ERGONOMIC ASSESSMENT OF OLD AGE HOMESIN HARYANA

BY

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IN

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CERTIFICATE - I

This is to certify that this thesis entitled **"Ergonomic Assessment of Old Age Homes in Haryana"** submitted for the degree of **Master of Science,** in the subject of **"Family Resource Management"** to the CCS Haryana Agricultural University, is a bonafide research work carried out by **AnjuKumari (Admn. No. 2015HS23M)** under my supervision and that no part of this dissertation has been submitted for any other degree.

The assistance and help received during the course of investigation has been fully acknowledged.

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CHAPTER-I

INTRODUCTION

Population ageing is one of the by-products of demographic transition which has far reaching implication particularly in all developed countries. The proportion of elderly population in India is much higher than in South Asia as a whole. Growth of elderly population in India has been attributed mainly to four factors fertility, mortality, composition of population, longevity of life. According to United Nations, a population may be defined as aged when the proportion of persons above the age of 64 in the population exceeds 7 per cent. Although the term ageing in the western experience and tradition has implied increased proportions of those aged 65 years and over in the population, a lower age limit of 60 years is more relevant for assessing the ageing process in developing countries. Old age means reduced physical ability, declining mental ability, the gradual giving up of role playing in socio-economic activities, and a shift in economic status moving from economic independence to economic dependence upon other's for support. Old age is called "dark" no because the light fails to shine but because people refuse to see it (Gowri 2003). According to Mayor (2006), "Some people use their chronological age as a criterion for their own aging whereas others use such physical symptoms as failing eye-sight or hearing, tendency to increase fatigue, decline in sexual potency etc. Still others assess their aging in terms of their capacity for work, their output in relation to standards set in earlier years, their lack of interest in competing with others, lack of motivation to do things or a tendency to reminisce and turn their thoughts to the past rather than dwell on the present or the future." The acceptance of the fact that they are old develops in the aged an "old age complex" (Antonelli *et al.*2002).

Old age is a period of transition when one has to deal not only with the physical aging, but also with the challenges affecting the mental and social well-being. Due to normal aging of the brain and deteriorating physical health, the overall prevalence of mental and behavioral disorders tends to increase with age leading to disability (Grover, 2015). Health status is an important factor that has a significant impact on the quality of life of an elderly population. Perceived health, chronic illness and functional status are major elements of health status in the elderly because perceived health declines with age and chronic health problems increase with age. Furthermore, there is a growing body of evidence indicating that older people are at risk for multiple comorbidities (Gijsen *et al.* 2001). Moreover, due to the urbanization and job requirement of the young people, nuclear family system is fast coming up leaving the older people helpless and neglected, consequently, having no choice other than living in old age

homes. Therefore, old age homes of various types are rapidly becoming a choice for many elderly with or without their willingness (Gosbee, 2002).

India is passing through a phase of rapid socio-economic transformation. As a result, the joint-family system is gradually breaking down giving way to nuclear family. Forces of transformation, technological changes and mobility have introduced changes in the life-style and values of the people that have adversely affected traditional respects as well as attitude of empathy and care for the aged. Migration of the younger people from rural areas to the cities and towns make the situation of the old were who either stay behind, leading a life of isolation or moving along with sons and daughters to towns or lead their life in overcrowded situation. Even increasing literacy amongst women accompanied by their employment outside the home in offices and in factories also leaves no time to take care of the old at home. Besides, there is now greater investment by the family on education and upbringing of children. The high cost of living and changing priorities affect the intra-family distribution of income in favors of the younger generation. The old people have been at the receiving end of these socio-economic changes. Nowadays, the elderly are not given the same respect as they used to get before. They are not shown sufficient care and attention by their family members partly due to the limited resources and partly due to growth of individualism in modern industrial life. All these aspects lead to greater alienation and isolation of the aged from the rest of his/ her family and society at large.

Often older adults go to old age homes as they give them security and medical attention. They may experience loneliness but at the same time feel a sense of independence. On the other hand, some of them are forced to move to an old age home because they have experienced lack of emotional support, verbal and at times physical abuse, neglect and disrespect from their children. But, often in spite of this, they seem to prefer to be living in the comfort of their own home with their children and grandchildren (Kumar *et al.* 2012; Help Age India, 2013; Help Age India, 2014). Older adults living in old age homes face problems of adjustment with tight and rigid schedules; total or near-total separation from their family, friends and society; anxiety over entrusting oneself to a new environment; diminished physical ability and close and frequent encounters with death and ailments in the institution. For many of them social support is almost absent and this leaves older adults with the feeling that he or she does not belong, is not loved or cared for, esteemed or valued (Kumar *et al.* 2012). These and other factors make older adults increasingly vulnerable to mental health problems and their undesirable effects (Help Age India, 2013). Older adults have unpleasant experiences as they not only have to deal with change in their living environment but also have to get used to changes in daily life routines and social and support networks. They feel the loss of family and a sense of loneliness due to the loss of social interactions. They also

feel a sense of powerlessness and their perceptions and fears had adverse effects on their adapting and settling into a new environment. Often they join the old age home because of the loss of a spouse, deterioration in health and the inability to look after oneself due to physical illness and disability, which leads to increased financial problems (Salarvand *et al.*2008; Sigaroudi *et al.* 2013).

Ergonomics is traditionally used as a perspective for analysing work-situations but has also been used when analysing the home environment and older people. Ahasan *et al.* (2001) describes the basic principle of an ergonomic home: a person´s basic need are fulfilled and met without many problems in the environment. The definition of ergonomics according to the International Ergonomics Association(2013): "Ergonomics (or human factors) is the scientific discipline concerned with the understanding of the interactions among humans and other elements of a system, and the profession that applies theoretical principles, data and methods to design in order to optimize human wellbeing and overall system performance."

When describing ergonomics at home there is need for the definition of two other concepts which have to be included: accessibility and usability. Accessibility is widely used and most often described as an area which highly affects older people's experience of their home and surroundings. Usability at home is described mainly within occupational therapy (Iwarsson and Stahl 2003; Iwarsson and Stahl 2005). It focuses on the activity and functionality and how elderly perceive their possibility to perform necessary and preferred activities in the home environment.

Age-friendly environment is the idea of having components of a home/living place for elderly that have been designed so as to enable them to execute their day-today life more comfortably, safely and without help. Along with, anthropometry is essential for designing living area best suited to older people, ergonomically designed facilities such as storage shelves, kitchens, bedrooms, furniture and work stations for them to execute their tasks. It aims to match the capabilities and limitations of people, thereby enhancing opportunities for optimizing performance and reducing the risks of injury, illness and discomfort. Day-to-day living in old age homes poses many hazards if the housing is not ergonomically designed. Hand and arm posture, while using upper shelves of the storage spaces are frequently mentioned as a risk factor for upper extremity musculoskeletal disorders (Kashyap, 2011).

In addition, the lighting proves to be a common problem with the kitchen equipment. The kitchen is a workspace where we use sharp knives, home appliance and hot dishes, so it is necessary that the entire kitchen, especially the working area has proper lighting. A particular attention should be paid to the main working surface, sink and cooker hob area. When installing the lighting and choosing a single lamp, we must pay attention to disturbing shadows, glare and adequate power. For lighting which is directed towards the workplace, it is necessary to be installed from the front or from the left side and not from behind. This

prevents the appearance of throwing shadows on the worktop. Another potentially dangerous place in the living environment is the bathroom. The handrails intended for greater security should be placed at the appropriate level and at appropriate places. Similarly, there are number of other housing related hazards to the inmates living in old age homes. Hence, there is a need to study the old age homes ergonomically to know how far these are functional to the elderly and their satisfaction level in terms of day to day living.

In light of the above facts, the present study was formulated with the following specific objectives:

Objectives

1. Assessing existing ergonomic conditions of old age homes
2. Studying activity profile and satisfaction level of inmates
3. Identifying housing related hazards experienced by inmates and suggesting ergonomic improvements

Definition: Old age homes are the places that are established by some of the social organizations where elderly people take refuge. In old age homes, there have been provision of all the basic facilities and amenities; the elderly individuals who are ill or need special care, even their needs are adequately taken care of (Kapur, 2018).

CHAPTER-II

REVEIEW OF LITERATURE

This chapter includes a brief review of past researches pertinent to the present study. An attempt has been made to record the relevant literature under the following sections:

2.1 Ergonomic conditions of old age homes

2.2 Activity profile and satisfaction level of inmates

2.3 Housing related Hazards

2.1 Ergonomic conditions of old age homes

Pinto *et al*. (2000) concluded that the combination of technology and ergonomics applied to improve the living condition at home may increase safety for the elderly people. This shows that quality and efficiency of technological devices at smart home can be improved with the involvement of the ergonomics.

Pynoos *et al.* (2005) observed that home modification changes something in the physical environment of the home for purpose of preventing accidents, promoting independence and easing care-giving. "Too often, older persons adapt their behaviors to their environments rather than change their settings to meet their needs"

Rashid *et al.* (2008) found that elderly people should be provided with living environment with specifically designed facilities appropriate for their physical and cognitive strengths, capabilities and limitations and to match their body dimensions. A properly designed living environment increases the comfort, safety and health of the elderly.

Camara *et al.* (2010) highlighted that anthropometry is essential for designing safe products best suited to their users, including designing products for older people, tooling aids, living facilities, ergonomically designed facilities such as storage shelves, kitchens, bedrooms, furniture and work stations. Anthropometry is essential for designing safe products best suited to their users, including designing products for older people, tooling aids, living facilities, ergonomically designed facilities such as storage shelves, kitchens, bedrooms, furniture and work stations.

Kashyap (2010) carried out a study in old age homes in Uttrakhand and found that the majority of elderly people had problems in reaching the top shelf of the cupboard of the higher facilities. He also observed that there was a substantial discrepancy between the dimensions of elderly and the dimensions of the storage facilities at old age homes and needed redesigning units in all old age homes.

Kashyap (2011) expressed that the hand and arm posture while using upper shelves of the storage was frequently mentioned as a risk factor for upper extremity musculoskeletal disorders. Electric switch boards and designing of lower shelves were needed to be

redesigned ergonomically to avoid mismatch between human body dimensions and the placement of frequently used and crucial areas.

Morris *et al.* (2013) depicted that smart homes are equipped with automated systems for different tasks such as lighting, fall detection, kitchen safety, door switches, movement sensors, individual tracking badges, reminder system and personal household assistant.

2.2 **Activity profile and satisfaction level of inmates**

Chou and Chi (2001) revealed that elderly people living alone have a higher level of financial strain, more depressive symptoms than others and have a lower level of satisfaction with life. Institutionalized elderly women felt helpless because they had no money to meet their materials needs.

Ramamurti (2001) showed that most of the inmates came to old age home due to lack of money or care within family. The inmates had strained relationships with their children. Under the circumstances many felt that the old age home had given them some support when they were neglected by their family. A few had expressed that instead of staying with their children or other relatives who did not want them, it was better to stay in an old age home, free of the teasing home environment.

Sreevals and Nair (2001) concluded that about half of the institutionalized older person had no children and the other half of the inmates joined old age homes due to family problems such as quarrel with sons and daughter-in-laws or other relatives. Further the major findings of this study revealed that most of the inmates were females in the age group 60-75 years. Majority of the inmates were satisfied in the old age home.

Gosbee (2002) reported that the elderly to execute their daily activities more comfortably, safely and without help and the most important thing is to ensure that the height of workplace is adjustable. In addition, the study of human factors can help in designing products and environments that are more efficient, comfortable, and safe.

Siva Raju (2002) reveals in the later years of life, arthritis, rheumatism, heart problems, high blood pressure and diabetes were found to be the most prevalent chronic diseases affecting people. The poor elderly attribute their health problems on the basis of easily identifiable symptoms like chest pain, shortness of breath, prolonged cough, breathlessness/asthma, eye problems, difficulty in movements, tiredness whereas the upper class elderly mentioned blood pressures, heart attacks and diabetes which were mostly diagnosed through clinical examination.

Sandhu and Arora (2003) depicted that in the old age homes of Amirtsar, Punjab inmates were fully satisfied of their stay. The inmates were enjoying their institutional life. They did not feel bad about institutionalization, rather they expressed their opinion that more old age homes were needed and society should make arrangements for institutionalization of

older person. This study also revealed that the most commonly stated reason by the inmates for shifting to old age home was conflict relations with their sons and daughter-in-laws.

Rajan*et al*. (2004) conducted a survey of elders in old age homes in Pondicherry to find out problem of the aged and revealed that a sizeable majority of the aged suffer from loss of memory and no sleep. Psychologically maximum number of the aged feels isolated, frustrated and depressed.

Chadha (2006) observed that marital status and leisure time activities among the elderly located in Delhi. For this purpose, the investigation was carried out on a sample of 200 persons, of which 154 were married and living with their spouse and 46 widowed elderly. The objective was to see how effectively the elderly were able to spend their leisure time by involving themselves in various activities like cultural, social, solitary and physical activities. Although leisure activities varies according to age and period in life cycle, the choice of activities depends on a number of factors like income level, interest, personality, health, education, etc. The social isolation and lack of role and importance of the aged in the present society could be important in restricting the elderly to actively participate in such activities.

Bansod &Paswan (2006)in a study showed that many of the older people of Amravati left home due to neglect by their children and relatives, while the majority of them adopted old age home as there was no one to look after them. Almost half of the inmates felt that staying at old age home was far more peaceful than staying with families. Older person were satisfied with care provided at the old age home. Results revealed that most of the older persons in the old age home were from rural background, who did not have any land and who were illiterate, widowed and economically dependent.

Mishra (2007) conducted a study in Orissa and revealed that majority of the inmates stated that lack of money and care in the family drove them to take shelter in the old age homes. Being in constant touch with friends, good friendship with the co-residents and engagement in activities within the old age homes were also contributing factors towards their satisfactory lives in the old age home. They are not in a mood to go back to their children or to look for any other alternatives. For many of inmates stated that the old age home became an ideal place for them to stay.

Kashyap (2008) reported that in old age home, furniture and furnishing provided were not sufficient as per requirement of elderly people. There was no special relaxing chair where the elderly people were supposed to sit for a long time. From the elderly people, the satisfaction level was poor. The new concept adopted therefore was seen as a strategy to upgrade the condition of the facilities in order to suit the new requirements as well as to cater for the needs of the users.

Sangar (2015) reported that the interventions require being designed to increase life satisfaction among old persons. Appropriate old age management involving important

answers to the difficulties of the aged persons are important to give them feel the element of culture. Many of the elders are pleasured with the Geriatric home services including (nutrition, room services, bathing, hygiene, clothing, and relationship with staff in the home) while they are not satisfied with some items of services such as environment, social activities, entertainment, safety measures and transportation.

Aprajita and Gandhi (2016) elucidated that elderly people of Haryana were having a good functional ability for living as they were able to perform maximum of the activities either by themselves or by taking minor helps from others. Maximum numbers (98.0%) of elderly people were able to perform toileting, eating, dressing, grooming, ambulation and bathing themselves.

Gandhi (2016) expounded that most of elderly were able to perform ADLs (Activities of Daily Living) but sixty two percent elderly needed some assistance in performing IADLs (Instrumental Activities of Daily Living). Heart disease was the biggest problem in elderly males, whereas in females arthritis was the biggest problem. Joint pains while climbing stairs was also the biggest extrinsic problem of old age. Bathroom, being accident prone area for elderly, need to have a provision of grab bars, tap turners, marks for hot water taps, rail support, high wooden stool, low towel stand to make their living easier and safer.

2.3 Housing related Hazards

Ahasan *et al.* (2001) observed that ergonomics design can be seen as a precautionary design rather than simply a corrective one. Additionally, it is believed the premise that is built with ergonomics approach can offer protected, non-polluted, and sanitary residence. With regard to interior design interference, the article suggests strategies for preventing falls with bathroom design interventions including the guideline for bathroom layout design, built-in and loose furniture design, flooring and stepping design, lighting design as well as design consideration.

Hazen *et al.* (2001) reported in a study to miscalculate the possibility of toilet-related injuries. This type of injury mostly takes place when a person falls off the toilet or he or she loses steadiness on standing position. Stability of furniture can facilitate older people's steadiness of body. A properly proportioned chair can assist in maintaining the hip, knee, ankle joints. The sturdy material was recommended for elevated toilet seat which stays in shape and was attached firmly to the toilet base. A toilet back support and seat belt can be helpful if balance control for sitting position was a challenge. Light-activated and weight-activated flush controls can also help in removing uncomfortable reach to wash after finishing.

Rogers *et al.* (2004) observed that lack of traction can happen when the floor was wet or slick. These two conditions usually lead to a fall. The bathrooms should then have skid-resistant flooring so that when wet would not become slippery. Waxes and polished floors can

be very slippery so they were not recommended. Clutter was a potential risk for tripping so it should not be found at any floors. Also, walking paths should be free from all telephone and electrical cords. It was not sufficient to be aware of having non-slip floors only. Well-fitting shoes or slippers with non-slip soles should also be used while socks, loose-fitting slippers, leather or other slippery soles, and high heels were not recommended.

Lord *et al.* (2006) reported that environmental risk factors at home for older people's exposure to falls indicated that only home hazards may not entirely lead to falls. It has been discussed that household environmental hazards may promote more dangers for the older people who have a fair balance, whereas those with weak ability to balance have less contact to the threats. Also, those with good movement ability are likely to have more skills to endure them.

Gray (2007) conducted that the safe environment included absence of environmental hazards, modifications of the facility and implementation of alarm system. Included of proper mobility to aid physical or occupational therapy as well as practice of assistive devices. Furthermore, home modifications only, were not adequate to reduce fall. Besides that, home modification and environmental hazards were to be addressed. This included for instance eliminating clutter, extension cords, rugs, providing non slippery floors, improving lighting.

Barry (2008) reporting difficulties (86%) have made at least one simple change such as installing nightlights, non-slip strips in tub or shower, brighter lighting . 70% have made a major change: installed light switches at the top and bottom of stairwells, made changes allowing one level living, installed handrails on stairs and grab bars in bathroom.

Feldman & Chaudhury (2008) depicted that bathroom was identified as the most unsafe room in old age home. Two or more hazards found in the bathroom frequently were related to floor surfaces, poor lighting, and an absence of appropriate grab bars or handrails, steps, objects on the pathway, poor design of furniture, bad placement of furniture as well as the toilet design. Falls have been reported to occur mostly in bathrooms.

Kanyingi (2012) reported that the maintained safety from injuries associated with falls as well as other related hazards. The residential falls related hazards were consequences of deficient handrails on stairs, non-slip surfaces in the bathroom and grab bars, slipping hazards (such as throw rugs, waxed flooring), outdoor steps, presence of electrical or telephone cords in the walkway and inadequate lighting. In addition, physical ability level, individual behaviors and lifestyle would not to be ignored. The elderly safety is improved through modification of these simple measures and the introduction of emerging advanced technology.

Kashyap (2012) identified that majority of falls/slips occurred in the habitat room and the surrounding grounds and also added important components in prevention of occurrence of

these accidents. Designed bathing facility with non-slippery flooring is capable of providing adequate safety and access to elderly people.

Kashyap (2014) studied on activity profiling and major problems faced by elderly while living independent, mentioned that doors, windows, switches, power outlets, sink, toilets, bathroom, handrails; storage space were not comfortable to the elderly people. Cupboards with difficult access make elderly people take uncomfortable positions flexing their bodies extend their necks; especially the illuminations level was not friendly to the elderly.

Friesen *et al*. (2016) depicted that home hazards as the built environmental factor have been recognized as a contributing factor to falls in older adults. Adjusting the home environment to prevent or reduce the number of falls is likely to be reasonable for everyone using the safer environment. A key factor for healthy aging is the built environment. Person-environment fit can have a considerable effect on quality of life, attachment to place, and sense of well-being and belonging.

Chacko *et al.* (2017) showed the distribution of homes of elderly not meeting fall prevention housing standards by type of rooms. Lighting was poor (below recommended fall-prevention standard) in 95% and 94.4% of living and bedrooms respectively. Uneven or slippery flooring (due to flooring material or algae) was seen mostly in the bathing room (41.6%) followed by toilet (15.3%). Very few living rooms (1.4%) and kitchen (1.2%) had things kept beyond reach height for it to be a potential risk for fall. Living room was found to have the maximum percentage of obstacles in the pathway (26.6%) followed by kitchen (16.3%) and bedroom (14%). Only 20% of elders with bedroom had inappropriate bed height but over 60% did not have a light switch near their bed.

Chuangchai (2017) observed that fall prevention of older people which can be managed by interior design of the ergonomics concept. A complex interaction between personal factors e.g., vision, hearing, posture, and gait and environmental hazards generating challenges and barriers related to the built environment e.g., bathroom, built-in and loose furniture, flooring and stepping, and lighting. The design recommendations which focus on bathroom function were described to promote better design integration with ergonomics as a component of interior design for falls prevention strategy.

Conclusively on basis of the literature reviewed studies on the ergonomic conditions, activity profile, satisfaction level of elderly, problems faced by elderly, and different housing hazards like bathroom, bedroom and stairs etc were available. Whereas no study was found on the ergonomic assessment of old age homes of Haryana so, the present study has been undertaken to fill the research gap in the ergonomic conditions and ergonomic solution in the old age homes of Haryana

CHAPTER-III

MATERIALS AND METHODS

Research is common phrasing refers to a search for knowledge. It is scientific and systematic search for relevant information on a specific topic. The way scientifically solves the research problem lies in the research methodology. It represents the logic behind the methods used by researcher in the viewpoint of research study and explains the importance of a particular method or technique adopted for the research purpose. This chapter encompasses the methods, techniques and various tools used for the present study. The details of the methods and procedure followed for the study have been described as given under the following sections:

3.1 Locale of the study

3.2 Sampling procedure

3.3 Variables and measurement

3.4 Tools and techniques of data collection

3.5 Statistical analysis of data

3.1 Locale of the study

The study was conducted in Haryana state considering of familiarity of the researcher.

3.2 Sampling Procedure

The multistage sampling procedure as presented underneath was used to draw the ultimate sample respondents (Fig. 1).

3.2.1Selection of the districts and Old Age Home

Hisar and Sirsa districts were randomly selected from Haryana state. The selection of old age home was done purposively, from Hisar and Sirsa district of Haryana state was selected.One OAH having the maximum number of inmates in each district was selected purposively. OAH from Hisar was Moksha old age home (OAH-1) and from Sirsa it was Kasturba Gandhi varidha aasram (OAH-2) was selected .

3.2.2 Selection of sample

In the selected old age home there were 50 inmates in which all the inmates that are 42inmatesfrom Hisar and 8 inmates from Sirsa were selected.

3.3Variables and measurement

Based on the expert opinions and past studies reported in reviews where the scholar could lay hand, relevant variables were selected for the present study. The list of these variables along with procedures of measurement is presented below.

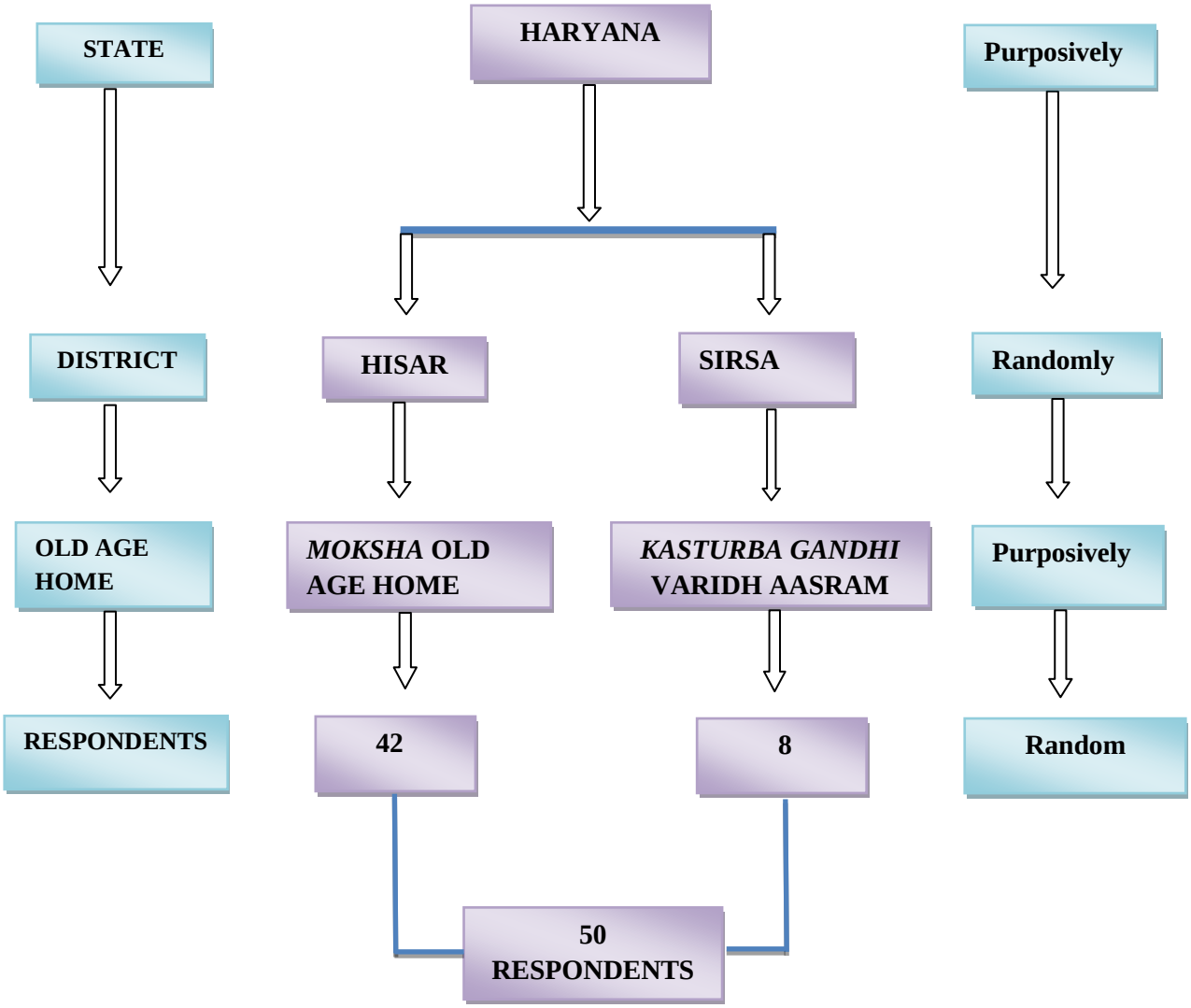


Fig.1: SAMPLING FRAME WORK

Independent variables: Various personal and socio-economic variables were taken as independent variables. For the measurement of these variables, categories were devised.

Independent variables

Socio-personal and economic variables

- Age — Chronological age was taken
- Sex
- Caste
- Education of respondent
- Family education status
- Marital status
- Family size & composition
- Employment status (before & at present, if any)
- Duration of stay
- Income of family
- Living status

— Schedule was developed

Old age home features

Housing facilities:

Habitat room,
Toilet, stairs,
Fixtures, etc

— Checklist and a schedule developed

- Environmental conditions of old age homes

Dependent variable

- Activity profile of elderly — Katz ADLs Scale (1970)
- Housing related hazards

Socio-personal and economic variables

Age: Age was operationalized as chronological age of the respondents in years at the time of data collection. The scores allotted to each of the following categories were given below:

S. No.	Category	Score
1	60-70 Years	1
2	70-80 Years	2
3	80-90 years	3

Sex: Sex refers to the biological and physiological characteristics that define male and female. Assigned codes were as follows:

S. No.	Category	Score
1	Male	1
2	Female	2

Caste: A caste is one of the traditional social classes into which people are divided into society. On the basis of their caste the respondents were categorized under scheduled caste, backward caste and general caste with assigned score of 1, 2 and 3, respectively.

S. No.	Category	Score
1	SC/ST	1
2	BC	2
3	General	3

Education of respondent: Education was operationalized as the level of formal education attained by the individual respondent. Based on this, they were grouped into five categories as described below:

S.No.	Category	Score
1.	Illiterate	1
2.	Primary	2
3.	Middle	3
4.	High school	4
5.	Upto Graduate	5

Family education Status:

Family education was operationalized as the formal education obtained by the family members at the time of data collection who were above six years of age. Family education status was calculated with the help of given formula;

$$FES = \frac{\text{Total education score of the family}}{\text{Total number of eligible members of the family}}$$

Where;

FES = Family education status

Based on the FES score, the respondents were categorized into three groups which are as under;

S. No.	Category	Score
1	Low (1-4)	1
2	Medium (4-8)	2
3	High (Above 8)	3

Marital Status: Marital status is the condition or state of being married, unmarried, widowed and divorced of the respondents at the time of data collection. The scores allotted to each of the following categories are given below:

S. No.	Category	Score
1	Married	1
2.	Unmarried	2
3.	Widowed	3
4.	Divorcee	4

Type of family: It referred to whether the family was nuclear or joint. A nuclear family was considered as one which constituted members of the family of only one person which include minor and other dependents. A joint family is referred to one which constituted two or more married brothers and their families living together. Scores assigned to each of these categories were as follows:

S. No.	Category	Score
1	Nuclear	1
2	Joint	2

Size of family: It was operationalized as the total number of the members in the family living together at the time of data collection. The inventory was developed in order to categorize the respondents on the basis of family size and the scores were assigned to each category as given below:

S. No.	Category	Score
1	Small (up to 3)	1
2	Medium (4-6)	2
3	Large (7 -8)	3

Employment status: It refers to the status of an economically active person with respect to his or her employment. Scores assigned to each of these categories were as follows:

S. No.	Category	Score
1	Employed	1
2	Unemployed	2

Duration of stay in old age home: It refers to the time period of living in old age home by the respondents. Scores assigned to each of these categories were presented below:

S. No.	Category	Score
1	Up to 1year	1
2	2-5 Years	2
3	6-10 years	3

Family income (monthly): It was operationalized as the monthly income earned by the respondent's family from all the sources. The income was divided into three categories and the scoring procedure was as under:

S. No.	Category	Score
1	Up to 25,000	1
2	25,000-50,000	2
3	More than 50,000	3

Living status: Living status is the condition or state of being living alone and living with spouse at the time of data collection. The scores allotted to each of the following categories are given below:

S. No.	Category	Score
1	Living alone	1
2	Living with spouse	2

Housing facilities: Housing facility means availability of different facilities i.e. room, dormitory, attached bathroom, cupboards, room heater and room cooler were available except the single rooms and three seater rooms at the time of data collection. Assigned codes were as follows:

S. No.	Category	Score
1	Yes	1
2	No	2

Environmental conditions of old age homes: Environmental condition measure the temperature, humidity, noise and light of old age home and compared with recommended value.

S. No.	Environmental parameters	Equipment
1	Temperature ^{0}C	Thermometer
2	Humidity %	Hygrometer
3	Noise (dB)	Sound level meter
4	Light (Lux)	Lux meter

Activity profile of elderly: Activity of Daily Living scale (ADLs) given by Katz (1970) was used to measure the activity profile of elderly. This scale has six activities i.e. ability to toileting by self, feeding, dressing, grooming, physical ambulation and ability to bathing. Each activity has 5 statements (Annexure-I).

Scoring procedure: To check the level of assisted ADLs performed by elderly the scale respondents the score (1-1.33) as functionally able, score (1.34 – 1.66) as moderately dependent and score (1.67 – 2.00) as severely dependent.

Housing related hazards: It referred to number of hazards faced by the respondent. Hazards were measured with the help of schedule developed for the purpose (Annexure-I).

Tools and techniques of data collection

In accordance with the objectives and selected variables items related to housing facilities i.e. habitat room, toilet, stairs, fixtures, etc., environmental conditions of old age homes, activity of daily living scale and housing related hazards along with socio-personal and economic variables of the respondents, a interview schedule was constructed data were compiled keeping in view the various score including experts and relevant literature pertaining to the topic covered under the present investigation. Interview schedule was pretested on 10 non sample respondents. The data was collected personally.

Statistical analysis of data

Qualitative data obtained from the measure were quantified and analyzed using statically package for social science (SPSS for windows). Prior to analysis quantitative data were screened for accurateness of data entry and missing values. Appropriate tables were formulated depending on the kind of information required. An alpha level of .05 was used as the level of significance in all the statistical tests. Keeping in view the objectives of the study statistical tools applied were as follows:

1. **Frequency and percentage:** Frequency and percentages were calculated for personal and socio-economic profile of senior citizens, extent of quality of life, adjustment pattern and depression among senior citizens.
2. **Weighted Mean score (WMS):** WMSs were calculated to rank various variables like satisfaction level of the elderly regarding facilities in old age home and housing hazards faced by the respondents. For each item, the frequencies falling under each rating were tabulated. Then the frequencies in each of the category were multiplied by the assigned scores and added. The resulting sum of each aspect was divided by the total number of respondents. In this way, the mean weighted scores in each aspect were calculated.
3. **Coefficient of correlation(r):** Karl Pearson's product moment correlation coefficient analysis was carried out to assess the relationship between socio-economic variables and housing hazards in old age homes and health problems of elderly with socio-economic variables. Correlation coefficient was worked to see the relationship between quantitative variables with the help of following formula:

$$r(X,Y) = \frac{\text{Cov}\ (x,\ y)}{Var\ (X)\ Var\ (y)}$$

Where,

r	:	Coefficient of correlation between x and y variables
Cov (X,Y)	:	Covariance between x and y variables
V(X)	:	Variance of x variable
V(Y)	:	Variance of y variable

CHAPTER-IV

RESULTS

This chapter deals with the results of the study. In accordance with the objectives of the study the results have been presented under following subheads;

4.1 Socio-personal profile of elderly

4.2 Health problems of elderly

4.3 Environmental conditions of old age home

4.4 Ergonomic conditions of old age home

4.5 Elderly interest in different activities in old age home

4.6 Activity of daily living

4.7 Housing hazards and suggestion for ergo-improvements.

4.8 Association of dependent and independent variables

4.1 Socio-personal profile of respondents

Socio-personal profile of respondents reveals age, sex, education, marital status, caste, family type, family size, employment status, family education status, monthly income of the family, duration of stay in old age home source of income, and living status in the old age home of the respondents (Table-1);

Age: Table 1 and Fig. 2 shows that in pooled sample 44.0 percent of the respondents were in the age group of 70-80 years followed by 60-70 years (42.0%), and 80-90 years of age (14.0%). One half of the of the respondents were male in the age group of 70-80 years followed by 60-70 years (39.2%) and 80- 90 years (10.7%). Whereas, less than half (45.4%) of the female respondents were in the age group of 60-70 years followed by 70-80 years (36.3%) and 80-90 years (18.1%).

Education: Among all the respondents**,** less than half of the respondents (46%) were illiterate followed by 24.0 percent respondents who were educated upto the primary level and 18.0 percent respondents were educated upto the high school. Whereas, only 6 percent respondents had education upto middle level and graduate. Gender wise data depicts that nearly one-third of male respondents (32.1%) were illiterate followed by (25.0%) upto the primary level and high school (7.1%) were graduate. More than three-fifth of the female respondents (63.6%) were illiterate, followed by 22.7 percent educated upto the middle level, whereas only 4.5 percent female respondents were graduate (Table 1 and Fig. 3).

Marital status: Table 1 and Fig. 4 shows that majority of the respondents (70.0%) were widow followed by the married respondents (18.0%) and only 6.0 percent respondents were unmarried and divorcee in pooled sample. A very high majority of female respondents

(86.3%) and male respondents (57.1%) were widow and widower respectively moreover 28.5 per cent male respondents and 4.5 percent female respondents were married.

Caste: In case of pooled sample more than half of the respondents (54.0%) belonged to general category of caste followed by SC&ST category (24.0%) and BC category (22.0%). Maximum number of respondents both male (57.1%) and female (50.0%) belonged to general category whereas nearly one third of female (31.8%) respondents belonged to SC&ST category while one fourth of male respondents (25.0%) belonged to backward class (Table 1 and Fig. 5).

Family type: The result indicated that more than three fifth of the respondents (62.0%) were having the joint family in comparison to 38.0 percent having the nuclear family in case of pooled sample. Maximum number of male as well as female respondents (67.8%), (54.5%) respectively had the joint family type (Table 1 and Fig. 6).

Family size: It was found that two-fifth of respondents (40.0%) were having medium family size (4-6 members) followed small family size (up to 3 members) (38.0%) in pooled sample, whereas (22%) had large family with 7-8 members. Less than half of the respondents (45.4%) female respondents were having small family size whereas 42.8 percent male respondents had the medium family size (Table 1 and Fig. 7).

Employment status (Before joining old age homes): Majority of the female respondents were unemployed in comparison to male respondents who were employed (Table 1 and Fig. 8). A very high majority of female respondents (95.4%) were unemployed and 64.2 percent male respondents were employed.

Family education status: It is evident from pooled sample (Table 1 and Fig. 9) that their family education status was medium (44.0%) followed by low family education status (40.0%) and high family education status (16.0%). Maximum family members of male respondents (46.4%) had low level of family education status while family members of female respondents (54.5%) had medium level of family education status.

Total monthly family income: It was found that 48.0 per cent of the respondents had monthly income of Rs. 25,000- 50,000followed by up to Rs. 25,000/month in pooled sample. More than half of the male

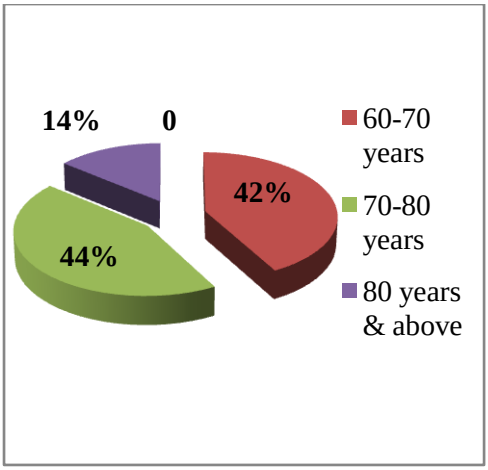


Fig. 2: Age Group of the respondents

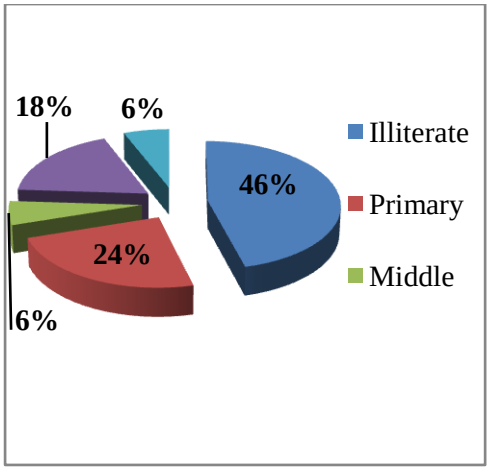


Fig. 3: Education of the respondents

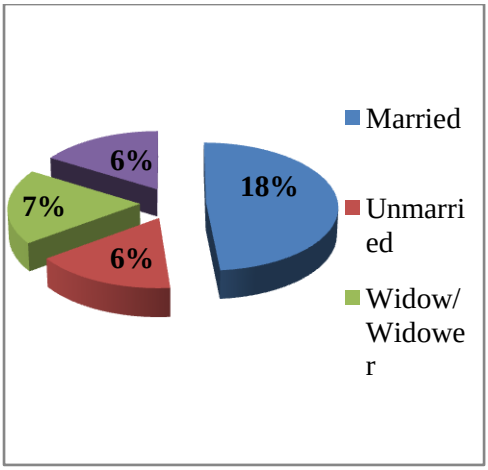


Fig. 4: Marital status

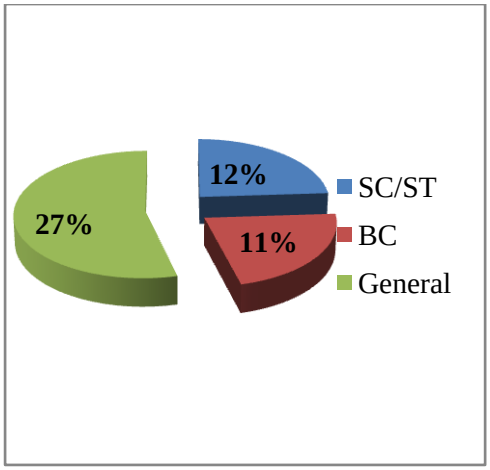


Fig. 5: Caste

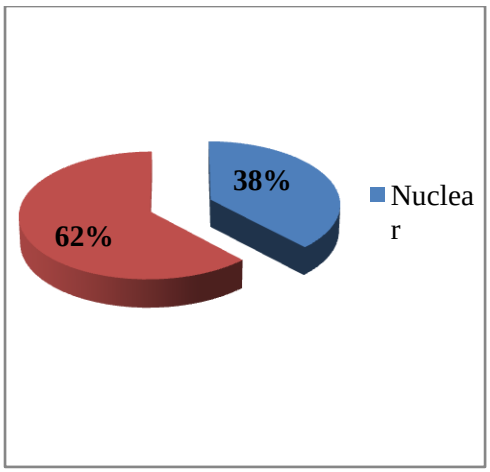


Fig. 6: Family Type

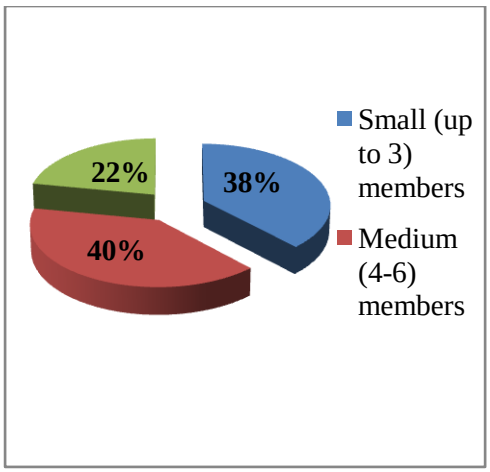


Fig. 7: Family size

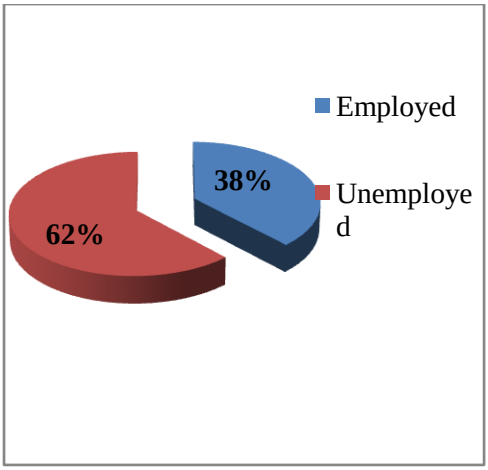


Fig. 8: Employment status

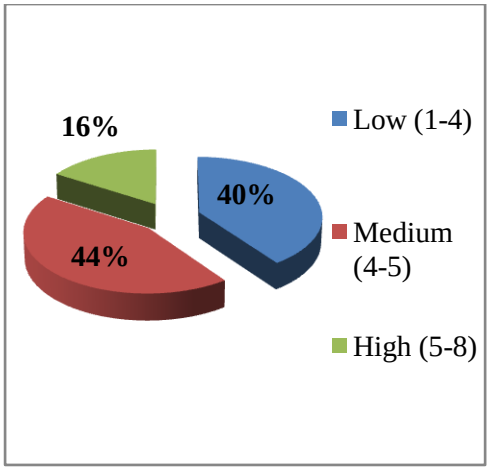


Fig. 9: Family education status

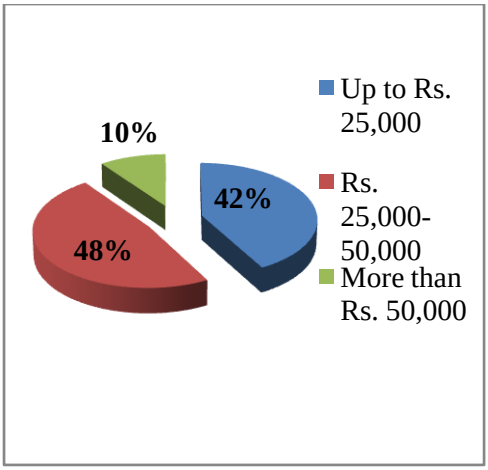


Fig. 10: Monthly income of family

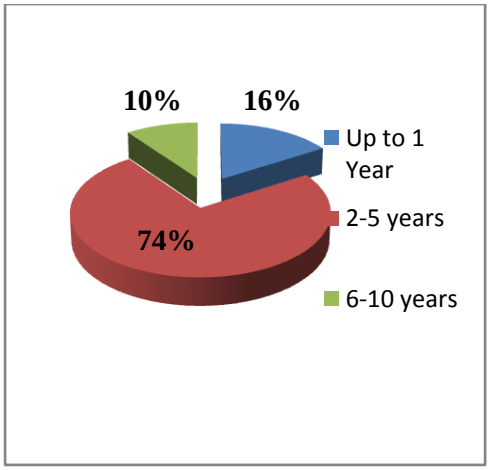


Fig. 11: Duration of stay in OAH

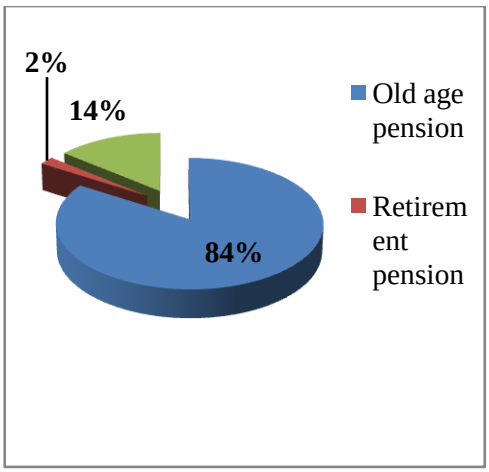


Fig. 12: Source of income

respondents (53.6%) were having income between Rs.25,000– 50,000 while 45.5 per cent of the female respondents had the monthly income up to Rs. 25,000(Table 1 and Fig 10).

Table 1: Socio-personal profile of the respondents (n=50)

Sr.no	Variables	Male (n=28) Frequency (percentage)	Female (n=22) Frequency (percentage)	Total (n=50) Frequency (percentage)
1.	**Age**			
	>60-70 years	11 (39.2)	10 (45.4)	21 (42.0)
	>70-80 years	14 (50.0)	8 (36.3)	22 (44.0)
	>80 years & above	3 (10.7)	4 (18.1)	7 (14.0)
2.	**Education of the respondents**			
	Illiterate	9 (32.1)	14 (63.6)	23 (46.0)
	Primary	7 (25.0)	5 (22.7)	12 (24.0)
	Middle	3 (10.7)	-	3 (6.0)
	High school	7 (25.0)	2 (9.0)	9 (18.0)
	Up to Graduate	2 (7.1)	1 (4.5)	3 (6.0)
3.	**Marital status**			
	Married	8 (28.5)	1 (4.5)	9 (18.0)
	Unmarried	3 (10.7)	-	3 (6.0)
	Widow/Widower	16 (57.1)	19 (86.3)	35 (70.0)
	Divorcee	1 (3.5)	2 (9.0)	3 (6.0)
4.	**Caste**			
	SC/ST	5 (17.8)	7 (31.8)	12 (24.0)
	BC	7 (25.0)	4 (18.1)	11 (22.0)
	General	16 (57.1)	11 (50.0)	27 (54.0)
5.	**Family Type**			
	Nuclear	9 (32.1)	10 (45.4)	19 (38.0)
	Joint	19 (67.8)	12 (54.5)	31 (62.0)
6.	**Family size**			
	Small (up to 3) members	9 (32.1)	10 (45.4)	19 (38.0)
	Medium (4-6) members	12 (42.8)	8 (36.3)	20 (40.0)
	Large (7-8) members	7 (25.0)	4 (18.1)	11 (22.0)
7.	**Employment status**			
	Employed	18 (64.2)	1 (4.5)	19 (38.0)
	Unemployed	10 (35.7)	21 (95.4)	31 (62.0)
8.	**Family education status**			
	Low (1-4)	13 (46.4)	7 (31.8)	20 (40.0)
	Medium (4-5)	10 (35.7)	12 (54.5)	22 (44.0)
	High (5-8)	5 (17.9)	3 (13.6)	8 (16.0)
9.	**Monthly income of family**			
	Up to Rs. 25,000	11 (39.3)	10 (45.5)	21 (42.0)
	Rs. 25,000-50,000	15 (53.6)	9 (40.9)	24 (48.0)
	More than Rs. 50,000	2 (7.1)	3 (13.6)	5 (10.0)
10.	**Duration of stay in OAH**			
	Up to 1 Year	5 (17.8)	3 (13.6)	8 (16.0)
	2-5 years	20 (71.4)	17 (77.2)	37 (74.0)
	6-10 years	3 (10.7)	2 (9.0)	5 (10.0)
11.	**Source of income**			
	Old age pension	25 (89.2)	17 (77.2)	42 (84.0)
	Retirement pension	1 (3.5)	-	1 (2.0)
	No source	2 (7.1)	5 (22.7)	7 (14.0)
12.	**Living status**			
	Living alone	28 (100.0)	22 (100.0)	50 (100.0)
	With spouse	0(0)	0(0)	0(0)

Figures in parentheses indicate percentage

Duration of stay in OAH: In case of pooled sample majority of respondents (74.0%) were staying in old age home from 2-5 years followed by up to 1 year (16.0%) of pooled sample. A large majority of female (77.2%) and male (71.4%) respondents were living in old age home from the 2-5 years (Table 1 and Fig. 11).

Source of income (present): Source of income of majority of respondents (84.0%) was old age pension, (14.0%) had no source of income and only 2.0 percent of the respondent had retirement pension in pooled sample (Table 1 and Fig. 12).

Living status: Regarding living status data indicated that all of the respondents were living alone in old age home. No one was living with spouse.

4.2 Health problems of elderly

Table 2 and Fig. 13 elucidate the health problems of the respondents. Less than three-fourth of the respondents (74.0%) had poor vision followed by constipation (66.0%), teeth loss (64.0%) and joint pains (50.0%). An equal number of respondents (34.0%) faced the abnormal blood pressure and hearing loss followed by loss of memory (30.0%), diabetes (22.0%) and asthma (20.0%). However, 14.0 percent of respondents faced the problems of arthritis and 12.0 percent of them had the heart problem in the pooled sample. Very few of respondents had paralysis (10.0%) and disc problem (6.0%).

4.4.3 Reason for living in old age home

Table 3 and Fig. 14 shows the data related to reason for living in old age home by the respondents. Majority of respondents (70.0%) were living in old age home due to death of spouse followed by misbehavior of son & daughter in law (54.0%). Little more than one fourth respondents (28.0%) were living in old age home as they had no child followed by 22.0 percent respondents whose children did not want to keep them due to their physical illness and 18.0 percent had no other family members and 14.0 percent of the respondents had no financial support. A minimum of 6.0 per cent respondents were living in old age home because they were unmarried, divorcee and only 4.0 per cent of respondents were living in OAH due to death of their son.

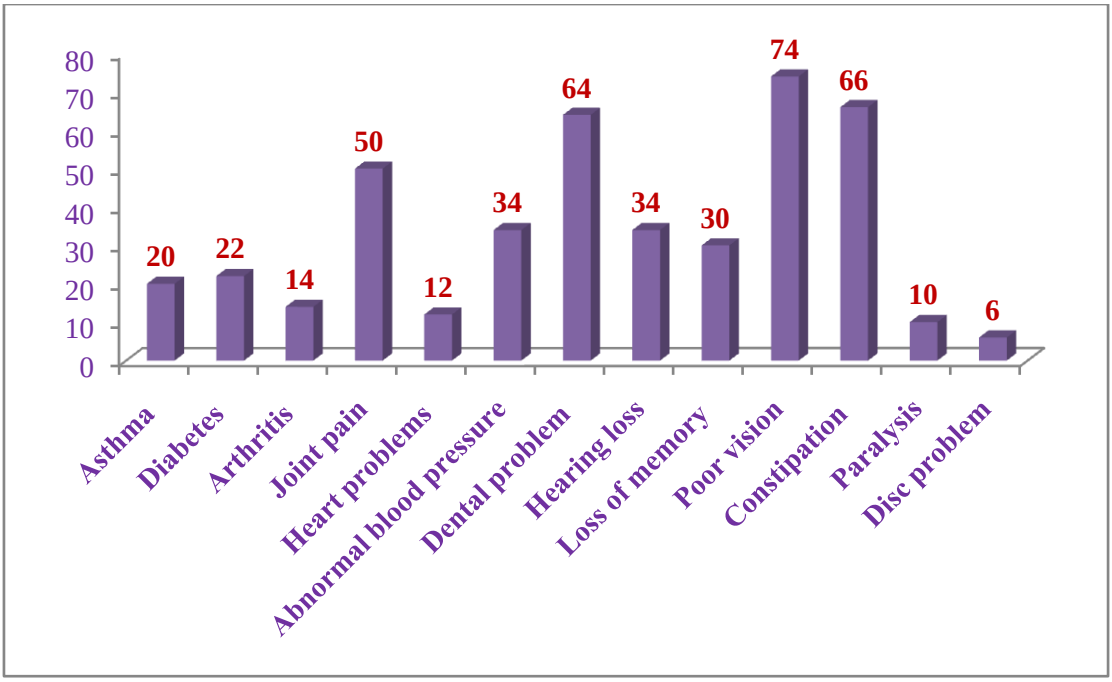


Fig. 13: Health problems of elderly

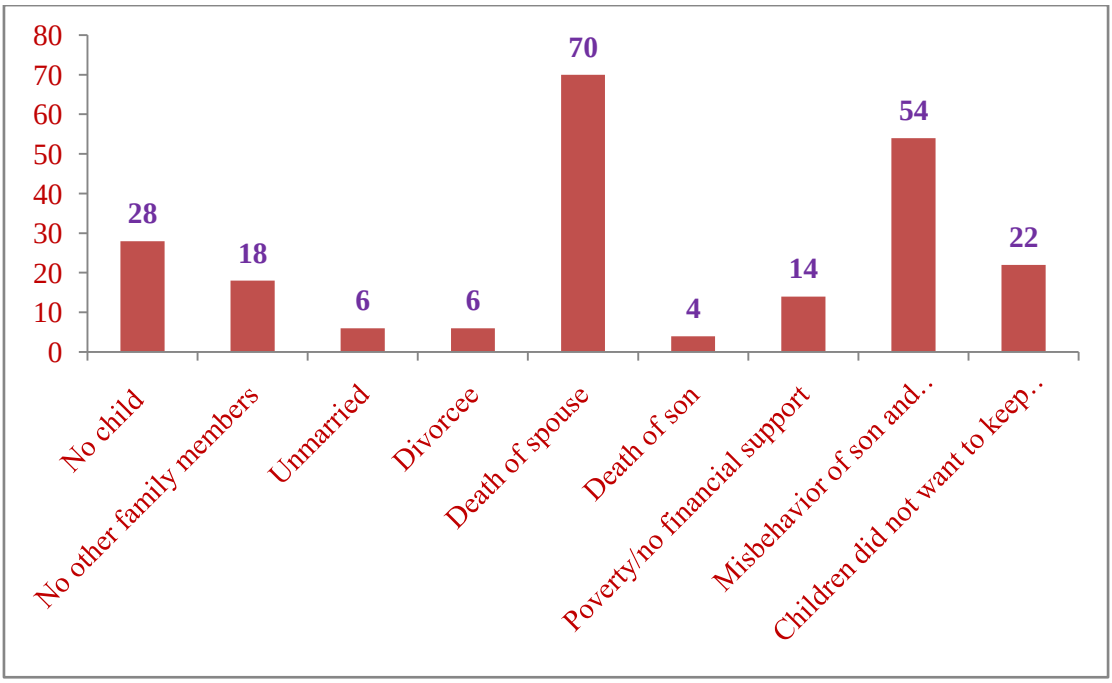


Fig. 14: Reason for living in old age home

Table 2: Health problems of respondents **(n=50)**

Sr. no	Health problems	Male (n=28) Frequency percentage	Female (n=22) Frequency percentage	Total (n=50) Frequency percentage
1.	Asthma	6 (21.4)	4 (18.1)	10 (20.0)
2	Diabetes	8 (28.5)	3 (13.6)	11 (22.0)
3	Arthritis	2 (7.1)	5 (22.7)	7 (14.0)
4.	Joint pain	10 (35.7)	15 (68.1)	25 (50.0)
5.	Heart problems	4 (14.2)	2 (9.0)	6 (12.0)
6.	Abnormal blood pressure	6 (21.4)	11 (50.0)	17 (34.0)
7.	Teeth loss	13 (46.4)	19 (86.3)	32 (64.0)
8.	Hearing loss	7 (25.0)	10 (45.4)	17 (34.0)
9.	Loss of memory	9 (32.1)	6 (27.2)	15 (30.0)
10.	Poor vision	17 (60.7)	20 (90.0)	37 (74.0)
11.	Constipation	15 (53.5)	18 (81.8)	33 (66.0)
12.	Paralysis	3 (10.7)	2 (9.0)	5 (10.0)
13.	Disc problem	1 (3.5)	2 (9.0)	3 (6.0)

Figures in parentheses indicate percentage
*multiple response

Table 3: Reason for living in old age home **(n=50)**

Sr. no	Reasons	Male (n=28) Frequency percentage	Female (n=22) Frequency percentage	Total (n=50) Frequency percentage
1.	No child	8 (28.5)	6 (27.2)	14 (28.0)
2.	No other family members	5 (17.8)	4 (18.1)	9 (18.0)
3.	Unmarried	3 (10.7)	-	3 (6.0)
4.	Divorcee	1 (3.5)	2 (9.0)	3 (6.0)
5.	Death of spouse	16 (57.1)	19 (86.3)	35 (70.0)
6.	Death of son	-	2 (9.0)	2 (4.0)
7.	Poverty/no financial support	2 (7.1)	5 (22.7)	7 (14.0)
8.	Misbehavior of son and daughter-in-law	15 (53.5)	12 (54.5)	27 (54.0)
9.	Children did not want to keep due to physical illness	7 (25.0)	4 (18.1)	11 (22.0)

Figures in parentheses indicate percentage
*multiple response

4.3 Environment conditions of old age home

Table 4 revealed that environmental conditions of both old age homes were almost same. The environment conditions were taken in the month of March- April. Data show that temperature of the OAH-1 was 26.5^{o}C and OAH-2 was 27^{o}C which was 10.0 and 12.0% respectively high than the recommended value. Humidity of the old age home was 47.3% and 49.0% in the OAH-1 and OAH-2 respectively which was 14.0% and 10.0% lower than the recommended value. Noise level of the OAH-1 and OAH-2 were almost same i.e. 48.5 dB in Hisar and 47.5 dB in Sirsa old age home which was 7.0% and 5.0% respectively high as per recommended value. Further it was found lighting of the Hisar old age home was 300 lux which was in the range of recommended value and 200 lux in Sirsa old age home which was low as per recommended value.

Table 4: Environment conditions of old age home

Sr. no	Environmental parameters	OAH-1	OAH-2	Recommended	Difference % OAH-I	Difference % OAH-II
1.	Temperature ^{0}C	26.5	27	23-25	+10.0	+12.0
2.	Humidity %	47.3	49	55	-14.0	-10.0
3.	Noise (dB)	48.5	47.5	45	+7.0	+5.0
4.	Light (Lux)	300	200	300-500	Within range	33.0

4.4 Ergonomic conditions of old age home

The result regarding ergonomic condition of old age home showed (Table 5) that bed design, table design and chair design in bedroom were not comfortable, to the elderly in the both OAH-1 (Hisar) and OAH-2 (Sirsa). Window height was suitable, floors were not even, lever type doors handle were not available, cupboard was away from bed, lighting switches were near to bed and adequate lighting was in bedroom in OAH-1 (Hisar) while, except window height and lighting not comfortable in bedroom all ergonomic condition were not comfortable to the elderly in OAH-2 (Sirsa). Further, regarding bathroom and toilet, it showed that handrails and height of taps were not comfortable. Doors were opening inside, toilet seat were not according to height, adjustable shower, non-skid mat, lever type doors handle and lever type tap, cupboard to store items were not available, and floor were not even. Water closet was according to height, lights were adequate, and bolts were at suitable height in OAH-1 (Hisar). In the case of OAH-2 (Sirsa) doors were opening inside, water closet was according to height and lights were not adequate. Heights of taps were not comfortable, further, stairways were safe and not slippery, and handrails were on both side and found at proper lighting in stairs in OAH-1 (Hisar). Ergonomic facilities were not fond related to stairs in OAH-2 (Sirsa). Ramp height was not suitable and handrails were not available at entrance in both OAH-1 (Hisar) and OAH-2 (Sirsa).

Table 5: Ergonomic conditions of old age home

Sr. no	Ergonomic condition	OAH-1(Hisar)		OAH-2(Sirsa)	
1.	**Bedroom**				
(a)	Bed according to height	Yes		Yes	
(b)	Ergonomically designed bed		No		No
(c)	Ergonomically designed table		No		No
(d)	Ergonomically designed chair		No		No
(e)	Even floor		No		No
(f)	Suitable window height	Yes		Yes	
(g)	Lever type door handle		No		No
(h)	Cupboard near to bed		No		No
(i)	Lighting switches near to bed	Yes			No
(j)	Adequate lighting	Yes			No
2.	**Bathroom and toilet**				
(a)	Handrails available		No		No
(b)	Adjustable shower		No		No
(c)	Lever type door handle		No		No
(d)	Comfortable height of tab		No		No
(e)	Non- skid mat		No		No
(f)	Lever-type tap		No		No
(g)	Doors opening outside		No		No
(h)	Doors opening inside	Yes		Yes	
(i)	Even floor		No		No
(j)	Toilet seat according to height		No		No
(k)	Water closet according to height	Yes		Yes	
(l)	Adequate lighting	Yes			No
(m)	Cupboard to store items		No		No
(n)	Bolts at suitable height	Yes			No
3.	**Stairs**				
(a)	Stairways safe no slippery	Yes			No
(b)	Handrails on both side	Yes			No
(c)	Proper lighting at stairs	Yes			No
4.	**Entrance**				
(a)	Suitable Ramp height		No		No
(b)	Handrails available on both side		No		No

Cupboard at inconvenient height

Non lever type tap

Improper chair & table

Improper window

Congested bathroom

Ergonomic conditions of old age home

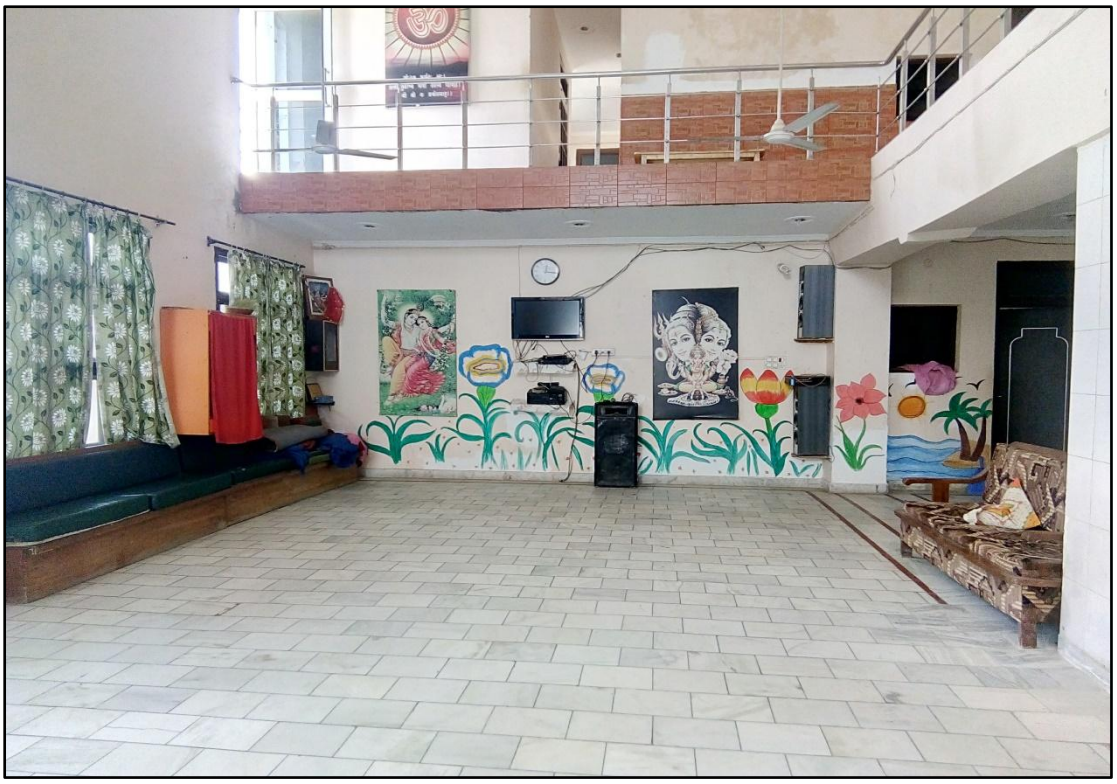
4.4.1 Availability of various housing facilities in old age homes

Table 6 illustrates the details of availability of different facilities in OAH-1(Hisar).The habitat room's facilities, all the facilities i.e. room, dormitory, attached bathroom, cupboards, room heater and room cooler were available except the single rooms and three seater rooms in the Hisar old age home. Whereas in the OAH-2 (Sirsa), facilities of rooms, attached bathroom/toilet, cupboards, and room cooler were available. In the OAH-1(Hisar), all the facilities of separate chairs, beds, tables, both chairs and benches and prayer room were available for the use of elderly. In the OAH-2(Sirsa), all the facilities were also available except the prayer room. Handrails were available only on the stairs only in the OAH-1(Hisar). All the other facilities i.e. television, dining room, mess and medical facilities twice in a week were available in both old age homes, only water cooler was not available in the OAH 2(Sirsa). It was also found that provision of light was in all rooms, toilets, and bathrooms in both old age home. Further, generator/invertor, water supply, open area and wheel chair was available in both OAH-1 (Hisar) and OAH-2

Old Age Home Hisar

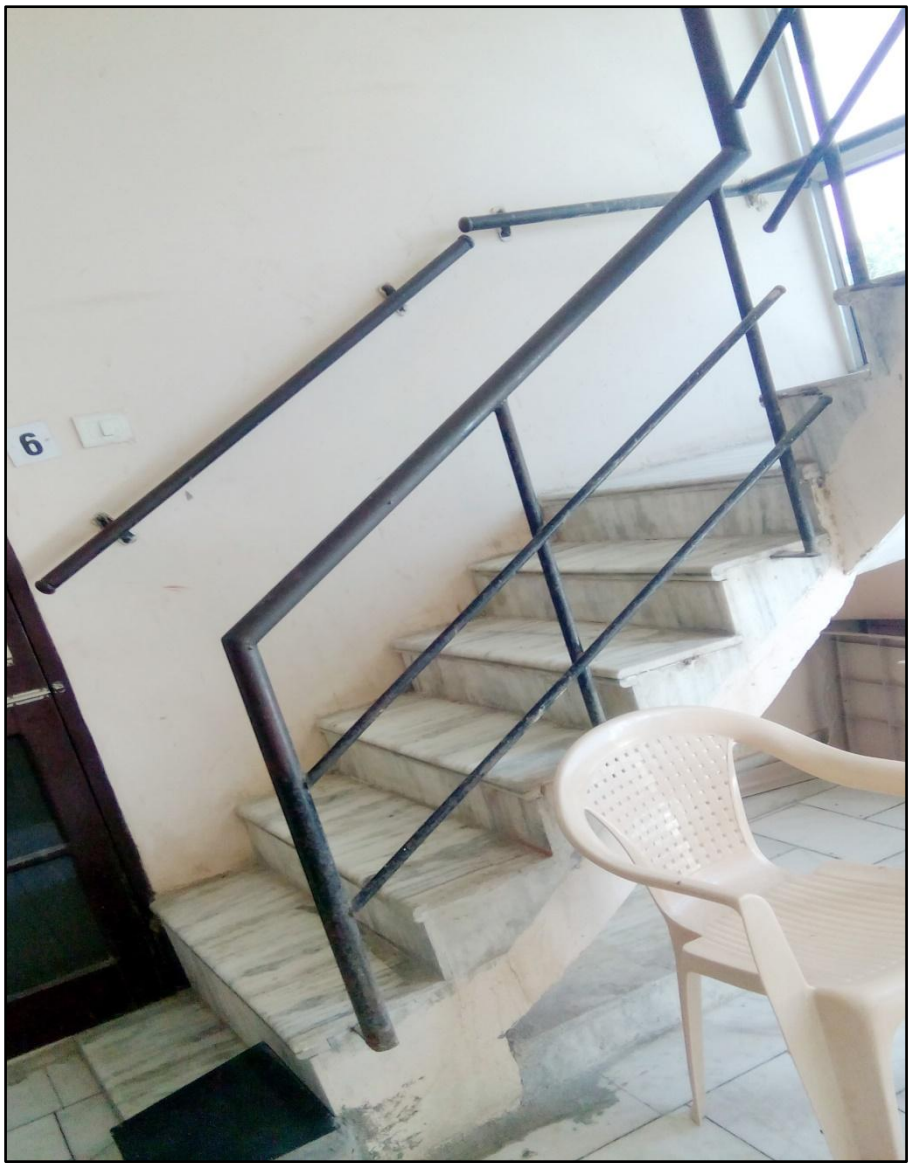
Table 6: Availability of various housing facilities in old age homes

Sr. no	Facilities	OAH-1 (Hisar)	OAH-2 (Sirsa)
1.	**Habitat room facilities**		
(a)	Single room	No	No
(b)	Two seater room	Yes	Yes
(c)	Three seater room	No	No
(d)	Dormitory	Yes	No
(e)	Attached bathroom/toilet	Yes	Yes
(f)	Cupboard	Yes	Yes
(g)	Room heater	Yes	No
(h)	Room cooler	Yes	Yes
2.	Separate chair	Yes	Yes
3.	Separate beds	Yes	Yes
4.	Separate table	Yes	Yes
5.	Bath chair & benches available	Yes	Yes
6.	Prayer room	Yes	No
7.	**Handrails**		
(a)	Stairs	Yes	No
(b)	Corridors	No	No
(c)	Bathroom	No	No
(d)	Toilet	No	No
(e)	Rooms	No	No
8.	Television	Yes	Yes
9.	Dining room	Yes	Yes
10.	Mess facility for food	Yes	Yes
11.	Water cooler	Yes	No
12.	Medical facility available	Yes	Yes
13.	**Lighting facility**		
(a)	Rooms	Yes	Yes
(b)	Toilet	Yes	Yes
(c)	Bathroom	Yes	Yes
14.	Generator/Invertor	Yes	Yes
15.	Water supply	Yes	Yes
16.	Open area	Yes	Yes
17.	Wheel Chair	Yes	Yes



Hall

Mess Facility



Handrails on Stairs

4.4.2 Satisfaction level of regarding facilities of OAHs

Table 7 and Fig. 15 represents the data regarding the satisfaction level of the elderly regarding facilities in old age home i.e. bedroom, bathroom, toilet, stairs, hall, furniture, food & water, electricity and open area. Among all the facilities, most of the respondents were highly satisfied with electricity facility it scored highest with the mean score 4.38 (rank I) followed by hall (rank II) with mean score 3.78 and food and water facility (rank III) with mean score 3.5. Respondents were simply satisfied with the facility of open area (rank IV) having mean score of 3.48 followed by stairs facility (rank V) with mean score 3.42, bedroom facility (rank VI) with mean score 3.34 and furniture (rank VII) with mean score 3.1. Respondents were least satisfied with the facility of bathroom and toilet as they scored mean same i.e. 2.34 and ranked eighth.

Table 7: Satisfaction level of regarding facilities of OAHs (n=50)

Sr. no	Facilities	Highly satisfied (5)	Satisfied (4)	Neutral (3)	Least satisfied (2)	Not at all (1)	Mean score	Rank
1.	Open area	13	8	18	11	-	3.48	IV
2.	Electricity	31	4	15	-	-	4.38	**I**
3.	Hall	21	9	11	6	3	3.78	II
4.	Food & Water	14	6	20	10	-	3.5	III
5.	Stairs	18	10	5	9	8	3.42	V
6.	Bedroom	12	10	16	7	5	3.34	VI
7.	Furniture	10	7	16	12	5	3.1	VII
8.	Bathroom	3	6	10	17	14	2.34	VIII
9.	Toilet	3	6	10	17	14	2.34	VIII

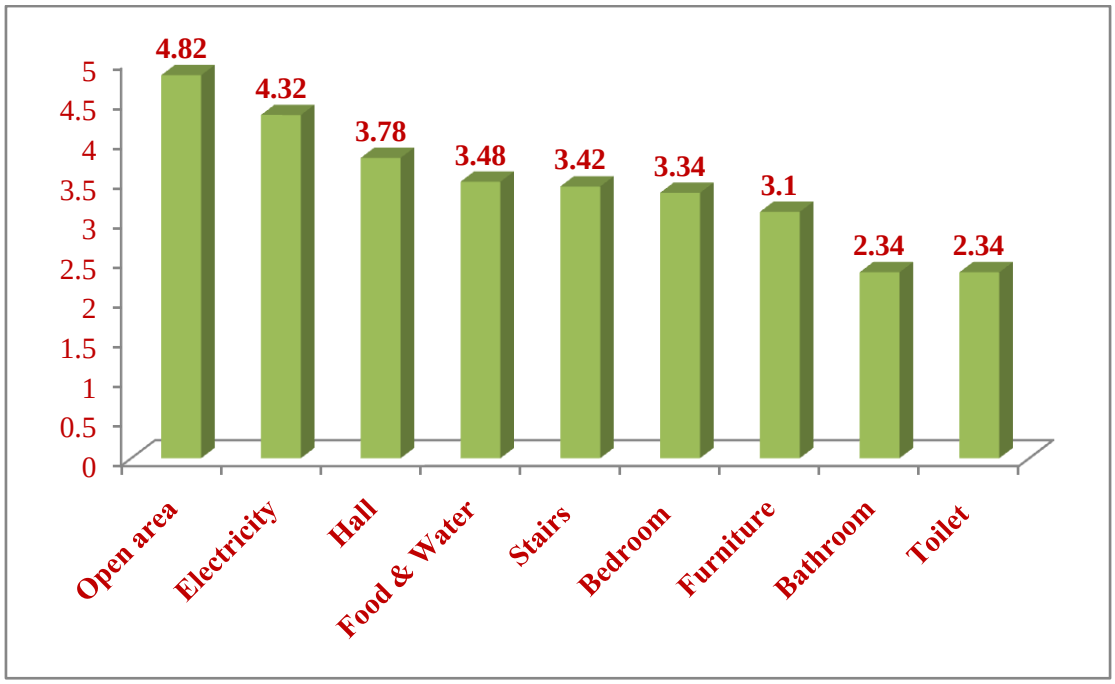


Fig. 15: Satisfaction level of regarding facilities of OAHs

Elderly interest in different activities in old age home

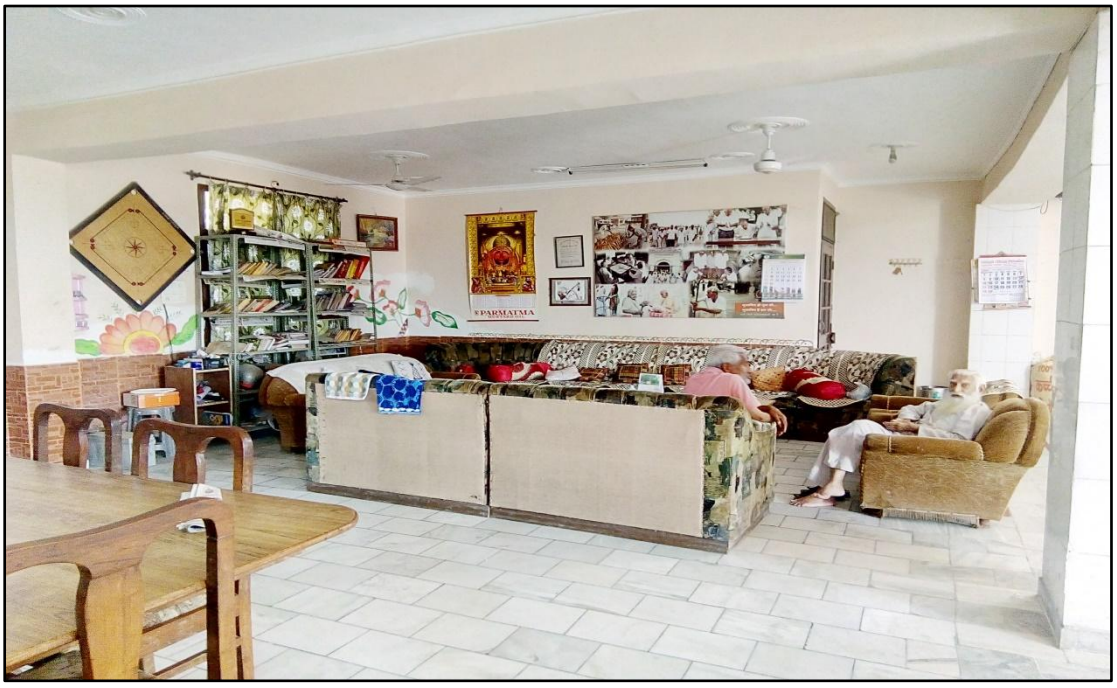
Table 8 shows the data regarding the active participation of elderly in the different activities of the old age home i.e. household activities, recreational, rest/relaxing and religious activities. Less than half of the respondents (48.0%) were involved in washing clothes in the household activities. Among recreational activities maximum numbers of respondents (42.0%) were more interested in watching T.V. followed by playing games/cards (26.0%). Majority of respondents (70.0%) preferred going for a walk as a rest/relaxing activity followed by half of the respondents who were interested in reading the newspaper (50.0%) and book reading (30.0%). Among religious activities, majority of respondents (60.0%) each

were interested in praying daily and attending *satsang/kirtan* followed by (48.0%) respondents who were interested in visiting the places of worship and 30.0 percent respondents were interested in reading the religious books.

Table 8: Elderly interest in different activities in old age home (n=50)

Sr. no	Activities	Frequency (Percentage)
1.	**Household activity**	
(a)	Washing clothes	24 (48.0)
2.	**Recreation activities**	
(a)	Watching television	21 (42.0)
(b)	Playing games/cards	13 (26.0)
3.	**Rest/Relaxing**	
(a)	Book reading	15 (30.0)
(b)	Newspaper reading	25 (50.0)
(c)	Going to walk	35 (70.0)
4.	**Religious**	
(a)	Praying daily	30 (60.0)
(b)	Attending satsang/kirtan	30 (60.0)
(c)	Reading religious book	15 (30.0)
(d)	Visit to place of worship	24 (48.0)

Figures in parentheses indicate percentage



4.6 Activity of daily living

The data pertaining to activity profile of elderly accessed by using Activity of Daily Living scale (ADLs) given by Katz (1970) have been presented on the basis of 6 activities viz. ability to toileting by self, feeding, dressing, grooming, physical ambulation and bathing.

Ability to maintain toileting by self

The results regarding the details of self-toileting by the respondents living have been presented in Table 9. Results revealed that majority of the respondents (84.0%) were able to go to toilet by their own. They used walking stick or some other support to assist them. Whereas 10.0 per cent respondents felt need of help in cleaning self. Further, only 4.0 per cent respondents had no control of bowel or bladder. Only 2.0 per cent of the respondents faced problems of soiling or wetting while asleep more than once a week. Male members were able to go to toilet by their own as compared to female members.

Table 9: Ability to maintain toileting by self (n=50)

S.No.	Toilet	Male n=28	Female n=22	Total n=50
1	Cares for self at toilet completely	24 (85.7)	18(81.8)	42(84.0)
2	Needs help in cleaning self	3(10.7)	2(9.0)	5 (10.0)
3	Soiling or wetting while asleep more than once a week	0 (0)	0 (0)	0 (0)
4	Soiling or wetting while awake more than once a week	0 (0)	1(4.5)	1 (2.0)
5	No control of bowel or bladder	1(3.5)	1 (4.5)	2 (4.0)

Figures in parentheses indicate percentage

Ability to feed themselves

The results regarding ability to feed (Table 10) showed that 84.0 per cent of them were able to eat without assistance whereas only 10.0 per cent of them required moderate assistance and 6.0 per cent of them required other to feed them and also resists efforts of other to feed them. Comparatively males, female were able to eat without others help.

Table10: Ability to feed themselves (n=50)

S.No.	Feeding	Male n=28	Female n=22	Total n=50
1	Eats without assistance	24(85.7)	18 (81.8)	42 (84.0)
2	Eats with minor assistance at meal times	0 (0)	0 (0)	0 (0)
3	Feeds self with moderate assistance	3 (10.7)	2 (9.0)	5 (10.0)
4	Requires extensive assistance for all meals	0 (0)	0 (0)	0 (0)
5	Does not feed self at all resists efforts of other to feed him/her	1(3.5)	2 (9.0)	3 (6.0)

Figures in parentheses indicate percentage

Ability to dress themselves

The results in Table 11 show the detail of ability of the respondents to dress them. Majority of the respondent i.e. 84.0 per cent of them were able to dress themselves without any assistance. Whereas 8.0 per cent of the respondents used minor assistance in getting them dressed. Further, 6.0 per cent of the respondents were completely unable to dress self. As compared to female, male respondents had better ability to dress themselves.

Table 11: Ability to dress themselves **(n=50)**

S.No	Dressing	Male n=28	Female n=22	Total n=50
1	Dresses, undresses and selects clothing from own wardrobe	24 (85.7)	18 (81.8)	42 (84.0)
2	Dresses and undresses self with minor assistance	2 (7.1)	2(9.0)	4 (8.0)
3	Needs moderate assistance in dressing	1 (3.5)	0 (0)	1 (2.0)
4	Needs major assistance in dressing, but cooperates with efforts of others to help	0 (0)	0 (0)	0 (0)
5	Completely unable to dress self	1(3.5)	2 (9.0)	3 (6.0)

Figures in parentheses indicate percentage

Ability to groom themselves

The data in Table 12 revealed that 78.0 per cent of the respondents were able to groom themselves without any assistance whereas 10.0 per cent needed minor assistance in grooming themselves. Further, 6.0 per cent of the respondents needed total grooming care and 4.0 percent were actively neglecting to all efforts of others to maintain grooming.

Table 12: Ability to groom themselves **(n=50)**

S.No	Grooming	Males n=28	Females n=22	Total n=50
1	Always neatly dressed, well-groomed, without assistance	24 (85.7)	15 (68.1)	39 (78.0)
2	Grooms self adequately with occasional assistance	2(7.1)	3 (13.6)	5 (10.0)
3	Needs moderate and regular assistance or supervision with grooming	0 (0)	0 (0)	0 (0)
4	Needs total grooming care	1 (3.5)	2 (9.0)	3 (6.0)
5	Actively negates all efforts of others to maintain grooming	1 (3.5)	1 (4.5)	2 (4.0)

Figures in parentheses indicate percentage

Ability to move around the surrounding

The results regarding ability to move around the surrounding revealed that majority of respondents (62.0) used to go on walk or moves in their surrounding whereas equal per cent

of them (12.0) needed to ambulates within residence and ambulation with assistance. While 8.0 per cent of respondents were bedridden more than half the time. Only 6.0 per cent of the respondents could sit unsupported on chair. Male respondents comparatively moved better than the females (Table 13).

Table 13: Ability to move around the surrounding (n=50)

S. No.	Physical ambulation	Male n=28	Female n=22	Total n=50
1	Goes independently walking outside	18(64.2)	13 (59.0)	31 (62.0)
2	Ambulates within residence	4 (14.2)	2 (9.0)	6 (12.0)
3	Ambulation with assistance	3 (10.7)	3 (13.6)	6 (12.0)
4	Sits unsupported on chair	1 (3.5)	2 (9.0)	3 (6.0)
5	Bedridden more than half the time	2 (7.1)	2 (9.0)	4 (8.0)

Figures in parentheses indicate percentage

Ability to have bath by themselves

The information regarding ability to have bath has been contained in Table 14. Majority of the respondents (84.0%) were able to take bath without any assistance. Further 8.0 per cent of the respondents were not able to take bath themselves; they can wash face and hands only. However 6 per cent of the respondents had not tried to wash themselves. Only 2.0 per cent of the respondents were taking bath self but with help of other.

Table 14: Ability to have bath by themselves (n=50)

S.No	Bathing	Male(%) n=25	Female(%) n=25	Total (%) n=50
1	Bathes self without help	24 (85.7)	18 (81.8)	42 (84.0)
2	Bathes self with help	1(3.5)	0 (0)	1 (2.0)
3	Washes face and hands only	2(0)	2 (9.0)	4 (8.0)
4	Does not wash self	0 (0)	0 (0)	0 (0)
5	Does not try to wash self	1 (3.5)	2(9.0)	3 (6.0)

Figures in parentheses indicate percentage

Extent of ability to perform the activity on the basis of Activity of Daily Living scale (ADLs)

Table 15 shows the data related to extent of ability on the basis of Activity of Daily Living scale (ADLs). Data depicted that both male female respondents were functionally able to maintain toileting by self and to feed themselves. Male respondents were moderately dependent and female respondents were functionally able to dress themselves. Both male and females in ability to groom themselves and ability of physical ambulation were moderately dependent and severely dependent respectively. Male respondents were moderately dependent and female respondents were functionally able to have bath by themselves.

Table 15: Extent of ability to perform the activity on the basis of Activity of Daily Living scale (ADLs) (n=50)

Activities	ADLs mean score of male	Category	ADLs mean score of female	Category
Toileting	1.32	Functionally able	1.31	Functionally able
Feeding	1.32	Functionally able	1.33	Functionally able
Dressing	1.66	Moderately dependent	1.33	Functionally able
Grooming	1.66	Moderately dependent	1.63	Moderately dependent
Physical ambulation	1.99	Severely dependent	1.99	Severely dependent
Bathing	1.66	Moderately dependent	1.33	Functionally able

Housing hazards in old age homes faced by the respondents

The information contained in Table 16 shows the housing hazards faced by the respondents. It is evident that out of the two perceived entrance related hazards by the respondents, unsuitable ramp height got first rank followed by handrails not on both side. Results regarding bathroom related hazards highlights that, less space with mean score 2.68 got first rank while inconvenient doors opening got second rank with mean score 2.38. It was also observed that slippery floor, uncomfortable bolts height, inconvenient height of tap, insufficient lighting and inconvenient washbasin got third rank with mean score (2.32), fourth rank with mean score (2.26), fifth rank with mean score (2.24), sixth rank with 2.08 and seventh rank with mean score 1.82 respectively. Lack of cupboard to store items, no handrails, unadjusted shower, lack of space to keep belongings and non lever-type tap got eight ranks each one with mean score of 1.00. Further, results regarding toilet depicted that, toilet seat not according to height and non lever-type tap both got first rank with mean score 2.32. Lack of ventilation got second rank followed by insufficient lighting (rank III), inconvenient doors opening (rank IV), not availability of handrails (rank V) and slippery floor (rank VI).

Result regarding bedroom depicted that out of five housing hazard, cupboard away from bed got first rank followed by slippery floor (Rank II) with mean score 2.48 and non lever type door handles (Rank III) with mean score 2.46. The other important hazards faced by the respondents were lighting switches away from bed (Rank IV), bed not according to height (Rank V) and inconvenient height of cupboard (Rank VI). Regarding furniture it was observed that unsuitable chair got first rank with mean score 2.78 followed by unsuitable

dining table (Rank II) and unsuitable room table (Rank III). Further, handrails not on both side got first rank and insufficient lighting got second rank regarding stairs

Table 16: Housing hazards in old age homes faced by the respondents (n=50)

Sr. No.	Housing hazards	WMS	Rank	Overall Mean score and Rank
1.	**Entrance**			
(a)	Unsuitable Ramp height	2.36	I	1.68 (VI)
(b)	Handrails not on both side	1.0	II	
2.	**Bathroom**			
(a)	Slippery floor	2.32	III	
(b)	Less space	2.68	I	
(c)	Uncomfortable bolts height	2.26	IV	
(d)	Inconvenient height of tap	2.24	V	
(e)	Lack of cupboard to store items	1.0	VIII	1.73 (V)
(f)	No handrails	1.0	VIII	
(g)	Unadjusted shower	1.0	VIII	
(h)	Insufficient Lighting	2.08	VI	
(i)	Lack of space to keep belongings	1.0	VIII	
(j)	Inconvenient doors opening	2.38	II	
(k)	Non lever-type tap	1.0	VIII	
(l)	Inconvenient washbasin	1.82	VII	
3.	**Toilet**			
(a)	Toilet seat not according to height	2.32	I	
(b)	Not availability of handrails	1.26	V	1.81 (IV)
(c)	Inconvenient doors opening	1.62	IV	
(d)	Slippery floor	1.0	VI	
(e)	Lack of ventilation	2.16	II	
(f)	Non lever – type tap	2.32	I	
(g)	Insufficient Lighting	2.0	III	
4.	**Bedroom**			
(a)	Bed not according to height	1.86	V	
(b)	Cupboard away from bed	2.78	I	
(c)	Inconvenient height of cupboard	1.36	VI	2.18 (III)
(d)	Lighting switches away from bed	2.16	IV	
(e)	Non lever type door handles	2.46	III	
(f)	Slippery floor	2.48	II	
5.	**Furniture**			
(a)	Unsuitable Chair	2.78	I	
(b)	Unsuitable room Table	2.02	III	2.36 (I)
(c)	Unsuitable Dining table	2.3	II	
6.	**Stairs**			
(a)	Handrails not on both side	2.34	I	2.24 (II)
(b)	Insufficient Lighting	2.14	II	

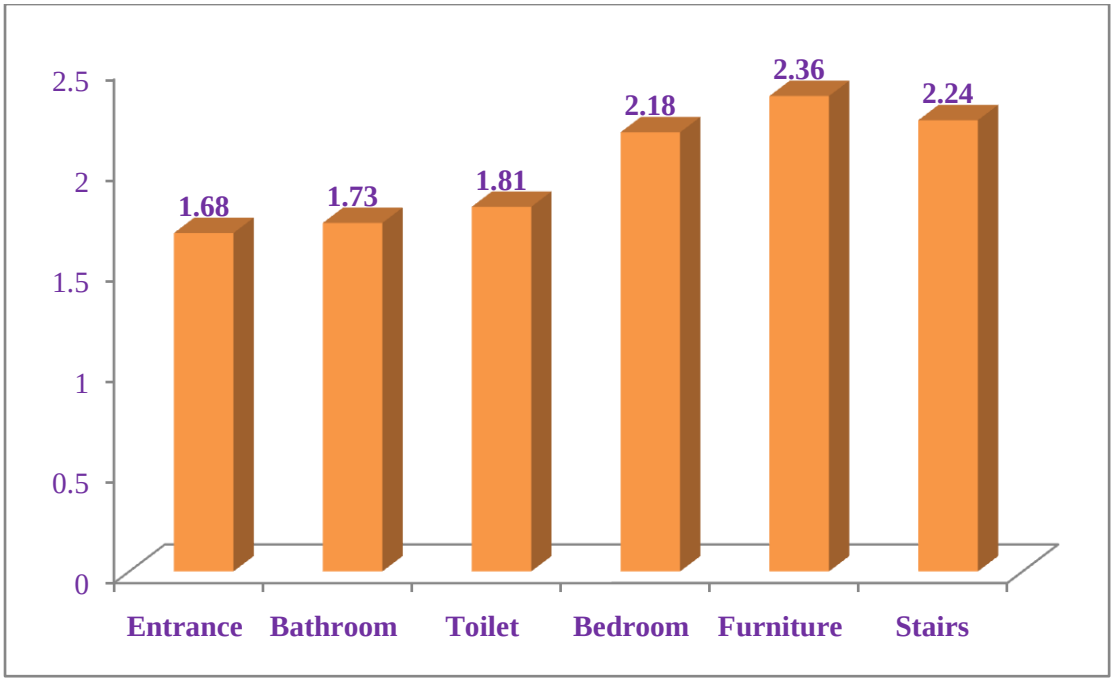


Fig. 16: Overall housing hazards in old age homes faced by the respondents

Overall housing hazards in old age homes faced by the respondents

Result regarding overall housing hazard it was seen that furniture got first rank with mean score 2.36 and stairs got second rank with mean score 2.24. Whereas bedroom got third rank with mean score 2.18 followed by toilet (Rank IV). Bathroom and entrance got fifth and sixth rank with mean score 1.73 and 1.68, respectively (Table 17 and Fig. 16).

Table 17: Overall housing hazards in old age homes faced by the respondents (n=50)

Sr. No.	Housing hazards	WMS	Rank
1.	Entrance	1.68	(VI)
2.	Bathroom	1.73	(V)
3.	Toilet	1.81	(IV)
4.	Bedroom	2.18	(III)
5.	Furniture	2.36	(I)
6.	Stairs	2.24	(II)

Correlation between socio-economic variables and housing hazards in old age homes

The data obtained in Table 18 show the association between socio-economic variables and housing hazards in old age homes of the respondents. It was observed that age showed significant association with entrance (r=0.41*), bathroom (r=0.43*), toilet (r=0.55*), bedroom (r=0.58*), furniture(r=0.51*) and stairs (r=0.53*). Similarly, education of the respondents also establish significant association with entrance (0.36*), bathroom (r=0.29*), toilet (r=0.38*), bedroom (r=0.32*), furniture(r=0.25*) and stairs (r=0.37*). Further it was seen that employment status also established significant association with entrance (r=0.31*), bathroom (r=0.38*), toilet (r=0.39*), bedroom (r=0.33*), furniture(r=0.31*) and stairs

(r=0.32*) at 5% level of significance. Monthly income of family also established significant association with entrance (0.25*), bathroom (r=0.25*), toilet (r=0.27*), bedroom (r=0.28*), furniture(r=0.35*) and stairs (r=0.34*). Duration of stay in OAH also establish significant association with entrance (0.26*), bathroom (r=0.27*), toilet (r=0.29*), bedroom (r=0.31*), furniture(r=0.29*) and stairs (r=0.27*).

Table 18: Correlation between socio-economic variables and housing hazards in old age homes

Sr. No.	Socio-economic variables	Housing hazards in old age homes					
		Entrance	Bathroom	Toilet	Bedroom	Furniture	Stairs
1.	Age	0.41*	0.43*	0.55*	0.58*	0.51*	0.53*
2.	Education of the respondents	0.36*	0.29*	0.38*	0.32*	0.25*	0.37*
3.	Employment status	0.31*	0.38*	0.39*	0.33*	0.31*	0.32*
4.	Monthly income of family	0.25*	0.25*	0.27*	0.28*	0.35*	0.34*
5.	Duration of stay in OAH	0.26*	0.27*	0.29*	0.31*	0.29*	0.27*
6.	Source of income	0.11	0.14	0.16	0.11	0.15	0.14
7.	Living status	0.15	0.18	0.14	0.13	0.16	0.17

*Significant at 5% level of significance

Correlation between health problems of elderly and socio-economic variables

Results regarding the association of health problems of elderly with socio-economic variables are presented in Table 19. Socio-economic variables pertaining to age showed significant association at 5%level of significance with all the health problems of elderly i.e. asthma (r=0.37*), diabetes (r=0.47*),

Table 19: Correlation between health problems of elderly and socio-economic variables

Sr. no.	Health problems of elderly	Socio-economic variables				
		Age	**Education of the respondents**	**Employment status**	**Monthly income of family**	**Duration of stay in OAH**
1.	Asthma	0.37*	0.11	01.3	0.17	0.12
2.	Diabetes	0.47*	0.16	0.14	0.14	0.16
3.	Arthritis	0.63*	0.17	0.11	0.11	0.11
4.	Joint pain	0.51*	0.11	0.19	0.09	0.15
5.	Heart problems	0.76*	0.16	0.12	0.13	0.17
6.	Abnormal blood pressure	0.73*	0.13	0.09	0.11	0.18
7.	Loss of teeth	0.71*	0.16	0.11	0.13	0.09
8.	Hearing loss	0.40*	0.17	0.07	0.16	0.11
9.	Loss of memory	0.43*	0.16	0.06	0.17	0.15
10.	Poor vision	0.67*	0.12	0.11	0.16	0.14
11.	Constipation	0.74*	0.15	0.14	0.`3	0.18
12.	Paralysis	0.37*	0.14	0.17	0.15	0.15
13.	Disc problem	0.74*	0.13	0.18	0.19	0.17

*Significant at 5% level of significance

arthritis (r=0.63*), joint pain (r=0.51*), heart problems (r=0.76*), abnormal blood pressure (r=0.73*), loss of teeth (r=0.71*), hearing loss (r=0.40*), loss of memory(r=0.43*), poor vision(r=0.67*), constipation(r=0.74*), paralysis(r=0.37*), and disc problem (r=0.74*).Education of the respondents, employment status, monthly income of family, duration of stay in OAH were not established significant association with health problems of elderly.

CHAPTER-V

DISCUSSION

This chapter contains the discussion on the findings of the study. The results regarding socio-economic and personal profile of the respondents revealed that 44.0 per cent of the respondents were in age group of 70-80 years, illiterate (46.0%), widow/widower (70.0%), belonged to general category (54.0%), with joint family system (62.0%) and medium family size (40.0%). Majority of the female respondents were unemployed, with medium family education status, having monthly income of Rs. 25,000- 50,000. Majority of respondents (74.0%) were staying in old age home from 2-5 years were getting old age pension(84.0%).These findings were in line with Khan *et al.* (2004) who highlighted that majority of the elderly populations belongs to the age 60-70 years (middle age group), illiterate, had general category, unemployed. Kavita *et al*. (2012) also supported the study that the educations of 29.6%inmates were secondary and 25.5% were primary educated. Among marital status of inmates, 78.8% were widow/widower.

Health problems of elderly

Less than three-fourth of the respondents (74.0%) had poor vision followed by constipation (66.0%), loss of teeth (64.0%) and joint pains (50.0%). An equal number of respondents (34.0%) faced the abnormal blood pressure and hearing loss followed by loss of memory (30.0%), diabetes (22.0%) and asthma (20.0%).Similar results were reported by Tiwari *et al.* (2009) indicating overall very low awareness in the community about the problems of elderly, mostly the mental health problems and thus expelling the myth that people were not aware about mental illness of elderly. They were uncertain about the effectiveness of treatment. Community was mostly unaware about the immunization in graying population, very few people were found aware (1.2%) and of them very few immunized their elderly. Generally the subjects were unaware about the appropriate diet/nutrition of elderly. Chandrika *et al*. (2015) also supported this study who reported that majority of the respondents had teeth loss, joint pain and diabetes. Main health problem was poor vision and least of was disc problem among the inmates of old age homes.

Environment conditions of old age home

The experiment conducted in the month of March- April, showed that temperature of the OAH-1 was 26.5^{o}C and OAH-2 was 27^{o}C which was 10.0% and 12.0% respectively more than the recommended value. Humidity of the old age home was 47.3% and 49.0% in the OAH-1 and OAH-2 respectively which was 14.0% and 10.0% lower than recommended value. Noise level of the OAH-1 and OAH-2 were almost same i.e. 48.5 dB in Hisar and 47.5

dB in Sirsa old age home and little higher than recommended value. Further it was found that lighting of the Hisar old age home was 300 lux and 200 lux in Sirsa old age home and recommended value was 300-500 lux. The present findings were in tune with Borrico and Arias (2018) who conducted study on old age home and found significant temperature, light and noise in old age home. Friesen *et al*. (2016) and Chacko *et al.* (2017) also found that temperature was 26^{o}C which was not so high than the recommended value and light of the old age home was poor in living room. Temperature and noise of the was higher than the recommended value, Humidity of was lower than the recommended value in both OAH and lighting of the OAH-1 was in the range of the recommended value and OAH-2 lighting was less than the recommended value.

Ergonomic conditions of old age home

Window height was suitable, floors were not even, lever type doors handle were not available, cupboard was not near to bed, lighting switches were near to bed and adequate lighting in bedroom in OAH-1 (Hisar) while, except window height and lighting not comfortable in bedroom all ergonomic condition were not comfortable to the elderly in and OAH-2 (Sirsa). Similar results were given by Camara *et al.* (2010)concluded that the major ergonomic problems found in the specified rooms were the lack of support, bad lighting, not easy to use equipment, and the use of inadequate products, furniture and objects in wrong places and the lack of space for circulation. Kashyap (2014) was depicted that doors, windows, switches, power outlets, sink, toilets, bathroom, handrails; storage space were not comfortable to the elderly people. Further, regarding bathroom and toilet, it showed that handrails and height of taps were not comfortable. Doors were opening inside, toilet seat were not according to height, adjustable shower, non-skid mat, lever type doors handle and lever type tap, and cupboard to store items were not available, more ever, floor were not even. Ergonomic facilities were not fond related to stairs in OAH-2 (Sirsa). Ramp height was not suitable and handrails were not available at entrance in both OAH-1 (Hisar) and OAH-2 (Sirsa).The findings of the present study were at par with the findings of Pinto *et al*. (2000) who concluded that the combination of technology and ergonomics applied to improve the living condition at home may increase safety for the elderly people. Rashid et al. (2008) also found that elderly people should be provided living environment having specifically designed facilities appropriate for their physical and cognitive strengths, capabilities and limitations and to match their body dimensions. Conclusively for ergonomic conditions in bedroom; bed, table and chair was not ergonomically designed, floor was slippery, and cupboard was not near to bed. In bathroom handrails, adjustable shower, lever –type tap and lever-type door handle was not available and stairways was not slippery, handrails on both side and proper lighting at stairs was only in OAH-1and OAH-2 was not suitable ramp height and handrails was not available.

Availability of various housing facilities in old age homes

As far as habitat room's facilities is concerned all the facilities i.e. room, dormitory, attached bathroom, cupboards, room heater and room cooler were available except the single rooms and three seater rooms in the Hisar old age home. Whereas in the OAH-2 (Sirsa), facilities of rooms, attached bathroom/toilet, cupboards, and room cooler were available. In the OAH-1(Hisar), the facilities of separate chairs, beds, tables, both chairs and benches and prayer room were available for the use of elderly. In the OAH-2(Sirsa), all the facilities were also available except the prayer room. Handrails were available on the stairs only in the OAH-1(Hisar). Similar results were reported by Kavita*et al.* (2012) was depicted that all the geriatric homes in the study are residential in nature they are expected to have all the facilities and services that are necessary for daily living including religious and refreshment facility (TV, library, garden, and newspaper).All the other facilities i.e. television, dining room, mess and medical facilities twice in a week were available in both old age homes. Only water cooler was not available in the OAH 2(Sirsa). Light was in all rooms, toilets, and bathrooms in both old age home. Further, generator/invertor, water supply, open area and wheel chair was available in both OAH-1 (Hisar) and OAH-2. The present results were in line with that of Gupta *et al.* (2014)who highlighted that services like medical services, recreational facilities, safety, space availability and staff availability were better in private old age homes. Kashyap (2012) also support this study who found that facilities of separate kitchen, chairs, beds, tables, both chairs and benches were available for the use of elderly. Facilities available in OAH were habitat room facilities i.e. two seater room, attached bathroom, cupboards, room cooler, chair, table, bed, television, dining room, mess available, genertator/invertor, water supply, open area, wheel chair, and handrails not available in corridors, bathroom, toilet, rooms both old age homes.

Satisfaction level of regarding facilities of OAHs

Among all the facilities, most of the respondents were highly satisfied with electricity facility it scored highest mean score 4.38 followed by electricity and hall facility. Respondents were simply satisfied with the facility of open area followed by stairs facility, bedroom facility and furniture. Respondents were least satisfied with the facility of bathroom and toilet. Similar results were reported by Sandhu and Arora (2003) was depicted that in the old age homes of Amirtsar, Punjab, inmates were fully satisfied with their stay in the old age homes. Similarly Mishra (2007) observed that senior citizen were satisfied with the bed room, chair, hall, light, bathroom and electricity facility of old age home. Isha (2009) also reported that most of the elderly were satisfied with the institutional facilities and services being provided to them in old age homes and also do not want go back in their families. Most of the

respondents were highly satisfied with highest mean scored in electricity facilities and respondents were least satisfied with bathroom and toilet facilities.

Reason for living in old age home

Majority of respondents 70.0 per cent were living in old age home due to death of spouse followed by misbehavior of son & daughter in law (54.0%). An equal number of respondents (28.0%) were living in old age home due to no child and no financial support followed by 22.0 per cent respondents whose children did not want to keep them due to their physical illness and 18.0 percent had no son. The present trends in results are at par with the findings of Bansod & Paswan (2006) who found that many of the older people left home due to neglect by their children and relatives, while the majority of them adopted old age home as there was no one to look after them. A minimum of 6.0 per cent respondents were living in old age home because they were unmarried, divorcee and 4.0 per cent of respondents were living in OAH due to death of their son. Similarly, Gupta *et al.* (2014) conducted that the most important reason for elderly people living in OAHs was no care taking person at home both in free and paid type of OAHs (77.1% and 36.4 % respectively). While second most important reason in free OAHs was poverty (20.0%) and in paid OAHs it was self satisfaction (34.8%). Other reasons in for settlement in OAHs were loneliness, no support from children, misbehave by daughter in law, death of spouse, strained relation (other than9 daughter in law) etc. Maximum of the respondents were using in OAH due to death of spouse and least were living because of unmarried and divorcee and death of son.

Elderly interest in different activities in old age home

Among household activities less than half of the respondents (48.0%) were involved in washing clothes. Maximum numbers of respondents (42.0%) were more interested in watching T.V. Majority of respondents (70.0%) preferred going for a walk for rest/relaxing activity followed by half of the respondents who were interested in reading the newspaper (50.0%) and book reading (30.0%). Among religious activities, majority of respondents (60.0%) each were interested in praying daily and attending *satsang/kirtan* followed by (48.0%) respondents who were interested in visiting the worship places and 30.0 percent respondents were interested in reading the religious books. The present findings are in tune with study of Dubey *et al*. (2011) as regards elderly living in and old age homes, analyzed that 43.3 percent of the elderly had more interest towards reading religious books, magazines and newspapers for passing their time, while 33.3 percent of them had interest towards watching T.V. and the others (23.3 percent) listened to music for peace of mind. 33 percent of the elderly living in the institutions stated that listening to music relaxed them and helped forget their tensions, worries and stress. Most of the elderly preferred going to walk and involved in religious activities as a rest/relaxing activity. Least respondents were playing games/cards as recreation activities.

Activity to daily living (ADL)

Results revealed that majority of the respondents (84.0%) were able to go to toilet by their own, able to eat without assistance, bath without any assistance and dress them without any assistance. They used walking stick or cane to assist them. 78.0 per cent of the respondents were able to groom themselves without any assistance whereas 10.0 per cent needed minor assistance in grooming them. Majority of respondents (62.0%) used to go on walk or moves in their surroundings. This study was supported by Gandhi (2016) who expounded that most of elderly were able to perform ADLs (Activities of Daily Living) but sixty two percent elderly needed some assistance in performing IADLs (Instrumental Activities of Daily Living).As per study conducted by Jadhao *et al.* (2017) in Nagpur amongst inmates of home for aged prevalence of ADL dependency was 21.02% among the inmates of home for aged. Dependency for activities of daily living increases with increase in age. Majority of the respondents were able to most of the activities without any assistance and only few respondents were not able to perform.

Extent of ability to perform the activity on the basis of Activity of Daily Living scale (ADLs)

Both male female respondents were functionally able to maintain toileting by self and ability to feed themselves. Male respondents were moderately dependent and female respondents were functionally able to dress themselves. Both male and female respondents were moderately dependent and severely dependent for ability to groom themselves and ability to physical ambulation. Whereas male respondents were moderately dependent and female respondents were functionally able for ability to have bath by themselves. Whereas similar results were found in a study of activities of daily living of elderly was conducted by Kharat *et al.*(2017) in old age homes group where majority of elderly 91 were functionally able, followed by 6 elderly with severely ADL dependent and there were 3 moderately ADL dependent elderly. Aprajita and Gandhi (2016) who elucidated that elderly people of Haryana were having a good functional ability for living as they were able to perform maximum of the activities either by themselves or by taking minor helps from others. Respondents were functionally able in toileting and feeding activities, moderately dependent in grooming and severely dependent in activities of bathing.

Housing hazards in old age homes faced by the respondents

Unsuitable ramp height got first rank followed by handrails not on both side. Results regarding bathroom related hazards, less space got first rank while inconvenient door opening got second rank. It was also observed that slippery floor, uncomfortable bolts height, inconvenient height of tap, insufficient lighting and inconvenient washbasin got third rank, fourth rank, fifth rank, sixth rank and seventh rank respectively. Lack of cupboard to store items, no handrails, unadjusted shower, lack of space to keep belongings and non-lever-type

tap got eight ranks. Further, results regarding toilet depicted that, toilet seat not according to height and non lever-type tap both got first rank. Lack of ventilation got second rank followed by insufficient lighting (rank III), inconvenient doors opening (rank IV), not availability of handrails (rank V) and slippery floor (rank VI).These finding are further supported by La Grow *et al.*(2006) hazardous conditions was present entrances, walkways, sitting areas, beds, handrails, steps, and lighting. Stevens *et al.*(2001) found that common hazards walking on slippery floors, and living with poor lighting may increase the risk of falls.

Out of five housing hazard, cupboard away from bed got first rank followed by slippery floor (Rank II) and non-lever type door handles (Rank III). The other important hazards by the respondents were lighting switches away from bed (Rank IV), bed not according to height (Rank V) and inconvenient height of cupboard (Rank VI). Regarding furniture it was observed that unsuitable chair got first rank followed by unsuitable dining table (Rank II) and unsuitable room table (Rank III). Further, handrails not on both side got first rank and insufficient lighting got second rank regarding stairs. The present trends in results are at par with the findings of Feldman & Chaudhury (2008) who was depicted that bathroom was identified as the most unsafe room in old age home. Two or more hazards found in the bathroom frequently were related to floor surfaces, poor lighting, and an absence of appropriate grab bars or handrails, steps, objects on the pathway, poor design of furniture. Kashyap (2014) also mentioned that doors, windows, switches, power outlets, sink, toilets, bathroom, handrails; storage space were not comfortable to the elderly people. Overall housing hazards related to furniture got first rank, following by stairs, whereas bedrooms got third rank and toilet got fourth rank. Bathrooms and entrance got fifth and sixth rank.

Correlation between socio-economic variables and housing hazards in old age homes

Age showed significant association with entrance, bathroom, toilet, bedroom, furniture and stairs. Similarly, education of the respondents also establishes significant association with entrance, bathroom, toilet, bedroom, furniture and stairs. Further it was seen that employment status also established significant association with entrance, bathroom, toilet, bedroom, furniture and stairs at 5% level of significance. Monthly income of family also established significant association with entrance, bathroom, toilet, bedroom, furniture and stairs. Duration of stay in OAH also establish significant association with entrance, bathroom, toilet, bedroom, furniture and stairs. Similar results were given by Chacko*et al.* (2017) who found that common housing risk identified for fall were poor lighting of living room (95.0%) and bedroom (94%) and absence of light switch near the bed (63.0%) in the bedroom. 73.0% of bathroom was located outside the house with 41.0% having uneven /slippery surface. Only 68.2% had personal toilet of which 66.0% was present outside the home, 98.0% had no handrail and absence of western toilet in 62%. Siobhan *et al.* (2017) also

showed the respondents were already receiving such help; however, few felt that they would need such extra help in the future or at all. The two categories for which respondents most often "needed help now" were emergency alarms, that is, sensors in the home to detect problems and send help if needed (21.8%) and help with minor repairs, for example, changing a light bulb or a fuse (15.7%). Socio-economic variables viz in respect to age, education, employment status were other significantly associations with housing hazards in old age homes entrance, bathroom, toilet, bedroom, furniture and stairs. Source of income and living status were not correlated with housing hazards.

Correlation between health problems of elderly and socio-economic variables

Socio-economic variables pertaining to age showed significant association at 5%level of significance with all the health problems of elderly i.e. asthma, diabetes, arthritis, joint pain, heart problems, abnormal blood pressure, loss of teeth, hearing loss, loss of memory, poor vision, constipation, paralysis, and disc problem. Education of the respondents, employment status, monthly income of family, duration of stay in OAH were not established significant association with health problems of elderly. The present findings are in tune with study of Scocco and Nassuato (2017) cited that 40.0 per cent of women have no economic capacity to take care of their personal needs. The major need of the elderly is emotional support, recognition and care from family members and society. The present trends in results are at par with the findings of Verma *et al.* (2016)found that musculoskeletal, psychological system, gastrointestinal system, and dental disorder affecting (68.5%), (59.75%), (29.75%), (25%), (23.5%), of elderly respectively. The prevalence of anemia (43%), under-nutrition (38.5%) and respiratory problems (16%) were more in elderly. Health problems of elderly i.e. asthma, diabetes, arthritis, joint pain, heart problems were significant associated with variables are age, whereas with education, employment status, monthly income of family, duration of stay in OAH, there was no significant association.

CHAPTER-VI

SUMMARY AND CONCLUSSION

Age-friendly environment is the idea of having components of a home/living place for elderly that have been designed so as to enable them to execute their day-to-day life more comfortably, safely and without help. Along with, anthropometry is essential for designing living area best suited to older people, ergonomically designed facilities such as storage shelves, kitchens, bedrooms, and furniture and work stations for them to execute their tasks. It aims to match the capabilities and limitations of people, thereby enhancing opportunities for optimizing performance and reducing the risks of injury, illness and discomfort. Day-to-day living in old age homes poses many hazards if the housing is not ergonomically designed. Considering the relevance and vitality of assessing existing ergonomic conditions, hazards of old age homes and satisfaction level of inmates, the present study was designed to address the following specific objectives;

4. Assessing existing ergonomic conditions of old age homes
5. Studying activity profile and satisfaction level of inmates
6. Identifying housing related hazards experienced by inmates and suggesting ergonomic improvements

METHODOLOGY

The study was conducted in Haryana state considering of familiarity of the researcher. The selection of district as well as Old Age Home was done purposively. Hisar (OAH-1) and Sirsa (OAH-2) district of Haryana state were selected which having the maximum number of inmates in old age home. In the selected old age home there were 50 inmates in which 42 inmates from Hisar and 8 inmates from Sirsa were selected. A set of 13 independent variables (personal and socio-economic) and two dependent variables constituted the variables for the study. Scientific methods were used to measure these variables. Data were collected with the help of duly pre-tested structured interview schedule, developed for the study. The inferences were drawn on the basis of frequency, percentage, mean score and correlation.

FINDINGS

The results regarding socio-economic and personal profile of the respondents revealed that 44.0 per cent of the respondents were in age group of 70-80 years, illiterate (46.0%), widow/widower (70.0%), belonged to general category (54.0%), had joint family system (62.0%) and medium family size (40.0%). Majority of the female respondents were unemployed with medium family education status, belonging to Rs. 25,000- 50,000 income

category. Majority of respondents (74.0%) were staying in old age home from 2-5 years and majority of respondents (84.0%) received old age pension.

Less than three-fourth of the respondents (74.0%) had poor vision followed by constipation (66.0%), teeth loss (64.0%) and joint pains (50.0%). An equal number of respondents (34.0%) faced the abnormal blood pressure and hearing loss followed by loss of memory (30.0%), diabetes (22.0%) and asthma (20.0%).

Data shows that temperature of the OAH-1 was 26.5^{o}C and OAH-2 was 27^{o}C which was not so high than the recommended value. Humidity of the old age home was 47.3% and 49.0% in the OAH-1 and OAH-2 respectively which was less than the recommended value. Noise level of the OAH-1 and OAH-2 was almost same i.e. 48.5 dB in Hisar and 47.5 dB in Sirsa old age home which was little high as per recommended value. Further it was found that lighting of the Hisar old age home was 300 lux which was near about the recommended value and 200 lux in Sirsa old age home which was low as per recommended value.

Window height was suitable, floors were not even, lever type doors handle were not available, cupboard was not near to bed, lighting switches were near to bed and adequate lighting in bedroom in OAH-1 (Hisar) while, except window height and lighting in bedroom all ergonomic condition were not comfortable to the elderly in and OAH-2 (Sirsa). Further, regarding bathroom and toilet, it showed that handrails and height of taps were not comfortable. Ergonomic facilities were not fond related to stairs in OAH-2 (Sirsa). Ramp height was not suitable at entrance in both OAH-1 (Hisar) and OAH-2 (Sirsa).

All the facilities regarding habitat' room were available except the single rooms and three seater rooms in the Hisar old age home. Whereas, in the OAH-2 (Sirsa), facilities of rooms, attached bathroom/toilet, cupboards, and room cooler were available. In the OAH-1(Hisar) and OAH-2(Sirsa), all the facilities of separate chairs, beds, tables, both chairs and benches were available for the use of elderly. Handrails were available only on the stairs only in the OAH-1(Hisar). All the other facilities i.e. television, dining room, mess and medical facilities twice in a week were available in both old age homes, only water cooler was not available in the OAH 2(Sirsa). Light was in all rooms, toilets, and bathrooms in both old age home. Further, generator/invertor, water supply, open area and wheel chair was available in both OAH-1 (Hisar) and OAH-2.

Among all the facilities, most of the respondents were highly satisfied with electricity facility it scored highest mean score 4.38. Respondents were simply satisfied with the facility of open area. Respondents were least satisfied with the facility of bathroom and toilet.

Majority of respondents 70.0 per cent were living in old age home due to death of spouse. An equal number of respondents (28.0%) were living in old age home due to no child and no financial support. A minimum of 6.0 per cent respondents were living in old age home

because they were unmarried, divorcee and 4.0 per cent of respondents were living in OAH due to death of their son.

Less than half of the respondents (48.0%) were involved in washing clothes in the household activities. Maximum numbers of respondents (42.0%) were more interested in watching T.V. Majority of respondents (70.0%) preferred going for a walk for rest/relaxing activity. Among religious activities, majority of respondents (60.0%) each were interested in praying daily and attending *satsang/kirtan* followed by (48.0%) respondents who were interested in visiting the worship places and 30.0 percent respondents were interested in reading the religious books.

Results revealed that majority of the respondents (84.0%) were able to go to toilet by their own, able to eat without assistance, bath without any assistance and dress themselves without any assistance. They used walking stick or cane to assist them. 78.0 per cent of the respondents were able to groom themselves without any assistance whereas 10.0 per cent needed minor assistance in grooming them. Majority of respondents (62.0%) used to go on walk or moves in their surroundings.

Unsuitable ramp height got first rank. Results regarding bathroom related hazards, less space got first rank while inconvenient doors opening got second It was also observed that slippery floor, uncomfortable bolts height, inconvenient height of tap, insufficient lighting and inconvenient washbasin got third rank, fourth rank, fifth rank, sixth rank and seventh rank respectively. Both toilet seats were not according to height and non-lever-type tap. Lack of ventilation got second rank followed by insufficient lighting (rank III), inconvenient doors opening (rank IV), not availability of handrails (rank V) and slippery floor (rank VI).

Out of five housing hazard, cupboard away from bed got first rank followed by slippery floor (Rank II) and non-lever type door handles (Rank III). The other important hazards by the respondents were lighting switches away from bed (Rank IV), bed not according to height (Rank V) and inconvenient height of cupboard (Rank VI). Regarding furniture it was observed that unsuitable chair got first rank followed by unsuitable dining table (Rank II) and unsuitable room table (Rank III). Further, handrails not on both side got first rank and insufficient lighting got second rank regarding stairs.

Age, education, employment status, monthly income and duration of stay in OAH showed significant association with entrance, bathroom, toilet, bedroom, furniture and stairs pertaining to housing hazards in old age homes at 5% level of significance.

Socio-economic variables pertaining to age showed significant association at 5%level of significance with all the health problems of elderly. Education of the respondents, employment status, monthly income of family, duration of stay in OAH were not established significant association with health problems of elderly.

CONCLUSION

- A sizeable number of the respondents (44.0%)were in the age group of 70-80 years followed by 60-70 years (42.0%),and 80-90 years of age (14.0%).
- Less than three-fourth of the respondents (74.0%) had poor vision followed by constipation (66.0%), dental problem (64.0%) and joint pains (50.0%).
- Temperature of the OAH-1 was 26.5^{o}C and OAH-2 was 27^{o}C which was not much high than the recommended value. Humidity of the old age home was 47.3% and 49.0% in the OAH-1 and OAH-2 respectively which was low the recommended value.
- The habitat room's facilities, i.e. room, dormitory, attached bathroom, cupboards, room heater and room cooler were available except the single rooms and three seater rooms.
- Less than half of the respondents (48.0%) were involved in washing clothes in the household activities. Among recreational activities maximum numbers of respondents (42.0%) were more interested in watching T.V. followed by playing games/cards (26.0%).
- Results revealed that majority of the respondents (84.0%) were able to go to toilet by their own, able to eat, bath and dress them without any assistance.
- Main hazards faced by the respondents were unsuitable ramp height followed by handrails not on both side. Correlation between socio-economic variables and housing hazards and health problems were found significant at 5 % level of significance.

Implications

- Ergonomic solutions should as per the problems and needs.
- Efforts should be made to improve the elderly home for healthy living.
- The support provided in the bathroom environment should be designed to give support and prevent recipients from falling bathroom and use the toilet alone or with help from someone else.

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ANNEXTURE-I

Ergonomic Assessment in Old Age Homes in Haryana

I Socio-personal and economic variables

1. Name of respondent:-
2. Age
3. Sex

a) Male b) Female

4. Education

a) Illiterate

b) Primary

c) Middle

d) High School

e) 10+2

f) Up to Graduate

5. Marital status

a) Married

b) Unmarried

c) Widowed

d) Divorcee

6. Caste
   a) SC/ST
   b) BC

c) General

7. Family Type
   a) Nuclear
   b) Joint
8. Family size
   a) Small (up to 3 members)
   b) Medium (4-6 members)
   c) Large (7 & above members)

9. Employment status
   a) Employed
   b) Unemployed

10. Family education status:-

Sr.no	Relationship with respondents	Age	Illiterate	Primary	High School	10+2	Graduate	Post-graduate

11. Monthly income of family

a) Up to Rs. 25,000

b) Rs. 25,000-50,000

c) More than Rs. 50,000

12. Duration of stay in OAH

a) Up to 1 Year

b) 2-5 years

c) 6-10 years

13. Source of income

a) Old age pension

b) Retirement pension

c) No source

14. Living status

a) Living alone

b) With spouse

15. Health problems faced by elderly

Sr. No.	**Health problems**	**Yes**	**No**
1.	Asthma		
2	Diabetes		
3	Arthritis		
4.	Joint pain		
5.	Heart problems		
6.	Abnormal blood pressure		
7.	Teeth loss		
8.	Hearing loss		
9.	Loss of memory		
10.	Poor vision		
11.	Constipation		
12.	Paralysis		
13.	Disc problem		

16. Reason for elderly living in old age home

Sr. No	Reasons	Yes	No
1.	No child		
2.	No other family members		
3.	Unmarried		
4.	Divorcee		
5.	Death of spouse		
6.	Death of son		
7.	Poverty/no financial support		
8.	Misbehavior of son and daughter-in-law		
9.	Children did not want to keep due to physical illness		

17. Ergonomic conditions of old age homes

Sr. No	Ergonomic condition	OAH-1(Hisar)		OAH-2(Sirsa)	
1.	**Bedroom**				
(a)	Bed according to height				
(b)	Ergonomically designed bed				
(c)	Ergonomically designed table				
(d)	Ergonomically designed chair				
(e)	Even floor				
(f)	Suitable window height				
(g)	Lever type door handle				
(h)	Cupboard near to bed				
(i)	Lighting switches near to bed				
(j)	Adequate lighting				
2.	**Bathroom and toilet**				
(a)	Handrails available				
(b)	Adjustable shower				
(c)	Lever type door handle				
(d)	Comfortable height of tab				
(e)	Non- skid mat				
(f)	Lever-type tap				
(g)	Doors opening outside				
(h)	Doors opening inside				
(i)	Even floor				
(j)	Toilet seat according to height				
(k)	Water closet according to height				
(l)	Adequate lighting				
(m)	Cupboard to store items				
(n)	Bolts at suitable height				
3.	**Stairs**				
(a)	Stairways safe no slippery				
(b)	Handrails on both side				
(c)	Proper lighting at stairs				
4.	**Entrance**				
(a)	Suitable Ramp height				
(b)	Handrails available on both side				

18. Checklist for housing facilities in old age homes

Sr. No	Facilities	OAH-1 (Hisar)	OAH-2 (Sirsa)
1.	Habitat room facilities		
(a)	Single room		
(b)	Two seater room		
(c)	Three seater room		
(d)	Dormitory		
(e)	Attached bathroom/toilet		
(f)	Cupboard		
(g)	Room heater		
(h)	Room cooler		
2.	Separate chair		
3.	Separate beds		
4.	Separate table		
5.	Bath chair & benches available		
6.	Prayer room		
7.	Handrails		
(a)	Stairs		
(b)	Corridors		
(c)	Bathroom		
(d)	Toilet		
(e)	Rooms		
8.	Television		
9.	Dining room		
10.	Mess facility for food		
11.	Water cooler		
12.	Medical facility available		
13.	Lighting facility		
(a)	Rooms		
(b)	Toilet		
(c)	Bathroom		
14.	Generator/Invertor		
15.	Water supply		
16.	Open area		
17.	Wheel Chair		

19. Environment conditions of old age home

Sr. No	Environmental parameters	OAH-1	OAH-2
1.	Temperature		
2.	Humidity		
3.	Noise		
4.	Light		

20. Elderly satisfactions with the old age homes all facilities

Sr. No	Facilities	Yes	No
1.	Open area		
2.	Electricity		
3.	Hall		
4.	Food & Water		
5.	Stairs		
6.	Bedroom		
7.	Furniture		
8.	Bathroom		
9.	Toilet		

21. Elderly interest in different activities in old age home

Sr. No	Facilities	Yes	No
1.	**Household activity**		
(a)	Washing clothes		
2.	**Recreation activities**		
(a)	Watching television		
(b)	Playing games/cards		
3.	**Rest/Relaxing**		
(a)	Book reading		
(b)	Newspaper reading		
(c)	Going to walk		
4.	**Religious**		
(a)	Praying daily		
(b)	Attending satsang/kirtan		
(c)	Reading religious book		
(d)	Visit to place of worship		

22.Activity of daily living

1. Ability to maintain toileting by self

S.No.	Toilet	Yes	No
1	Cares for self at toilet completely		
2	Needs help in cleaning self		
3	Soiling or wetting while asleep more than once a week		
4	Soiling or wetting while awake more than once a week		
5	No control of bowel or bladder		

2. Ability to feed themselves

S.No.	Feeding	Yes	No
1	Eats without assistance		
2	Eats with minor assistance at meal times		
3	Feeds self with moderate assistance		
4	Requires extensive assistance for all meals		
5	Does not feed self at all resists efforts of other to feed him/her		

3. Ability to dress themselves

S.No	Dressing	Yes	No
1	Dresses, undresses and selects clothing from own wardrobe		
2	Dresses and undresses self with minor assistance		
3	Needs moderate assistance in dressing		
4	Needs major assistance in dressing, but cooperates with efforts of others to help		
5	Completely unable to dress self		

4. Ability to groom themselves

S.No	Grooming	Yes	No
1	Always neatly dressed, well-groomed, without assistance		
2	Grooms self adequately with occasional assistance		
3	Needs moderate and regular assistance or supervision with grooming		
4	Needs total grooming care		
5	Actively negates all efforts of others to maintain grooming		

5. Ability to move around the surrounding

Sr. No.	Physical ambulation	Yes	No
1	Goes independently walking outside		
2	Ambulates within residence		
3	Ambulation with assistance		
4	Sits unsupported on chair		
5	Bedridden more than half the time		

6. Ability to have bath by themselves

S.No	Bathing	Yes	No
1	Bathes self without help		
2	Bathes self with help		
3	Washes face and hands only		
4	Does not wash self		
5	Does not try to wash self		

23. Housing hazards in old age homes faced by elderly

Sr. no.	Housing hazards	Yes	No
1.	**Entrance**		
(a)	Unsuitable Ramp height		
(b)	Handrails not on both side		
2.	**Bathroom**		
(a)	Slippery floor		
(b)	Less space		
(c)	Uncomfortable bolts height		

(d)	Inconvenient height of tap		
(e)	Lack of cupboard to store items		
(f)	No handrails		
(g)	Unadjusted shower		
(h)	Insufficient Lighting		
(i)	Lack of space to keep belongings		
(j)	Inconvenient doors opening		
(k)	Non lever-type tap		
(l)	Inconvenient washbasin		
3.	**Toilet**		
(a)	Toilet seat not according to height		
(b)	Not availability of handrails		
(c)	Inconvenient doors opening		
(d)	Slippery floor		
(e)	Lack of ventilation		
(f)	Non lever – type tap		
(g)	Insufficient Lighting		
4.	**Bedroom**		
(a)	Bed not according to height		
(b)	Cupboard away from bed		
(c)	Inconvenient height of cupboard		
(d)	Lighting switches away from bed		
(e)	Non lever type door handles		
(f)	Slippery floor		
5.	**Furniture**		
(a)	Unsuitable Chair		
(b)	Unsuitable room Table		
(c)	Unsuitable Dining table		
6.	**Stairs**		
(a)	Handrails not on both side		
(b)	Insufficient Lighting		

ABSTRACT

1.	Title of thesis	:	Ergonomic Assessment of Old Age Homes in Haryana
2.	Full name of degree holder	:	**Anju Kumari**
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9.	Total No. of pages in thesis	:	53 + v + VII
10.	No. of words in the abstract	:	455

Key words: Old age, Urbanization, Varidha Aashram, Socio Economic,

Old age is a period of transition when one has to deal not only with the physical aging, but also with the challenges affecting the mental and social well-being. Due to the urbanization and job requirement of the young people, nuclear family system is fast coming up leaving the older people neglected, consequently, having no choice other than living in old age homes. Present study was conducted in randomly selected Hisar and Sirsa districts in Haryana state. One OAH having the maximum number of inmates in each district was selected purposively. OAH selected from Hisar was Moksha old age home (OAH-1) and from Sirsa it was Kasturba Gandhi varidhaaasram (OAH-2). In the selected old age home there were 50 inmates out of which 42 inmates from Hisar and 8 inmates from Sirsa were selected. A set of 13 independent variables (personal and socio-economic) and two dependent variables constituted the variables for the study. The results regarding socio-economic and personal profile of the respondents revealed that 44.0 per cent of the respondents were in age group of 70-80 years, illiterate (46.0%), widow/widower (70.0%), belonged to general category (54.0%), had joint family system (62.0%) and medium family size (40.0%). Less than three-fourth of the respondents (74.0%) had poor vision followed by constipation (66.0%), dental problem (64.0%) and joint pains (50.0%). Temperature of the OAH-1 was 26.5^{o}C and OAH-2 was 27^{o}C which was little higher than the recommended value. Humidity of the old age home was 47.3% and 49.0% in the OAH-1 and OAH-2 respectively which was less than recommended value. In bedroom; bed, table and chair were not ergonomically designed, floor was slippery, and cupboard was away from bed. In bathroom handrails, adjustable shower, lever –type tap and lever-type door handle were not available and stairways was not slippery, handrails on both side and proper lighting at stairs was only in OAH-1and OAH-2 suitable ramp height and handrails were not available. The habitat room's facilities, viz.room, dormitory, attached bathroom, cupboards, room heater and room cooler were available except the single rooms and three seater rooms. Results revealed that majority of the respondents (84.0%) were able to go to toilet by their own, able to eat, bath and dress them without any assistance. Respondents were functionally able in toileting and feeding activities, moderately dependent in grooming and severely dependent in activities of bathing. Overall housing hazards related to furniture got first rank, followed by stairs, whereas bedrooms got third rank and toilet got fourth rank. Bathrooms and entrance got fifth and sixth rank. Correlation between socio-economic variables and housing hazards and health problems were found significant at 5 % level of significance. Overall ergonomic conditions in the old age home were not up to the mark

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