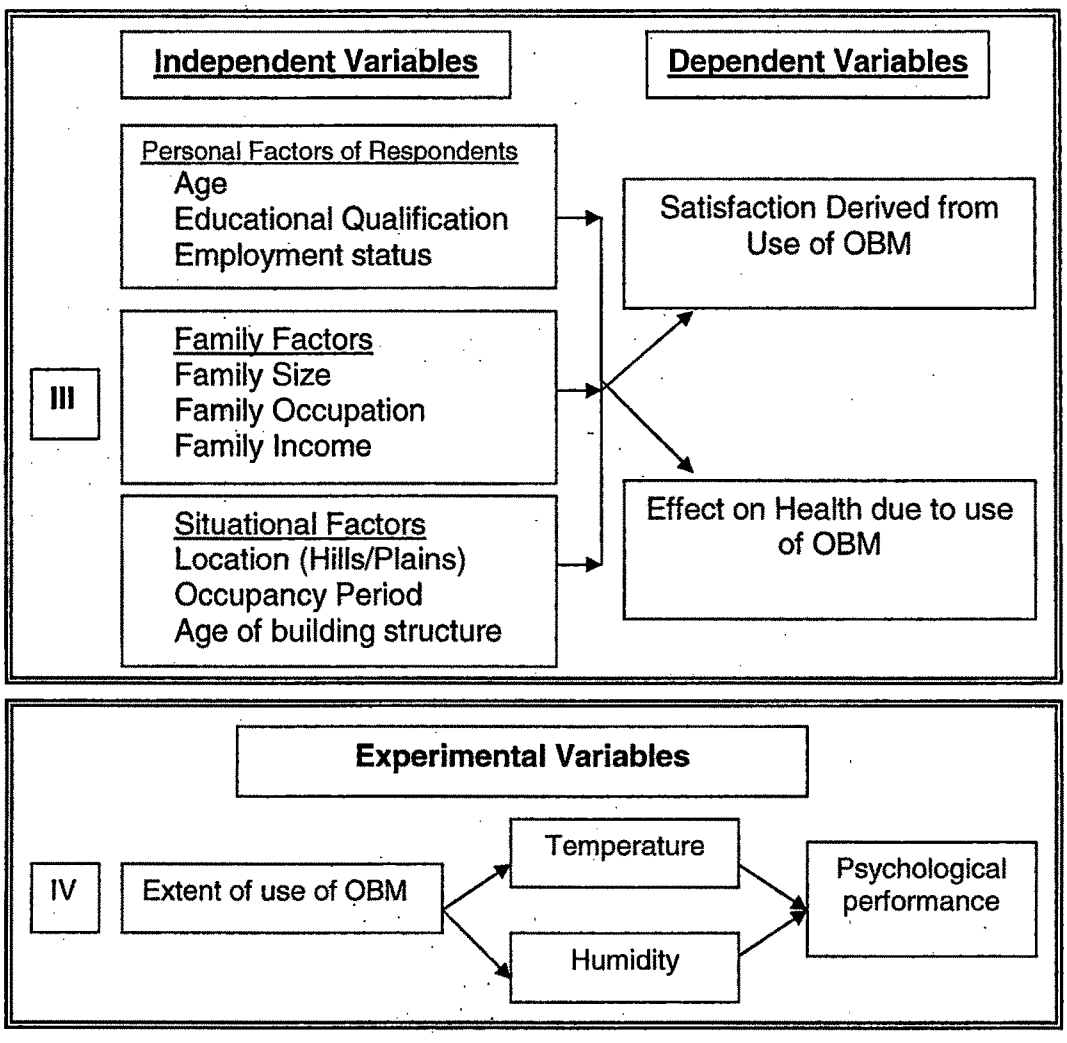
a. Age of respondent: Age was found to be a factor influencing extent of involvement in various decisions (Agarwal, 1979; kaur, 1983; Talwar, 1984; Sharma, 1993). Age was supposed to have an effect on intervening variables of the study. Therefore, it was selected as variable for the present study. It was recorded in complete chronological years.

b. Educational qualification of respondents: Education is a very important factor which may influence level of knowledge, extent of use of various building materials and thus problems faced in care and maintenance of home. It has been observed that educational level is the factor which many times is responsible for participation in various decisions made in family (Sethi, 1982; Talwar, 1984; Agarwal, 1986 and Sharma, 1993). Therefore, this factor was under taken for the study.

c. Employment status of respondents: Employment status of respondent means gainful employment which generates monetary value further adding to living standard. This factor appears to be an important variable as it has a direct effect on intervening variables such as: the extent of use of materials to be used in home and method adopted for care and maintenance of home. It indirectly influences knowledge regarding organic building materials, as respondent interacts with various people at his/her work place.

Figure 5: Hypothetical Representation of Variables





2. Family Variables

This category includes family size, occupation of head of family and income of family.

a. Family size: Family size reported to be associated with participation in different activities (Agarwal, 1989 and Sharma, 1993) and has an effect on dependent variables through participation in care and maintenance in the home. Therefore, it has been considered to be a variable for this study.

b. Occupation of head of family: Mostly the occupation of head of family decides the type of house the family construct and the vicinity, too. The intervening variables such as knowledge regarding organic building materials

(OBM) and extent of use of OBM may be affected by the occupation of the head of the family.

c. Family income: Income of family affects the situational variables, as well as intervening variables. Therefore, it was found to be an important variable to be selected for the study. It was recorded as sum of monthly income in rupees earned by all members of the family.

3. Situational Variables

This category includes location of house, occupancy period and age of building structure.

a. Location of house: Locality and geographic factors all together influence conditions of house, intervening variables and also immediate environment to be lived in it. Therefore, location of house in terms of hills and plains was noted.

b. Occupancy Period: The factor was supposed to be important, because the effects of building material on the health of the residents can be determined on repeated exposure in the houses. Therefore, it was included as a situational variable for purpose of the present study.

c. Age of building structure: Type of building materials used in construction have a tendency to influence various factors like existing living conditions and problems faced during care and maintenance of house thus having an effect on satisfaction derived from use of organic building materials, effect on health as well as performance of people residing in it. Therefore, this variable was found to be an important factor and was measured in terms of number of years completed since its construction.

Intervening Variables:

These are the variables which connect independent and dependent variables by having a relationship with the both directly and/or indirectly thus,

establishing cause – effect relationships with other variables. Intervening variables taken up for the study are knowledge regarding OBM, extent of use of OBM and problems faced in care and maintenance of house (Figure 5).

1. Knowledge Regarding OBM: A dichotomous explanation of knowledge was given by Cohen and Squire (1980); it can be declarative or procedural. Declarative knowledge is explicit and accessible to conscious awareness, it can be declared, i.e. brought to mind, either verbally or non-verbally, and includes both episodic knowledge (specific time and place events), as well as semantic knowledge (facts and general information). By way of contrast, procedural knowledge is defined as being implicit and accessible only by engaging in the skills or operations in which that knowledge is fixed. This variable has its importance in terms of influencing extent of use of OBM and problems faced in care and maintenance of house directly and dependent variables indirectly. For the purpose of the study it includes basic knowledge regarding OBM used in residential constructions, their extent of familiarity, proper use and effect on health.

2. Extent of Use of OBM: It was postulated that extent of use of any OBM creates a physical as well as psychological environment within a house which do have an effect on problems faced in care and maintenance of house, satisfaction derived from their use, health of people residing in the house and their performance of various tasks.

3. Problems Faced in Care and Maintenance of House: It was assumed as prerequisite that care and maintenance of house against wear and tear requires time, energy as well as money. They create a pressure on the residents which in turn affect the satisfaction derived from use of OBM, effect on health of the residents and performance of the residents.

Dependent Variables:

These are the variables which are related to independent variables. As the name suggests they have certain kind of dependency over other factors.

Dependent variables taken for the study are satisfaction derived from use of OBM, effect of these materials on the health and human performance of residents in their homes. These are described as under:

1. Satisfaction Derived From Use of OBM: Satisfaction here means feeling of atonement or adequacy from use of after using organic building materials in residential constructions. This variable is likely to affect of intervening variables such as problems faced during care and maintenance of the houses. This variable was measured by using a satisfaction scale developed for the purpose.

2. Effect on Health due to Use of OBM: Health is not merely a state of physical conditions of a body but it is a physiological, psychological and sociological well being. In the present study it is defined as physiological symptoms of illness or syndrome, perceived as an effect of organic building materials by the residents.

3. Psychological Performance: Human performance analyzes individual differences generally on basis of psychological performance, physiological performance and physical performance (Mathews et. al. 2000). For the purpose of the study it was considered to be taken as combination of cognitive performance, sensory motor system and vigilance/attention/concentration abilities of the respondent.

3.4 Operational Definitions:

Following are certain concepts used in the study. They are operationally defined as under:

Organic Building Materials (OBM): Organic Building Materials are engineering materials, made by a mixture of different hydrocarbons sometimes together with sulphur, nitrogen and oxygen derivatives, used in residential constructions. Organic materials used on or in buildings can be classified according to their use. They include liquid coatings (paints), plastics,

sealants, and roofing materials. Wood, although often placed in a separate category, is really an organic building material (Ashton, 1969). The organic substances contain the element carbon (and usually hydrogen) as a key part of their structure. All living animals and plants are organic.

Care and Maintenance of House: House needs continuous protection against wear and tear, depreciation, etc. to support its original living conditions. It includes human and non human resources to be involved simultaneously. Data for the study includes person, time and frequency of cleaning involved, cost and frequency of repair, marketing sources of OBM during construction and renovation, techniques to withstand accidents, defective symptoms or problems encountered in home.

Health Problems Perceived: For the purpose of the study it refers to physiological symptoms of illness or syndrome, perceived as an effect of organic building materials by the residents. Data recorded for the variable are minor health symptoms, their frequency of occurrence and seriousness of building related syndrome.

Knowledge Regarding OBM: Knowledge means awareness or familiarity, person's range of information and understanding of a particular subject (Oxford Dictionary, 1994). For the present study data were recorded by using a knowledge scale on various aspects of organic building materials.

Satisfaction Regarding OBM: It is a feeling of adequacy derived after use of anything. For the study it was ascertained by using a self prepared satisfaction scale on different aspects viz. cost, care and maintenance, function/purpose, safety and no health effects of OBM.

Human Performance: Acquisition of doing anything to carry out life processes is known to be performance. It can be learned or natural. Mental performance, physiological performance, physical performance and individual differences, help in analyzing human performance. In this study data are

recorded by a combination of tests/equipments for short term memory, attention/concentration, work and fatigue, temperature and humidity.

3.5 Development of Instrument

A. Selection of Tool

Precoded interview schedule (Annexure1) was used as an instrument for collecting data due to following reasons:

1. To ensure completely filled in data sheets
2. To safeguard against non return of the data sheets
3. To establish rapport in order to elicit correct response and to clarify the issues

B. Construction of Tool

An interview schedule having descriptive statements, observation charts and experiment sheets was developed to collect subjective as well as experimental data during face to face interview with residents. The instrument consisted of sections as following:

SECTION I: It comprised of questions regarding general information, care and maintenance of house, health problems as perceived by residents, knowledge scale regarding OBM and satisfaction scale to assess satisfaction derived from use of OBM.

SECTION II: This section was having observation cum interview sheet. It dealt with observation chart of materials used in residential construction. It also included a checklist of defective symptoms as observed in home given by Bowyer in 1973.

SECTION III: It contained experiment sheets to record and judge cognition, sensory motor abilities and attention/concentration of respondents. It also

comprised of experiment sheet to record temperature and humidity as environmental factors.

C. Development of Knowledge Test

Knowledge tests used in the measurements of level of knowledge have proved to be useful in a variety of research problems. The objective of determining level of knowledge of the respondents requires a standardized knowledge test. For quantitative measurements the concept of scaling method is mostly used. The level of knowledge of the respondents is determined in terms of whether they possess good, medium or low knowledge. This is measured by giving scores to answers for each item in the test and by addition of the scores for each respondent.

To measure the level of knowledge of the respondents regarding quality of environment, an attempt has been made to develop a knowledge test in view of the fact that it plays an important role in achieving and maintaining quality of the environment in the residential constructions.

Construction and standardization of the test:

The content of the test comprised of questions called items. The most important factor considered in collecting the items for the knowledge test was to include the various aspects of OBM like, their origin, use, constituents, utility, physiological and psychological effect and so on.

The items were collected from the literature reviewed. Special care was taken to include relevant information. Following criteria were kept in mind while selecting the items for the test:

1. The statement should be as simple as possible as possible
2. They should be clear, brief and related to the problem

The items collected for constructing the knowledge test were all framed in the simple statement with objective type answers so that the respondents

could respond to them either positively or negatively. The selection of the items were done keeping in mind the fact that it should differentiate the well informed respondents from the poorly informed respondents and should have a certain difficulty value and that it should promote thinking of the respondents. One hundred and twenty possible and relevant items were framed to constitute the initial test.

Content validity of the knowledge test:

The aim was to develop a scale that would satisfy content validity. The validity of scale concerns with what the scale measures and how well it does so. The content validity assesses the relevance of the scale to the stated purpose. Content validation is basically judgmental and intuitive. It can be determined by using a panel of persons who shall judge how well the measuring instrument meets the standards.

Content validity refers to degree to which test actually measures, or is specially related to traits for which it was designed. It is determined by using a panel of persons who judge its adequacy and how well the measuring instrument meets standards (Helmstadter, 1964). Therefore, the set of carefully selected one hundred and twenty items related to the topic was given to a panel of twelve judges consisting of experts in the field from OBM Division in C.B.R.I. Roorki; Department of Civil Engineering, Department of Psychology and Department of Home management in The Maharaja Sayaji Rao University of Baroda; Where as Department of Civil Engineering, Department of Home Science Extension, Department of Family Resource Management and Directorate of Research in G.B. Pant University of Agriculture and Technology, Pantnagar. The judges were requested to sort out the statements in terms of its correctness or incorrectness. This was felt necessary so that the investigator could make sure of herself in discriminating correct or incorrect statements. They were also requested to indicate their judgment on clarity and applicability of the statements. All the responses of

the judges were coded and tabulated and analyzed for each statement. The screening of the items was done on the basis of the following criteria:

1. The statement classified as 'clear' by more than seventy five percent of the judges was retained in the scale

2. The scale which was reported as 'applicable' by more than seventy five percent of judges was included in the test.

Very few statements which were indicated as 'ambiguous', but were very much applicable to the study were made more clear and approved by judges after modifications. After the analysis of the judgment given by the panel of experts, eight statements which were not meeting the above criteria were eliminated from the scale. Thus, out of the original set of one hundred and twenty items, one hundred and twelve items which fulfilled the above criteria were included in the final (Annexure1).

Pre-Testing of the scale:

The schedule so developed was pretested on 33 randomly selected residents of a non-sampled group. A pilot study was done to see the feasibility and clarity of the interview schedule and to establish the reliability of knowledge test. Few changes were incorporated in the interview schedule and the tool for data collection was finalized.

Item analysis of the knowledge test:

The knowledge test was analyzed quantitatively by doing item analysis to increase validity and reliability of the test. Item analysis was done to eliminate inconsistency of the items. The respondents were asked to answer the items in dichotomous categories i.e. whether the statement is 'correct' or 'incorrect'. Both correct and incorrect statements were included for counter checking. Almost equal number of positive and negative statements was included in the scale. All the right answers were given a score of '2' and wrong answers were given a score of '1'. These scores helped to determine

the level of knowledge of the respondents. There was thus possibility of a respondent scoring maximum of 224 points for all right answers and 112 points for all wrong answers in the knowledge test. After adding the scores obtained by the 33 respondents in a pilot study, the scores were arranged from highest to the lowest in magnitude. The statements for the final test were retained on the basis of the typical item analysis of the knowledge test by calculating 't values' and arranging them in descending order. One hundred and two statements with higher 't-values' were included for the final test.

Reliability coefficient of the knowledge test:

Split half technique was adopted to determine the reliability coefficient of the test. According to this method of calculating reliability, the whole scale was divided into two halves using odd numbered items for one half and even numbered items for the other half. The scores of the subjects for odd numbered and even numbered items were summed and each of the two sets was treated as separate scale. The respondent who scored high on the odd items should score high on the even items as well, if empirical errors have been kept to a minimum and the same applies in case of low scores also. The coefficient of correlation 'r' between odd and even scores of thirty respondents was computed by using Pearson's Product Moment Correlation Coefficient (Gupta, 1981). The correlation coefficient of the half test derived was 0.436. From the self correlation of two halves of the test, the reliability coefficient of the whole test was estimated by using the Spearman Brown Prophecy Formula (Garrett, 1979). The reliability of the knowledge test thus calculated was 0.607.

The index of reliability 'r' measures the trustworthiness of the test scores by showing how well obtained scores agree with their theoretically true counterparts. The index of reliability is also taken as a measure of validity. The formula given by Garrett in 1979 was used to calculate the index of reliability. By using the formula, the index of reliability of the knowledge test was found 0.779. This means, 0.779 is the highest correlation of which this

test is capable, since it represents the relationship between obtained test scores and true test scores in the same function.

D. Development of Satisfaction Scale to Assess Satisfaction Derived From Use of OBM in Residential Constructions

A three point Likert type scale was developed to assess satisfaction derived from use of OBM in residential constructions. Likert scale is one which consists of a number of statements that express either a favourable or unfavourable degree towards a given object to which the respondent is asked to react (Kothari, 1990). Various items, on basis of literature reviewed and survey done were collected under five categories namely cost, care and maintenance, function/purpose, safety and health regarding OBM.

Items relevant to above cited five categories were formulated. The items were brief, clear and related to the study. The satisfaction scale initially had forty statements.

Construction, Standardization and Content Validity of the Satisfaction Scale:

The scale with forty statements under five categories to assess satisfaction level regarding use of OBM was given to same panel of judges as for validation of the knowledge scale. The judges were requested to check and score each statement on a six point score sheet (Annexure-2). Their evaluation was requested to be based on the objectives of the study and following criteria were adopted for final inclusion of statement in the scale:

1. Items on which there was agreement of seventy percent or more judges with regards to clarity of the statement.

2. Those items on which seventy percent or more judges had considered them relevant to the information to be elicited.

After testing its validity the scale had the forty statements.

Pre-Testing of the scale:

A pilot study on 33 respondents from Rudrapur block of Udham Singh Nagar district in Uttaranchal was conducted. Test-Rest method was applied to evaluate internal consistency of the scale. The scale was repeated after a gap of forty five days.

Reliability coefficient of the knowledge test:

Reliability refers to the accuracy in terms of consistency and stability of measurement by a test (Anastasi, 1982). The reliability varies from zero to one, having the former value when the measurement involves nothing but error and reading the latter value only when there is no variable error at all in the measurement. The weighted score for each item in the first test and in the retest for all respondents was summed up. The total scores of thirty three respondents were arranged in descending order. Each item was analyzed to determine how effectively it helps to differentiate between the high and the low scores. The 't' value for each item was computed to find out the discriminating power of each item. Only those items which showed a significant difference between high and low scorers were retained for the final scale. Out of forty statements only thirty six statements were included for the final scale after item analysis. To establish reliability of the scale coefficient of correlation was computed by using Pearson's Product Moment Correlation Coefficient (Gupta, 1981). The correlation coefficient of the test derived was 0.692. By using the formula of the index of reliability of the satisfaction test was found 0.904. This means, 0.904 is the highest correlation of which this test is capable.

3.6 Selection of Sample

A. Selection of Locale

Uttaranchal state is divided into hill areas and plain (tarai and bhabar regions) areas. The study was conducted in Nainital district from hill areas -

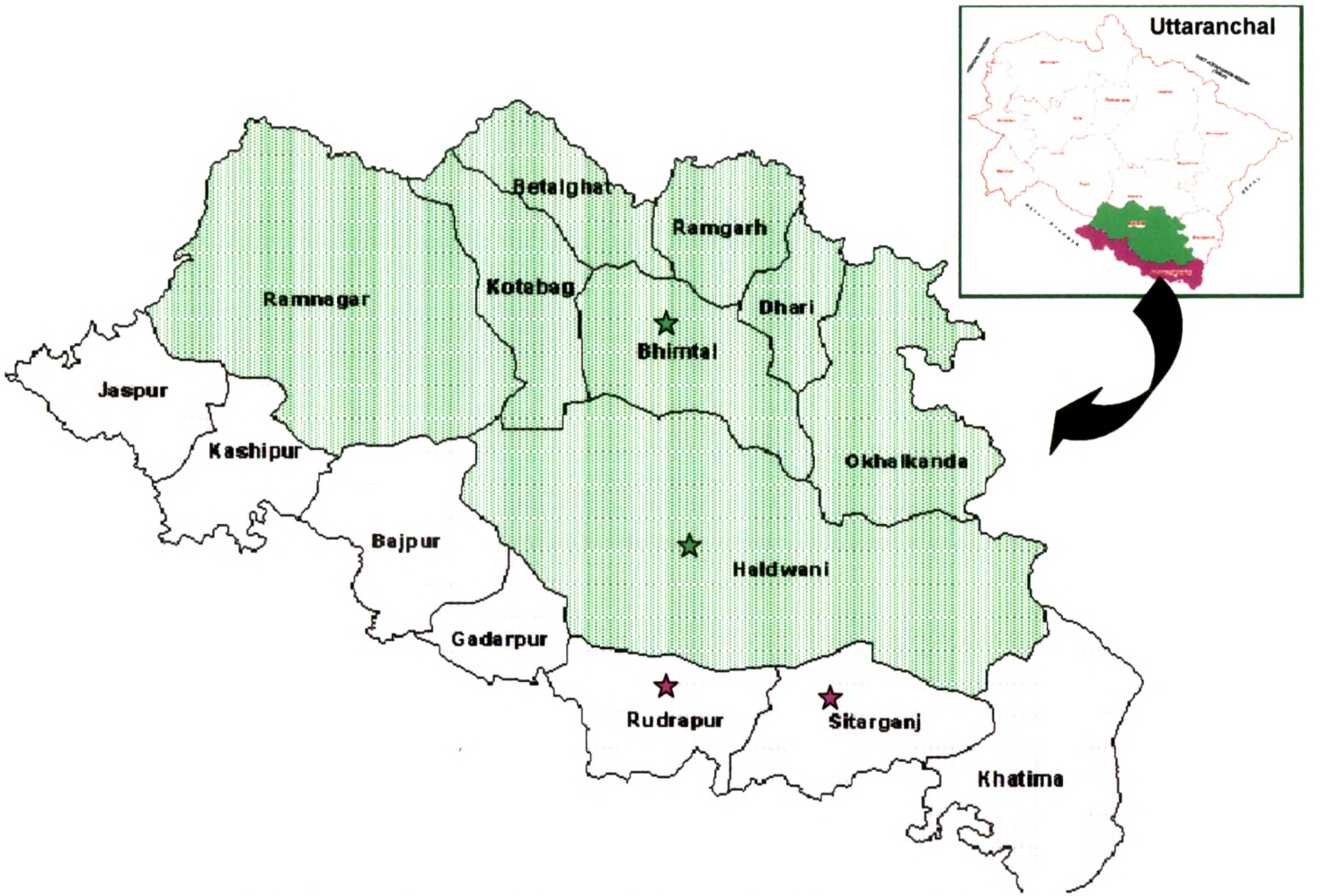
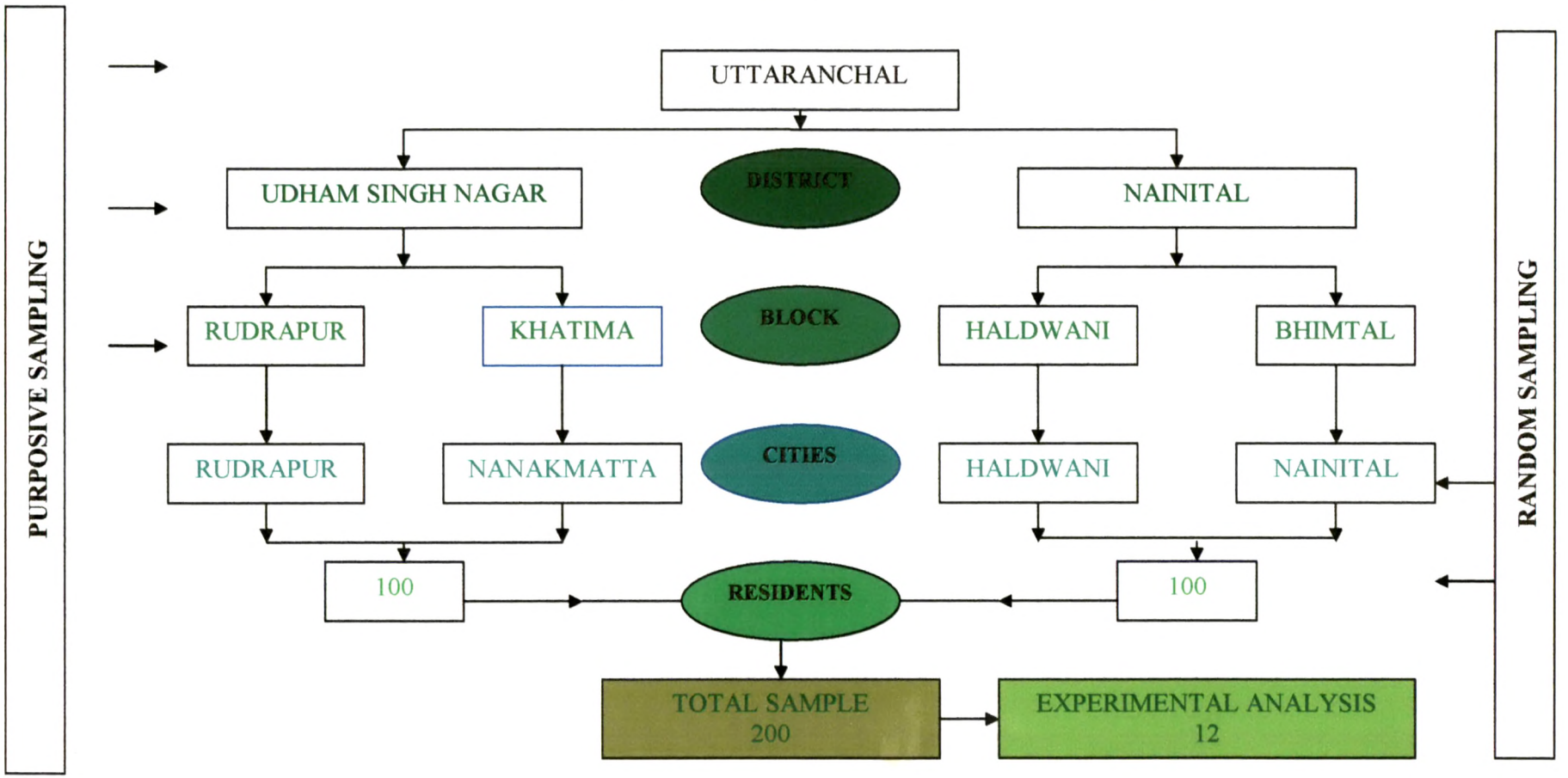


Plate 3: Development Blocks of District Nainital and Udham Singh Nagar

Figure 6: Schematic Representation of Sampling Design



and Udham Singh Nagar district in plain areas (Plate 3). To ignore biased ness in results due to different geographical factors in the state the residential buildings in hill as well as plain region were selected. The selection of districts provided combination of residential buildings having organic building materials in different environmental conditions; and further no study of its kind has been carried out in the area.

B. Sampling Design

Multistage purposive cum random sampling design is one where researcher moves step by step to select sample from population sometimes purposively and sometimes randomly to fulfill objectives of the research. To select state, districts and blocks purposive sampling was adopted and random sampling design was found to be appropriate to select residential buildings.

C. Selection of Sample

For selection of sample Department of Statistics in Nainital and Udham Singh Nagar districts were contacted. The list of primary census data for blocks, cities and occupied residential houses served as a basis to select the sample of 200 residential houses. It is very much clear from the Figure 6.

3.7 Method of Data Collection

Phase I: Descriptive Work

It was assumed that to record information in the interview schedule personal interview method is appropriate. Therefore, data were gathered by personally contacting each respondent. A visit was made to each of the selected place prior to data collection in order to establish a rapport with the respondents. Unit of enquiry was residential building for investigation. Key informants chosen were housewives assuming that they remain in their houses for longer hours. They are the ones who are involved in care -

Table 1: Equipments / Methods used to Record Different Parameters of the Study

S.No.	Parameter	Equipment/Method
1.	Inventory of OBM	- Interview - Observation
2.	Extent of use	- Interview - Observation
3.	Problem experienced in care and maintenance	- Check list of defective symptoms & problems.
4.	Perceived health problems	- Health problem scale
5.	Knowledge level regarding OBM	- Knowledge Scale
6.	Satisfaction level of residents regarding OBM use.	- Satisfaction Scale
7.	Human performance	
	a. Short term memory	Cognition test by Berglund *et al.*, 1987 Perterson *et al.*, 1959 Ost *et al.*, 1969 (Annexure)
	b. Attention	Vigilance test by Dashiell, 1931; Kuppuswamy, 1953; Berglund *et al.* 1987. (Annexure)
	c. Fatigue (mental)	Sensory-motor test by Dashiell, 1931 Kuppuswamy, 1953. (Annexure)
8.	Environmental parameters	
	a. Temperature indoors b. Temperature outdoors	- Digital thermo-hygro clock (Plate-4) - Secondary data
	c. Humidity indoors d. Humidity outdoors	- Digital thermo-hygro clock (Plate-4) - Secondary data

and maintenance of their houses thus has better knowledge of varicus aspects of their houses. Family members were also interviewed for few questions to supplement and cross check the information provided by the -

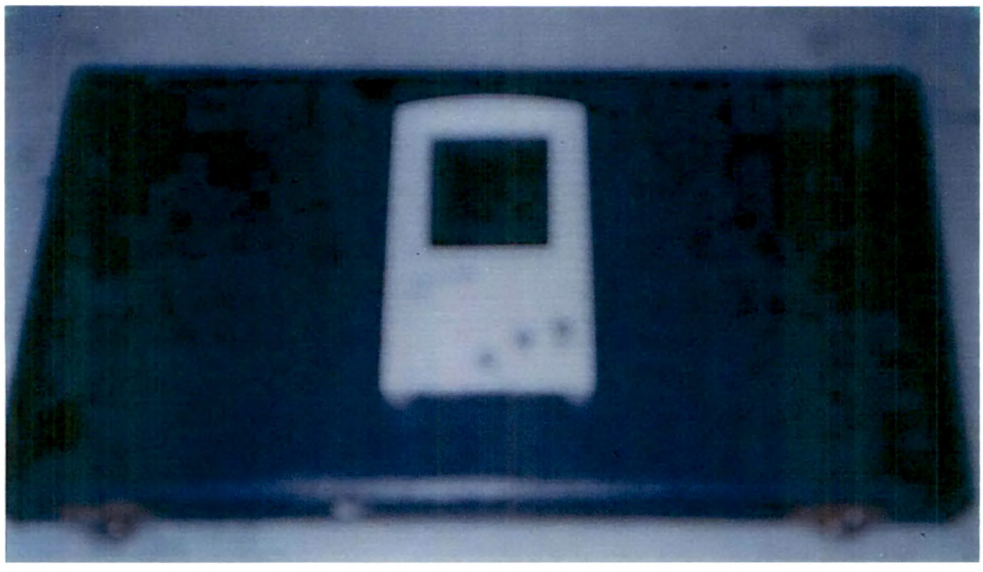


Plate 4: Thermo Hygro Clock Used to Record Environmental Parameters of the Study

respondents. Respondents were interviewed in Hindi as it is local language and to maintain consistency while interviewing.

Phase II: Experimental Work

To assess level of human performance in the selected residential buildings with OBM constructions, it was felt necessary to conduct experiments on certain psychological aspects and indoor environment of the residents, in terms of:

- Short term memory
- Work and Fatigue
- Attention/ Concentration
- Temperature
- Humidity

The above parameters were recorded with standardized test and equipments as mentioned in Table1. The data were collected during period of June 2004 to April 2005. For Various parameters of the study following equipments/methods were adopted to collect data:

3.8 Analysis of Data

Descriptive as well as relational statistics were used to analyze the data in the study. The data were categorized, tabulated and presented in frequencies, percentages, mean, standard deviation for analyzing various information, the standard statistical analysis was done to test the hypothesis of the study.

A. Categorization

The variables of the study were categorized for purpose of tabulation and analysis. A detailed description of categorization is as under:

1. Age: Age was measured in number of complete years by the respondents at time of the interview. It was categorized on equal interval basis as:

Categories

Young	:	20-30 years
Middle	:	31-40 years
Old	:	41-50 years
Very old	:	above 51 years

2. Educational Qualification: Education here referred to reading and writing abilities as well as formal education attained by the residents. It was divided in to following categories:

Categories

Illiterate	:	not having formal education
Low level	:	up to high school
Middle level	:	intermediate
High level	:	degree or diploma

3. Employment Status: It is the status of the respondent with reference to gainful employment. It was divided in two categories:

Categories

Employed	:	gainfully employed outside home

Unemployed : not employed outside home

4. Family size: Family size refers to the total number of members in the family consisting of husband, wife, children and other dependents residing under same roof. It did not include the children who left the houses after marriage or expired. The family size was categorized as:

Categories

Small : less than 5 members

Medium : 5 to 10 members

Large : More than 10 members

5. Occupational Status: It refers to family's source of income of the family. It was categorized in to following categories:

Categories

Business : personal means of livelihood

Service : earning wages from any organization

Agriculture : earning from cultivation in fields

6. Family Income: Family income refers to monthly income accrued from various sources of respondent's family such as farm produce, service, business, dairy/poultry and other income generating activities. The family income ranges were made according to taxation enquiry committee, 1991: Govt. of India Publication.

Categories

Low income level : up to Rs. 1700 per month

Medium income level : Rs. 1701-4200 per month

Medium high income : Rs. 4201-8400 per month

High income level : Rs. 8401 per month and above

7. Location of Residence: Immediate environment of the house where it is situated is known to be locality. It was operationalized for the study as:

Categories

Hills

Plains

8. Age of Housing Structure: Period of residence from the date it was built to the present point of time for interview was recorded as age of the housing structure and it was categorized in to:

Categories

Less than 5 years

6-10 years

More than 11 years

9. Occupancy Period: Period of residency from the date they were living in the residence to the present point of time for interview was taken as occupancy period. It was categorized into following three categories:

Categories

Less than 5 years

6-10 years

More than 11 years

10. Knowledge Regarding OBM: It was measured by means of standardized knowledge test and was described in terms of low, medium or

high level of knowledge on the basis of scores obtained by the respondents. The possible categories of scores were as following:

Categories	Range of Score
Low knowledge	102-135
Medium knowledge	136-170
High Knowledge	171-204

11. Satisfaction Derived From Use of OBM: It is the feeling of atonement derived after use of OBM in the residents by the respondents. It was recorded by using a self developed satisfaction scale. The possible categories of the level of satisfaction derived by the respondents after use of OBM in their houses were as following:

Categories	Range of Score
Highly satisfactory	85-108
Satisfactory	61-84
Not satisfactory	36-60

12. Effect on Health: Effect on health was taken as per the feeling of physical problems perceived by the residents as an effect of OBM in their residences. The health problems were categorized as:

Extent of health problems	Range of Score
High	49-63
Moderate	35-48
Low	21-34

B. Statistical Treatment of the Data

The data were statistically analyzed employing descriptive as well as relational statistics for drawing of inferences:

Descriptive Statistics: The data were presented in percentages, measures of central tendency (mean) and measures of dispersion (Standard Deviation) for analyzing the information.

Relational Statistics: Relational Statistics was applied to test relationship between selected independent variables with dependent variables of the study. Karl Pearson product movement coefficient of correlation, t test, regression analysis and Analysis of Variance (ANOVA) were employed to test the hypothesis formulated for the present study.