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# **An Analysis of the State of Empowerment of Females vis-à-vis Males at Old Ages in India**

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## Abstract

The problem of ageing population in the developing countries has a special gender dimension as females not only outnumber males among older adults, but also differ from their male counterparts with respect to economic status, marital status and health status. The state of well being of older adults is understood partially by their level of empowerment. Importance of social, economic and health aspects in daily life makes it worth to investigate the empowerment of older female vis-à-vis older males in social, economic and health spheres. Active participation in either or both of social and economic matters indicates that an older adult has a decision making role in either or both of the two matters. Thus, active participation of older adults in socio-economic matters is an indicator of their empowerment. The present study addresses these issues using the 42<sup>nd</sup> Round data of the National Sample Survey (NSS). This study defines certain empowerment indicators and investigates their variation and interrelationships across the provinces. A three tier conceptual framework consisting of individual, household and social characteristics has been proposed to find out the factors that are associated with empowerment. The gender dimension of the state of empowerment has also been investigated. The findings establish that certain diseases and economic dependence adversely affect the state of empowerment of older adults. Currently married older females are found more empowered than other older females. The findings emphasize the need of providing greater support to older females in India for maintaining good health and economic condition.

Keywords: ageing, autonomy, empowerment, older adults, role, status

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## 1. Introduction

The world has witnessed a spectacular development in socio-economic and health fields in the latter half of the twentieth century. This has resulted in an increase in the size of population in the developing countries (Nyce *et al.*, 2005). Further, increased longevity and declining fertility rates are resulting in the ageing of these populations. Thus, these countries are confronting with the twin problems of high rate of growth of population and gradual ageing of it. Consequently, ensuring “quality of life (QoL)” (Kar *et al.*, 1999) to all citizens is a major challenge to policy makers in these countries where natural resources are already under pressure due to huge population sizes.

### 1.1. Concepts

Kar *et al.* (1999) have identified four domains or aspects of life that affect overall QoL of the powerless. These are basic human rights, equal rights for women, economic enhancement and health promotion and disease prevention. It is obvious that the population of older adults<sup>1</sup> belong to the group mentioned above. Closely associated with QoL is the concept of *empowerment*. Citing from earlier works (Freire, 1973, Rappaport, 1987, Zimmerman *et al.* 1992, Zimmerman, 1995 and Wallerstein *et al.* 1994), Kar *et al.* (1999) define empowerment as a process through which individuals, communities and organizations gain control over issues and problems that concern them most. Thus empowerment is a means to QoL.

Dixon (1998), while linking empowerment to assertion of rights, identifies six clusters of interests (rights) to be looked into for how women feel empowered to assert them. These six clusters are 1. sexual rights, 2. reproductive rights, 3. education and training, 4. employment, 5. right to property and 6. freedom of movement, association and political activity (including participation in all aspects of religious, recreational and cultural life). Among these clusters of interests only the right to property and freedom of movement, association and political activity (including participation in all aspects of religious, recreational and cultural life) are relevant to older females.

Dixon (1998), while defining empowerment of women, distinguishes it from the related concepts of female autonomy and status of women as follows:

1. The *Status of Women* refers to the positions that women occupy in the family and in society relative to those of men and of women of other classes, other countries, other times.
2. *Female Autonomy* refers to an individual’s capacity to act independently of the authority of others.
3. *Female Empowerment* (empowerment of women) refers to the capacity of individual women or of women as a group to resist the arbitrary imposition of controls on their behaviour or the denial of their rights, to challenge the power of others if it is deemed illegitimate, and to resolve a situation in their favour.

These definitions imply that the concepts are interlinked. Empowerment implies autonomy and autonomy ensures enhanced status of women. The existence of both way relations cannot be denied either. Further, there exists the concept of *role* closely linked to status. Status and role are related in the sense that role is the dynamic aspect of status (George, 1975). Moreover, one first needs to have appropriate indicators of empowerment for a given socio-economic system. These indicators may not be universal. As pointed out by Dixon (1998) “it is undoubtedly premature, if not impossible, to develop a universally

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<sup>1</sup> persons aged sixty years and above

acceptable set of indicators that would be sensitive to variations in social contexts and meaning and yet, at the same time, be comparable across settings.”

Autonomy as a concept cannot be simple or one-dimensional. Particularly relevant are social and economic realms in which most of the day to day activities of a person take place. In a study of women aged 15-59, Roy *et al.* (2004), citing from Jejeebhoy (1998), have considered decision-making, freedom of movement and access to money as direct indicators of autonomy. In the same study education, work participation, age and educational difference between husband and wife are included as indirect indicators of autonomy. Moreover, religion, caste, place of residence, economic status and family type are also included. Balk (1997), in a study of women aged between 15 and 56, identifies physical mobility and women’s authority in household decision making as indicators of status of women. In these studies, the age group under study covers females in their reproductive period only.

Though gender issues are well addressed in recent literature (Bhattacharya 2006, Devi 1993, Gulati 1993, Koenig *et al.*1992 and Selveratnam 1988) we lack study of older females in the empowerment perspective. Any quantitative study of the issues of gender differences and empowerment of women in the population of older adults is lacking. Moreover, we lack adequate national level comprehensive data on empowerment of women at old ages. The present study is an attempt to fill this gap by addressing the issue of empowerment of women at old ages on one hand and introducing a method of analysis of data for a quantitative study of these issues on the other. The present study has experimented on data from 42<sup>nd</sup> Round of the NSS for the utility of such methods.

## **1.2. Objectives**

The present study attempts at achieving the following aims:

- I. To identify the indicators of empowerment for older adults.
- II. To investigate the associations among these indicators of empowerment and its gender perspective.
- III. To develop a conceptual framework for investigating the effect of socio-economic, health and other factors<sup>2</sup> on these indicators.

## **2. Methodology**

### **2.1. Source of Data**

In India, at present we lack comprehensive database to study the empowerment of older females. The 42<sup>nd</sup> and 52<sup>nd</sup> round data of the NSS are of great help to initiate such studies. The data used for illustration in the present study was collected in the 42<sup>nd</sup> round (July 1986-June 1987) of the NSS, Government of India, to access the nature and dimensions of the socio-economic problems of the older adults. The survey covered the whole of India except Ladakh and Kargil districts of Jammu & Kashmir and rural areas of Nagaland. The survey covered 64993 households spread over a sample of 8312 villages and 4546 Urban Frame Survey (U.F.S.) blocks.

The 42<sup>nd</sup> round of the NSS (National Sample Survey) investigates the participation of the older adults in social/religious as well as in economic matters. The definitions for *Participation in social matters* and *Participation in religious matters* as used in the survey (NSS Report No. 367) are as follows:

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<sup>2</sup> These factors are discussed in detail in the methodology section

- *Participation in social matters* means physical or mental (giving advice) participation in arranging important functions such as marriage, *shraadh* ceremony<sup>3</sup>, etc.
- *Participation in religious matters* means physical or mental (giving advice) participation in arranging religious functions.

In the present study, *Participation in economic matters* means that an older adult participates in the management of assets/property that he owns.

## 2.2. Research Questions

**RQ.1:** What are the social and economic indicators of empowerment for the older adults?

**RQ.2:** What are the interrelations and associations among the indicators of empowerment with reference to the gender? This question incorporates the following questions:

- How does the association between Having and Managing Property and Participation in Social Matters varies with gender when other factors are controlled?
- How does the association between Having and Managing Assets and Participation in Social Matters varies with gender when other factors are controlled?
- How does the association between Having and Managing Property and Participation in Religious Matters varies with gender when other factors are controlled?

**RQ.3:** What are the factors associated with empowerment (which is a means to empowerment), for the older adults? How does their effect vary with gender? More specifically the following hypotheses shall be tested:

- A.** *H<sub>01</sub>*: Widows are less likely to be empowered in social or economic aspects.
- B.** Hypotheses about availability of children and socio-economic empowerment:
  - H<sub>02</sub>*: Older adults with less number of children are more likely to participate in management of assets/property.
  - H<sub>03</sub>*: Older adults with less number of children are less likely to participate in social/religious matters.
- C.** Hypotheses concerning economic dependency, economic activity and empowerment:
  - H<sub>04</sub>*: Partially dependent and dependent older adults are less likely to participate in social and religious matters when compared to those older adults who are not dependent on others.
  - H<sub>05</sub>*: Participation in social/religious matters varies with activity status of older adults.
  - H<sub>06</sub>*: Participation in management of property/assets varies with activity status of older adults.
- D.** Hypotheses regarding effect of diseases and disability on empowerment:
  - H<sub>07</sub>*: Prevalence of a chronic disease reduces the likelihood of participation in management of assets/property and participation in social/religious matters.
  - H<sub>08</sub>*: Severe/partial immobility adversely effects the empowerment.
- E.** Hypotheses regarding household characteristics and empowerment:
  - H<sub>09</sub>*: Participation in social/religious matters and participation in management of assets/properties differ with living arrangements of older adults.
  - H<sub>010</sub>*: Participation in social/religious matters and participation in management of assets/properties differ with size of household.
  - H<sub>011</sub>*: Participation in social/religious matters and participation in management of assets/properties differ with ownership of house.
  - H<sub>012</sub>*: Participation in social/religious matters and participation in management of assets/properties differ with economic status of the household.
- F.** Hypotheses regarding social, cultural and geographic factors and empowerment:
  - H<sub>013</sub>*: Participation in social/religious matters and participation in management of assets/properties differ with educational status of older adults.

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<sup>3</sup> Means post cremation ceremonies

$H_{014}$ : Participation in social/religious matters and participation in management of assets/properties differ with religion of older adults.

$H_{015}$ : Participation in social/religious matters and participation in management of assets/properties differ with caste of older adults.

$H_{016}$ : Participation in social/religious matters and participation in management of assets/properties differ with place of residence of older adults.

Research questions RQ.1, RQ.2 and RQ.3 are addressed respectively in the sections 2.3, 2.4 and 2.5.

### 2.3. Indicators of Empowerment

Various indicators of empowerment are described in the introduction for women in their reproductive period. Their functions and priorities do not remain the same when they transit to old age. Therefore, for older females, participation in the form of giving suggestions in day to day social and economic matters serve as indicators of empowerment. Participation shows that they have a role to play and are not marginalized. Moreover, these participations considered as indicators of empowerment, fit well into the two clusters of interests relevant to the older females.

The indicators of empowerment comprise of two sets. The first one comprises of indicators of economic autonomy ( $V^e$ ) and the other comprises of indicators of social participation ( $V^s$ ). The former includes two variables namely *having and managing property* ( $P$ ) and *having and managing assets* ( $A$ ) (also called *components of economic aspects of empowerment*). The other includes two variables namely *participating in social matters* ( $So$ ) and *participating in religious matters* ( $Re$ ) (also called *components of social aspect of empowerment*).

$$V^e = (P, A) \dots \dots \dots (1)$$

$$V^s = (So, Re) \dots \dots \dots (2)$$

Each of the variables in the set  $V^e$  comprises of three categories namely (1) *not having*, (2) *having and not managing* and (3) *having and managing* the respective resources. The set  $V^s$  comprises of binary categorical variables with categories *participating* and *not participating*.

To have a basic view of the situation, we start with presenting the odds ratios for older females vs. older males, for all the four indicators, for various states of India. The data for economic empowerment includes those older males and females who have property or assets. The rest of the analysis concerns pooled all India data.

### 2.4. Associations between the Indicators of Empowerment and its Gender Perspective

The association between two of the indicators is examined while controlling for the rest. Appropriate measures of association, namely odds ratios for  $2 \times 2$  and  $2 \times 3$  contingency tables, and Gamma (in case of ordinal variables) (Agresti, 1996) for  $3 \times 3$  contingency tables, have been used. Table 2 shows how the odds ratios are computed for a  $2 \times 3$  contingency table.

**Table 2: Table Showing Computation of Odds Ratios<sup>4</sup>**

	State of Economic Empowerment Managing Property/Assets			
	Empowered (having and participating) State 1	Partially Empowered (having and not participating) State 2	Not Empowered (not having) State 3	
State of Social Empowerment Participation in Social matters /Religious matters	Empowered (participating) State 1	$m_1$	$m_2$	$m_3$
	Not Empowered (not participating) State 2	$n_1$	$n_2$	$n_3$
Conditional Odds ratios (participation vs. non participation )	$\frac{m_1}{n_1}$	$\frac{m_2}{n_2}$	$\frac{m_3}{n_3}$	
Relative Odds Ratios (shows association between the two variables)	$\frac{m_1 \cdot n_2}{m_2 \cdot n_1}$	*	$\frac{m_3 \cdot n_2}{m_2 \cdot n_3}$	

## 2.5. Conceptual Framework for Studying Factors Associated with Indicators of Empowerment<sup>5</sup>

This section attempts to identify the factors affecting the empowerment of older adults. This will help concretise a conceptual framework for the analysis of effects of the factors on the empowerment of older females.

In the case studies of 16 older adults, who represent the older adult community, by Rajan *et al.* (1999), it comes out clearly that sex, economic dependency, education, marital status, children, living arrangements, household economic conditions, religion and caste affect the state of older adults. Kunugi (1989) raises concern over women's economic, health and social conditions that need research and policy attention. These aspects are opined to be interdependent. This interdependence becomes more prominent with increasing age.

Decision making power signifies empowerment. At individual (or group) level decision making takes place relative to some environment. Dixon (1998) classifies three contexts to which the levels of decision making environment belong. These are immediate context (interpersonal interactions), intermediate context (family and community influences) and broader context (market and state forces).

The present study takes a clue from these levels of decision making environment and looks upon state of empowerment and its four indicator variables as functions of three sets of factors. These sets of factors are individual level characteristics (corresponding to the immediate context), household characteristics (corresponding to the intermediate context) and social level characteristics (corresponding to the broader context). This conceptual framework also draws basic ideas from the conceptual framework consisting of availability factors, feasibility factors and desirability factors used by Dixon (1971) and Jeffery *et al.* (1992) in their studies on age at marriage and living arrangements of older females respectively.

### a. Individual Level Characteristics

<sup>4</sup> For the terms used in the table refer to Davis, James A. 1978. *Hierarchical Models for Significance Tests in Multivariate Contingency Tables: An Exegesis of Goodman's Recent Papers*. Analyzing Qualitative/Categorical Data, Log-Linear Models and Latent Structure Analysis (Ed. Goodman et al.). Addison-Wesley Publishing Company.

<sup>5</sup> The details of categorization and sex-wise frequency distribution over categories for all the variables are available with the authors and can be produced on request.

These are the factors that play their part at the micro level. These are represented by a set of indicator variables that represent the attributes of an older adult with respect to health and economic condition. To be explicit, they include the demographic characteristics (age group, marital status and having son), economic characteristics (activity status, and economic dependency) and health characteristics (prevalence of chronic diseases and disability).

The age group is defined by three states, namely, not so old (60-68 years), old (69-78 years) and very old (79 years and above). The rationale behind categorizing ages into age groups is to reduce the error arising out of misreporting of ages. Marital status is defined by four states, namely, currently married, widowed, never married and divorced/separated. The states never married and divorced/separated are rare phenomena in Indian context. Therefore these two states are merged to form a new category called *others*. Thus we have three states of marital status included in the analysis.

Indian social system is not a matrilineal one. Therefore having son is often socially advantageous (Vlassoff, 1990). The effect of *having son* on the empowerment indicators needs to be investigated. The effect of having a son or having a number of sons may be positively or negatively associated with empowerment. It is also interesting to see its effect on older males. It is for these reasons this factor is included in the analysis. It is a categorical variable with four states namely no son (includes cases of no child also), one son, two sons and more than two sons.

The activity status is included as an explanatory variable to find its effect on the empowerment of older adults. By activity we shall mean economic activity. There were nine states of activity in the original data. The activity status is categorized as economically active and not economically active. Those who are economically active are further classified as self-employed, regular wage or salaried and other workers. Further, the financial condition of older adults is reflected in their state of economic dependency. They can be dependent on others, partially dependent on others and not dependent on others. Therefore a variable economic dependency is incorporated into the framework with three states, namely, dependent on others, partially dependent on others and not dependent on others.

The factors under the broad group *health characteristics* incorporate the health and disability aspects of the older adults. Here information on disability is in the form of *physical immobility*. The older adults were asked whether they were physically immobile or not. Those who replied negative were again asked whether they had any restriction on mobility. This information was used to define a categorical variable with three states. The states are severe mobility difficulty, partial mobility difficulty and no mobility difficulty. Those having mobility difficulty were under the first state, those having restriction on mobility were under the second state and the rest were considered under the last state.

The older adults were enquired about the prevalence of seven chronic diseases. These diseases can be broadly classified into two categories. The first one includes those diseases that do not need diagnostic tests for getting detected and the second one includes those diseases that need diagnostic tests for getting detected. In the former are included chronic cough, piles, pain in joints and limbs and urinary problems. The latter category includes hypertension, heart disease and diabetes. Variables indicating the presence or otherwise of each of these diseases are included in the analysis. For the former group of diseases, a dichotomous variable indicating presence or otherwise has been included. For the latter group of diseases, a categorical variable with three states has been included. The states are prevalent, not prevalent and no information on prevalence or non-prevalence.

## **b. Household Level Characteristics**



These are intermediate level or semi-macro characteristics. These characteristics indicate household condition, namely economic condition and household composition (size, living arrangements and ownership).

In the absence of reliable information on household economic condition,<sup>6</sup> the condition of dwelling unit serves as a good proxy variable for inferring about the household economic conditions. The original data included ten types of dwelling units. These are *Kutcha*<sup>7</sup> *structure-chawl/bustee*<sup>8</sup>, *Kutcha structure-independent hut*, *Kutcha structure-others*, *Semi-pucca*<sup>9</sup> *structure- chawl/bustee*, *Semi-pucca structure-independent house*<sup>10</sup>, *Semi-pucca structure- others*, *Pucca structure*<sup>11</sup> *-single room tenement*, *Pucca structure-flat*, *Pucca structure-independent house* and *Pucca structure- others*. The condition of dwelling units can be broadly classified as Kutcha, semi-pucca and pucca each one better than the preceding one. Further maintaining an independent house or a flat indicates a better economic state than not having an independent house or a flat. Keeping these arguments in view the dwelling units are classified into six categories as to indicate the household economic status. The categories are low-II (Kutcha structure-chawl/bustee and Kutcha structure-others), low-I (Kutcha structure-independent hut), medium-II (Semi-pucca structure- chawl/bustee and Semi-pucca structure-others), medium-I (Semi-pucca structure-independent house), high-II (Pucca structure-single room tenement and Pucca structure- others) and high-I (Pucca structure-flat and Pucca structure-independent house).

*Size of household* is the first component of household level characteristic under the group household composition. A categorical variable with four states, namely, less than or equal to two, more than two and less than or equal to five, more than five but less than or equal to ten, and eleven and above is included in the analysis. The household size is included as an explanatory factor to explore its significance and its effect on the empowerment.

*Living arrangements* are the second component of household composition. There are seven types of living arrangements of the older adults. These are (1)living alone as an inmate of old age home, (2)living alone but not as an inmate of old age home, (3)living with spouse, (4)living with own children, (5)living with grand children, (6)living with other relatives and (7)living with non-relatives. These have been re-classified here to define five states, namely, Alone-I (meaning types (1) and (2)), Alone-II (meaning type (3)), Co-residence-I (meaning type (4)), Co-residence-II (meaning type (5)) and Co-residence-III (meaning types (6) and (7)).

*Ownership of the house* is the third component of household composition. This indicator gives information only on whether an older adult owns the dwelling unit or not. The

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<sup>6</sup> Though, household per capita monthly expenditure is an appropriate measure of household economic conditions it has not been used for the purpose due to underreporting problems. Type of dwelling unit has been used instead as an indicator variable of household economic condition.

<sup>7</sup> Kutcha Structure is a structure which has walls and roof made of non-pucca materials like unburnt bricks, bamboo, mud, grass, leaves, reeds and/or other thach.

<sup>8</sup> A 'chawl/bustee' is a collection of huts (thatched house or huts) or tenements which is generally constructed of kutcha or semi-pucca materials like mud, bamboo, grass, leaves, reeds, thach, unburnt bricks etc and is inhabited by a large number of households.

<sup>9</sup> A semi-pucca structure cannot be classified as pucca or kutcha. Such a structure will have either the walls or the roof but not the both made pucca materials.

<sup>10</sup> An independent house is one which has a separated structure and entrance with self-contained arrangements. In other words, if the dwelling unit and the entire structure of the house are physically the same it is considered as an independent house. Here, dwelling unit means living rooms, kitchen, bathroom, latrine, store-room and verandah (both open and closed).

<sup>11</sup> A pucca structure is one whose walls and roof (at least) are made up of pucca materials such as cement, concrete, oven burnt bricks, stone, stone blocks, cement plastered reeds, iron and other metal sheets, timber, tiles, slate, corrugated iron, asbestos cement sheets etc.

information on sex or other particulars of the older adult owner are, however, lacking. The states or possibilities that are considered under this variable are (1) owned by self (an older adult), (2) owned by co-residents (members of family of older adults) and (3) others (owned by others).

**c. Socio-cultural and Geographical Characteristics**

The ones that are included in the present study, under given data constraints, are religion, caste, education and place of residence. A categorical variable with three states represents the level of education. These three states are illiterate, literate at primary or below primary level and literate at middle level and above. There are 8 religious categories in the original data. Hinduism, Jainism, Buddhism and Sikhism have their roots in India itself. The followers of these religions have similar social and cultural practices. Therefore they are clubbed under common category indigenous religions. The other categories are Islam, Christianity and Others. “Others” include Zoroastrianism and the religions grouped as others in the original data.

Caste system had played a dominant role in the formation of social structure in India resulting into social hierarchy. Caste is a three category variable. These categories are scheduled casts, scheduled tribes and general. Place of residence, either rural or urban, is also included in the study, as a geographic factor, to investigate its effect on the empowerment.

Suppose we have a binary response, Y (participating in management of property/management of assets/social matters/religious matters, as the case may be), coded 1 if empowered and 0 otherwise. Letting,  $\pi$  denote the probability of empowerment i.e.

$$P(Y_i = 1) = \pi \dots \dots \dots (5)$$

$$P(Y_i = 0) = 1 - \pi \dots \dots \dots (6)$$

Let  $\mathbf{X} = (x_1, x_2 \dots x_k)$  be a set of explanatory variables that influence Y. Then the logistic regression model is given as:

$$\ln\left(\frac{\pi}{1 - \pi}\right) = \sum_{j=1}^k \beta_j x_j \dots \dots \dots (7)$$

where,  $\beta$ 's are the coefficients. The analysis includes eight logistic regression models for each of the four indicators of empowerment for older females as well as for older males.

**3. Findings and Analyses**

This section addresses the issues of gender inequality and empowerment at old age, associations and the interrelationships of the indicators of empowerment and analyzes the three tier conceptual framework, proposed in the previous section.

**3.1. Gender Inequity at Old Ages**

The data from 42<sup>nd</sup> round of the NSS show that the widowhood among the older females was 27 times more than that among the older males (Table-1-A). Illiteracy and economic dependency were respectively 4 and 17 times more in older females than in older males. Older females were 12 times more likely not to be economically active than their male counterparts. They were also less likely to participate in management of assets that they possessed when compared to older males. The same is the case with management of owned

property. Their role seems to be limited in social sphere also when compared with older males. As compared to older males, their non-participation in social matters, religious matters and daily household chores were respectively 2.02, 1.81 and 1.66 times that of older males. As far as health aspects were concerned they seemed to be in a better condition in case of chronic diseases like chronic cough, piles, urinary problems, heart disease and diabetes but were in worse condition with respect to diseases like pain in joints and limbs and hypertension. The prevalence of severe immobility was 1.54 times more among older females when compared to older males. All these findings not only show the existence of gender differences at old ages but also worse condition of older females. Present attempts to get information on the empowerment scenario of older women in India vis-à-vis their male counterparts.

The autonomy enjoyed by older women vis-à-vis the older men in social and economic realms are reflected in Table 1-B. A common observation, over all the states of India and for all the four indicators of autonomy, is that the older women are less likely to play a role in social and economic decision making when compared to their male counterparts. Further, the odds ratio for participation in social matters and the odds ratio for participation in religious matters are positively correlated (Fig-1). Similarly, the odds ratio for participation in management of assets is positively correlated with the odds ratio for management of property (Fig-2). It was found out that none of the any of the other pairs of odds ratios showed any correlation. This implies that though autonomy of one kind implies other in social sphere (participation in social matters and participation in religious matters) and economic sphere (having and managing property and having and managing assets), but autonomy in social sphere may not imply autonomy in economic sphere and vice-versa.

### **3.2. Associations between the Indicators of Empowerment and its Gender Perspective**

#### **3.2.1. Association between Having and Managing Property and Participation in Social Matters**

Rows 1-a and 1-b of the Table 2-A describe the odds ratios for participation vs. non-participation in social matters and its association with having and managing property. As is evident from row 1-a of the Table 2-A older women having property and actively participating in management of property are more likely to participate in social matters than those older women who have property but have no role in its management. Now, let us consider the case of older women (Row 1-b, Table 2-A) who do not have property and see how they fare with respect to participation in social matters. Unlike the previous case, the associations are not uniform i.e. participation is more likely for some controls ((1, 1), (1, 2) and (2, 1)) and less likely for others ((1, 3), (2, 2) and (2, 3)). Notably, the former categories are those which included older women having assets. With exception of (2,2), it can be said that those older women who are having assets are more likely to show participation in spite of not having property when compared to those older women who have property but do not manage it.

Older males show a different pattern. As compared to those older males who have property but do not manage it, all others are more likely to participate in social matters. The controls (1, 1) and (1, 3) are the only exceptions.

#### **3.2.2. Association between Having and Managing Assets and Participation in Social Matters**

Rows 2-a and 2-b of Table 2-A give the odds for participation vs. non-participation in social matters and its association with having and managing assets. When compared to older females who have assets but do not manage it older females who have assets and manage it are more likely to participate in social matters. The only exception is the older females who manage property but do not participate in religious matters. Older males having and managing assets are always more likely than older males having but not managing assets to participate in social matters.

Older females not having assets are also more likely to actively participate in social matters when compared to older females who have assets but do not manage it the only exceptions being those older females who have property and do not participate in religious matters and those older females who neither have property nor participate in religious matters.

### **3.2.3. Association between Having and Managing Property and Participation in Religious Matters**

Rows 3-a and 3-b of Table 2-A gives the odds ratio for participation vs. non-participation in religious matters and its association with having and managing property. Older females not having property are less likely to participate in religious matters as compared to older females having but not managing property given that they do not participate in social matters (Row 3-b of Table 2-A). Similar is the case with older males. For this group (non-participation in social matters), not having property implies less likelihood of participation in religious matters. This group is more likely to participate in religious matters as compared to the reference group if the members have assets and manages it or if the members do not have assets. For females who have property and manage it, the likelihood of participation in religious matters varies depending on the controls (Row 3-a of Table 2-A). The likelihood of participation is more only for controls (1, 2) and (2, 1).

### **3.2.4. Association between Having and Managing Assets and Participation in Religious Matter**

With reference to the older females who have assets but do not participate in management of assets, the older females/males who have assets and manage it are more likely to participate in religious matters if they:

- a. Do not participate in social matters and own property but do not manage it.
- b. Participate in social matters, have property and manage it.
- c. Participate in social matters and do not have property.

In rest of the cases they are less likely to participate in religious matters except for older males who neither have property nor participate in social matters. The above pattern remains unchanged when we see the odds ratios for older adults who do not have assets, the reference category being kept unchanged.

### **3.2.5. Association between Participation in Social Matters and Participation in Religious Matters**

The association between participation in management of assets and management of property (Table 2-B) is always positive, irrespective of gender, keeping others controlled. It should also be noted that the extent of association (in terms of  $\ln$  (odds ratio)), is more for older females than older males, except in the cases where they own property but do not manage it.

### **3.2.6. Association between Having and Managing Assets and Having and Managing Property**

We consider not having, having but not managing and having and managing (property/assets) as three ordinal categories in increasing order. Gamma then measures the extent of concordance/discordance between the variables. We see that (Table 2-C) values of gamma are near to 1, for older females as well as older males. This shows a high degree of concordance between the two variables. However, the extent of concordance is more for older females when compared to older males.

### **3.3. Factors Associated with Empowerment**

This section investigates the effect of factors included in the conceptual framework on indicators of empowerment. From Table 3, it can be seen that a significant improvement in fit of logistic regression models is observed as one moves from Model-I (Model-I includes individual level characteristics only) to Model-II (Model-II includes Model-I characteristics plus household level characteristics) and then to Model-III (Model-III includes Model-II plus socio-cultural and geographic characteristics), for all indicators of empowerment except managing assets for older females.

#### **3.3.1. Marital status and Empowerment (Hypothesis: $H_{01}$ )**

The effect of marital status on economic empowerment is significant for both the sexes. When compared to currently married older adults, widows/widowers are less likely to actively manage the property/assets that they own. This means that all widowed older adults are equally disempowered as compared to currently married older adults in economic aspects.

The social aspects present a different scenario. The widowed older females are less likely than the currently married older females to actively participate in social or religious matters. For older males the effect of widowhood is not significant, implying that they do not differ from their currently married counterparts in this matter. This means widowed older females are more likely to be socially marginalized when compared to their married counterparts.

A contrasting situation is observed in case of divorced/separated/never married older adults. For older females, this category does not differ significantly from currently married one with respect to participation but for older males this state has significant bearing on their social role. They are less likely than their currently married counterparts to actively participate in social/religious matters. This means divorced/separated/never married older males are more likely to be socially marginalized when compared to their married counterparts.

#### **3.3.2. Having Son and Empowerment (Hypotheses: $H_{02}$ and $H_{03}$ )**

The effect of the number of sons, one has, on management of assets, is not significant for older adults. The same holds for management of property for older females. The older males are different in one respect; in case of having no son they are more likely to manage their property as compared to those older males having three or more sons.

The social empowerment scenario is a bit different from the economic empowerment scenario. Having son does influence the participation in social matters for older women. Their likelihood of participation in social matters decreases with the decrease in number of sons, with the minimum for those having no son. For older males the situation is similar, the only difference being that the effect of having two sons does not differ significantly from the effect of having three or more sons.

Participation in religious matters, it seems does not get affected by having sons for older males. For older females, the pattern is similar to the pattern for their participation in social matters except that the effect of two sons does not differ significantly from the effect of having three or more sons in their participation in religious matters.

### **3.3.3. Economic Dependency, Economic Activity and Empowerment (Hypotheses: $H_{04}$ , $H_{05}$ and $H_{06}$ )**

As seen in Table 3-B, economic dependency is a significant factor affecting the participation of older adults in social matters. For older adults, the likelihood of participation in social matters, decrease with increase in economic dependency. It affects all older adults in a similar way in their participation in religious matters.

Closely linked to economic dependence is the (economic) activity status of older adults. Being not economically active makes older females less economically empowered than the older females who are self employed. When compared to self-employed older males, all others have lesser odds of participation (for all indicators of empowerment).

Now, let us investigate the effect of economic activity on social empowerment. When compared to self employed older adults, the ones in all other categories of economic activities are less likely to participate in social matters. The factors contributing to it may not be social marginalization due to economic reasons. Other female workers were less likely to participate in religious matters. The older males who were not economically active or who belonged to the category “other workers” were less likely to participate in religious matters when compared to the self-employed ones.

### **3.3.4. Health, Immobility and Empowerment (Hypotheses: $H_{07}$ and $H_{08}$ )**

As evident from Table 3-C, difficulty in mobility, whether partial or severe, has adverse effect on the indicators of empowerment, irrespective of gender. Moreover, for all indicators of empowerment, the odds for participation, in all the four activities, were less for those older adults who were suffering from severe/partial mobility difficulty, when compared to those having no mobility difficulty. The only exception was the case of participation of older males in religious matters where the effect was not significant and management of assets by older females, where the effect of having partial difficulty in mobility is not significant.

Problem in joints and limbs did influence all the indicators of empowerment. Older adults suffering from hypertension had lesser odds for participation in social and religious matters when compared to those who were free from heart problem.

Chronic cough did affect older female's participation in religious matters, management of assets and management of property without affecting significantly the older males. The effect of having diabetes on management of assets was not significant for older females, but it reduced the likelihood of participation in management of assets for older males. For participation in social matters, its effect was not significant for older males. However, not having it increased older females' likelihood of participation in social matters. This is another case where older males remain unaffected by the presence of the disease, but older females are affected by it. For older females, diabetes was not a significant factor for participation in management of property; however, for older males, not having diabetes enhanced their likelihood of participation.

The effects of heart disease and piles were not significant on any of the indicators of empowerment for all older adults. Similar results were obtained even for urinary problems except for older females, for whom the disease reduced the likelihood of their participation in social matters.

### **3.3.5. Household Characteristics and Empowerment (Hypotheses: $H_{09}$ , $H_{010}$ , $H_{011}$ and $H_{012}$ )**

As evident from Table 3-D, small size of households, meaning less than or equal to 5, reflected enhanced empowerment for all older adults with respect to management of property/assets, when compared to the households of sizes 6-10. But if the size of household was 11 or more, the effect of size of household did not differ significantly from the reference category (i.e. sizes 6-10). Size of the household was not a significant factor for participation of older females in social/religious matters, but older males living in large households (size 11 or more) were more likely to participate in social/religious matters when compared to those households of sizes 6-10.

Now let us turn to living arrangements of the older adults and see how it influenced their empowerment. The older adults living with relatives or non-relatives were less likely to participate in social as well as religious matters. For older males living with own children the results were similar.

When compared to older males living with spouse, older males living with own children were less likely to participate in management of property/assets that they owned. For older males living with relatives or non-relatives the results were similar. However, older females living with their grand children were more likely to manage their assets when compared to older females living with spouse.

The ownership of house was not a significant factor as far as participation of older females in religious matters was concerned. But, the likelihood of participation in religious matters by older males was reduced if the ownership of house was not in the hands of an older adult. For older males, the likelihood of participation in social matters was always less when house was not owned by an older adult. The odds for participation in social matters were less for older females, when they resided in a house that was owned by others when compared to residing in a house owned by an older adult. Ownership by someone other than an older adult resulted in reduced likelihood of economic empowerment of the older adult. This was found significant for all older males. In case of older females too, the ownership by co-residents reduced their likelihood of economic empowerment.

The variation of the state of economic empowerment of older females with economic status of household is quite interesting. The older women belonging to middle income categories were relatively less empowered when compared to the older women in high income group. Further, there was no significant difference between low income group and

high income group with respect to economic empowerment. When compared with the older males in the high income group, the older males in the other income groups were found to have less likelihood of being economically empowered. When compared with the older adults in the high income group, the older adults in lower income groups were less likely to participate in social/religious matters.

### **3.3.6. Socio-cultural and Geographic Factors and Empowerment (Hypotheses: $H_{013}$ , $H_{014}$ , $H_{015}$ and $H_{016}$ )**

As evident from Table 3-E, older adults residing in rural areas were less likely to participate in social/religious matters when compared to their urban counterparts.

Place of residence was not a significant influencing factor for participation in management of assets by older females. But older males residing in rural areas are less likely to participate in management of assets as compared to their urban counterparts. Participation in management of property depicted a different scenario. The place of residence factor was not significant for older males but older females in rural areas were less likely to participate in management of property when compared to their urban counterparts.

Caste was not found to be a significant factor in case of management of property/assets for all older adults. The older males belonging to scheduled tribes were less likely to participate in social/religious matters when compared to their counterparts belonging to general category. The older females belonging to all categories other than the general one were less likely to participate in religious matters when compared to the females in the reference category, namely, the general one. The older females belonging to scheduled tribes were less likely to participate in social matters when compared to their general counterparts.

Contrary to what is felt intuitively, education was not a significant influencing factor for older females in deciding their participation in management of assets/property; however, for older males, its effect was as felt intuitively. Even for participation in social matters, education was not found to be a significant factor for all older adults. For participation in religious matters, this was not a significant factor for older males, but the likelihood of participation for older females reduced with reduction in the level of education.

Now let us see whether religion as such had any influence on the empowerment of older women. Older males, belonging to Christian community, were less likely to participate in management of property/assets when compared to the older males in the reference group i.e. indigenous religions. However, older males, belonging to Islamic community were not significantly different from the ones in the reference group. For older females, religion as such was not a significant factor for participation in management of assets. For management of property, the older females belonging to Christian community were less likely to remain involved when compared to the older females in the reference group. Rest of the religions did not differ significantly from the reference group in this respect. The category “others”, that consists of Zoroastrianism and other religious groups, cannot be said to be a homogenous category and therefore the effects for this category cannot be inferred in a meaningful way.

Older adults belonging to Christian and Islamic communities were less likely to participate in social matters when compared to the reference group. Participation in religious matters was less likely for older females belonging to Christianity and Islam when compared to the reference group. Similar was the case of older males belonging to Christian community.

## **4. Conclusion**



The present study conceptualizes empowerment of older adults in terms of four indicators namely having and managing property, having and managing assets, participation in social matters and participation in religious matters. It has been observed that older adults get disempowered with increasing age. Additionally, economic dependence of them on others adversely affects their participation in social/religious matters. Therefore, minimizing economic dependence should be one of the foci of welfare policies for older adults. The older adults who have property/assets but do not manage it are less likely to participate in social/religious matters when compared to the older adults who have property/assets and manage it or those who do not have property/assets.

As is evident from the findings, widowhood indicates onset of an unfavourable phase in the lives of older adults as far as economic aspects of empowerment are concerned. More affected are the older women whose involvement in social/religious matters also gets adversely affected. Moreover, economic status of the household, living arrangements, size of the household and ownership of the house are found to be significant factors affecting the empowerment of the older adults. Notably, older females belonging to middle income groups are comparatively less economically empowered. The results also point to the fact that for those households where the ownership of the house remains in the hands of older adults, older adults are more empowered in social and economic aspects. Residing with children makes older males less empowered as compared to those living independently. Older adults living in households of small sizes ( $\leq 5$ ) are comparatively more empowered in economic matters when compared to those residing in large sized households.

In spite of the limitations of the data in terms of coverage of all the chronic diseases, our present study identifies chronic cough, diseases of joints and limbs and immobility adversely affecting the empowerment of older women. The preceding analysis also points to the need for development of a health system sensitive to the health needs of older adults, particularly older women.

The rural-urban differences are evident in the empowerment scenario of the older adults. The older adults residing in rural areas are less empowered in all respects considered in the study. The older adults belonging to scheduled tribes are found to be less likely to participate in social/religious matters when compared to the older adults belonging to general category. It has been found interesting that education is not a significant factor in older women's participation in management of assets/property.

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**Table 1-A: A Comparison between Older Females and Older Males for Different Demographic, Health, Economic and Socio-cultural Characteristics**

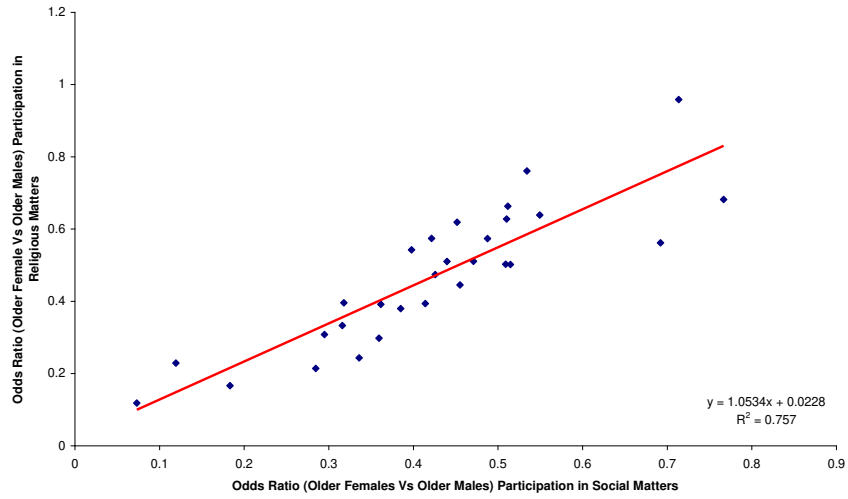
Characteristics of Older Adults		Categories	Older Female	Older Male	Odds Ratio
<b>Demographic Characteristics</b>					
1.	Marital Status	Others	1.01	0.99	2.79
		Widowed	65.2	6.6	27.01
2.	Age Groups	Currently Married	33.78	92.4	1
		79+ years	8.69	7.46	*
		69-78 years	25.2	24.55	*
		60-68 years	66.11	67.99	*
<b>Health Characteristics</b>					
1.	Chronic Cough	Not having	79.79	76.92	1.18
		Having	20.21	23.08	1
2.	Piles	Not having	98.25	97.25	1.58
		Having	1.75	2.75	1
3.	Problem of Joints and Limbs	Not having	67.09	71.84	0.8
		Having	32.91	28.16	1
4.	Urinary Problems	Not having	97.8	96.63	1.55
		Having	2.2	3.37	1
5.	Hypertension	Not having	91.98	92.84	0.88
		Having	8.02	7.16	1
6.	Heart Disease	Not having	96.85	96.6	1.08
		Having	3.15	3.4	1
7.	Diabetes	Not having	98.38	97.64	1.47
		Having	1.62	2.36	1
8.	Physical Immobility	Severe	7.21	4.89	1.54
		Partial	7.77	6.6	1.22
		No Difficulty	85.02	88.51	1
<b>Economic Characteristics</b>					
1.	Economic Dependence	Dependent	81.84	34.87	17.3
		Partially Dependent	11.73	17.72	4.88
		Not Dependent	6.43	47.41	1
2.	Activity Status	Other Workers	2.77	9.05	1.93
		Regular Wage/Salaried	0.58	4.03	0.91
		Not Economically Active	90.48	48.1	11.85
		Self-employed	6.16	38.81	1
3.	Having Assets	Participating in Management	14.08	41.82	0.16
		Not Participating in Management	30.65	14.69	1
4.	Having Property	Not Having Assets	55.27	43.49	0.61
		Participating in Management	19.81	58.82	0.17
		Not Participating in Management	38.36	18.88	*
		Not Having Property	41.83	22.3	0.92
<b>Socio-cultural Characteristics</b>					
1.	Literacy	Illiterate	86.27	58.83	4.4
		Literate	13.73	41.17	1
2.	Participation in Social Matters	No	34.62	20.76	2.02
		Yes	65.38	79.24	1
3.	Participation in Religious Matters	No	26.26	16.44	1.81
		Yes	73.74	83.56	1
4.	Participating in Daily Household Chores	No	32.57	22.57	1.66
		Yes	67.43	77.43	1

**Table 1-B: Odds Ratios for Older Female Vs Older Male for Different Indicators of Empowerment**

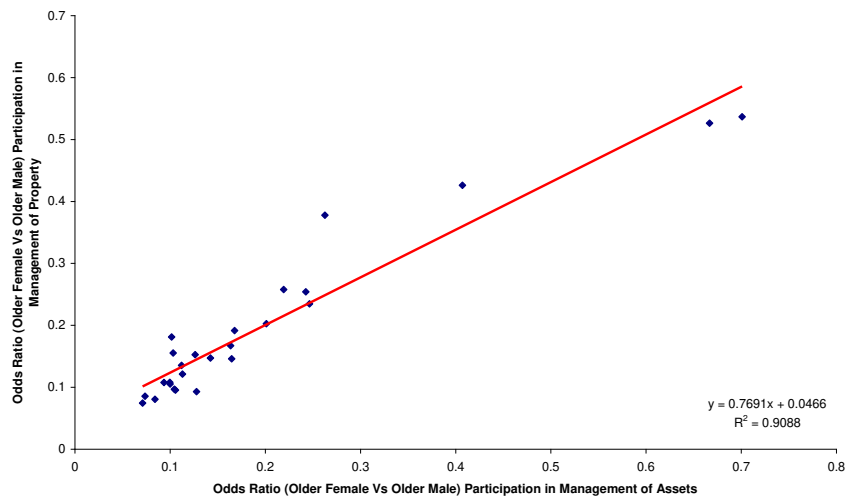
States	Older Female Vs Older Male Odds Ratio for			
	Participation in		Management of	
	Social Matters	Religious Matters	Assets	Property
Andhra Pradesh	0.440	0.510	0.112	0.135
Assam	0.488	0.574	0.100	0.105
Bihar	0.512	0.663	0.201	0.202
Gujarat	0.471	0.511	0.100	0.108
Haryana	0.692	0.562	0.102	0.181
Himachal Pradesh	0.362	0.392	0.243	0.254
Jammu and Kashmir	0.316	0.333	0.094	0.108
Karnataka	0.295	0.308	0.084	0.081
Kerala	0.385	0.380	0.113	0.121
Madhya Pradesh	0.426	0.474	0.165	0.146
Maharashtra	0.549	0.639	0.126	0.153
Manipur	0.336	0.243	0.407	0.426
Meghalaya	0.534	0.761	0.263	0.378
Nagaland	0.119	0.229	0.000	0.098
Orissa	0.318	0.396	0.105	0.097
Punjab	0.414	0.394	0.168	0.191
Rajasthan	0.455	0.445	0.219	0.258
Sikkim	0.220	0.200	0.879	0.364
Tamilnadu	0.509	0.503	0.142	0.147
Tripura	0.421	0.574	0.128	0.093
Utter Pradesh	0.510	0.628	0.164	0.167
West Bengal	0.452	0.619	0.074	0.085
A & N Islands	0.515	0.502	0.106	0.095
Arunanchal Pradesh	*	*	*	*
Chandigarh	0.767	0.682	0.667	0.526
D & NH	0.073	0.118	0.071	0.074
Delhi	0.714	0.958	0.103	0.155
Goa Daman and Diu	0.359	0.298	0.701	0.537
Lakshadweep	0.285	0.214	*	0.043
Mizoram	0.398	0.542	0.246	0.235
Pondicherry	0.183	0.166	*	0.588

\* Data not available

**Fig-1 Scatter Plot (Older Female Vs Older Male ) Odds Ratio for Participation in Social Matters Vs Participation in Religious Matters**



**Fig-2 Scatter Plot (Older Female Vs Older Male) for Partivipation in Management of Assets Vs Participation in Management of Property**



**Table 2-A: Conditional Odds Ratios Showing Association between Two of the Indicators of Empowerment keeping Others Controlled for Older Males and Older Females**

Row no.	Variables	Control (X,Y,Z)	Sex (X)	Odds Ratio					
				States of the Other Controlled Variables (Other than Sex) (Y,Z) <sup>12</sup>					
				(1,1)	(1,2)	(1,3)	(2,1)	(2,2)	(2,3)
1-a	So , P	S, Re, A	Older female	<b>1.760</b>	<b>6.530</b>	<b>1.910</b>	<b>6.910</b>	<b>2.810</b>	<b>5.100</b>
			Older Male	0.820	5.430	0.820	6.910	2.790	4.470
1-b	So , P	S, Re, A	Older female	<b>2.440</b>	<b>2.180</b>	<b>0.680</b>	<b>8.610</b>	<b>0.910</b>	<b>0.830</b>
			Older Male	0.360	2.570	0.360	8.610	1.090	1.010
2-a	So , A	S, Re, P	Older female	<b>0.756</b>	<b>2.800</b>	<b>3.133</b>	<b>2.565</b>	<b>1.044</b>	<b>9.847</b>
			Older Male	1.250	8.266	1.171	2.475	1.086	2.500
2-b	So , A	S, Re, P	Older female	<b>0.400</b>	<b>1.360</b>	<b>0.422</b>	<b>3.162</b>	<b>1.742</b>	<b>1.600</b>
			Older Male	1.210	1.989	0.601	2.418	1.510	1.531
3-a	Re , P	S, So, A	Older female	<b>0.614</b>	<b>1.489</b>	<b>0.275</b>	<b>2.086</b>	<b>0.555</b>	<b>0.865</b>
			Older Male	0.850	1.594	1.268	1.690	0.210	2.708
3-b	Re , P	S, So, A	Older female	<b>0.311</b>	<b>0.683</b>	<b>0.413</b>	<b>2.459</b>	<b>0.873</b>	<b>1.564</b>
			Older Male	0.716	0.826	0.705	1.429	0.627	1.796
4-a	Re , A	S, So, P	Older female	<b>0.691</b>	<b>1.675</b>	<b>0.761</b>	<b>2.709</b>	<b>0.720</b>	<b>2.029</b>
			Older Male	0.756	1.419	1.223	5.853	0.729	1.661
4-b	Re , A	S, So, P	Older female	<b>0.306</b>	<b>1.655</b>	<b>0.999</b>	<b>1.076</b>	<b>0.690</b>	<b>1.237</b>
			Older Male	0.951	1.196	1.020	6.499	0.505	1.447

<sup>12</sup> Variable Y has two states 1(not participating) and 2(participating).  
Variable Z has three states 1(having and managing), 2(having and not managing) and 3(not having).  
Control (1,2) means the state of “not participating” with respect to variable Y and the state of “having and not managing” with respect to variable Z.

**Table 2-B: Odds Ratios for Participation in Social Matters Versus Participation in Religious Matters with Sex, Participation in Management of Property and Participation in Management of Assets Controlled**

Odds Ratio for	Control (X,Y,Z)	Sex (X)	Odds Ratio (figures in brackets denote <i>ln</i> (odds ratio) )								
			States of the Other Controlled Variables (Other than Sex) (Y,Z) <sup>13</sup>								
			(1,1)	(1,2)	(1,3)	(2,1)	(2,2)	(2,3)	(3,1)	(3,2)	(3,3)
So Vs Re	S, P, A	Older female	118.5 (4.77)	34.9 (3.55)	276.4 (5.62)	30.3 (3.41)	81.2 (4.40)	103.7 (4.64)	106.5 (4.67)	33.9 (3.52)	128.4 (4.86)
		Older Male	109.3 (4.69)	55.0 (4.01)	109.7 (4.70)	14.1 (2.65)	107.0 (4.67)	81.2 (4.40)	96.5 (4.57)	45.2 (3.81)	115.2 (4.75)

**Table 2-C: Association Between Participation in Management of Property and Participation in Management of Assets with Sex, Participation in Social Matters and Participation in Religious Matters Controlled**

Control (X,Y,Z)	Sex (X)	Gamma for P Versuss A			
		States of the Other Controlled Variables (Other than Sex) (Y,Z) <sup>14</sup>			
		(1,1)	(1,2)	(2,1)	(2,2)
S, So, Re	Older female	0.913	0.835	0.929	0.823
	Older Male	0.775	0.719	0.753	0.749

**Table 3: Fit of the Models for Indicators of Empowerment for Older Females and Older Males**

Model for	Gender	-2 log likelihood Model-I <sup>15</sup> L <sub>I</sub> (22 d.f)	-2 log likelihood Model-II <sup>16</sup> L <sub>II</sub> (35 d.f)	nested $\chi^2$ (13 d.f) L <sub>I</sub> - L <sub>II</sub>	-2 log likelihood Model-III <sup>17</sup> L <sub>III</sub> (43 d.f)	nested $\chi^2$ (8 d.f) L <sub>III</sub> - L <sub>II</sub>	Sample size
Managing Property	Older Males	18933.277	18255.486	677.791 ***	18087.369	168.117 ***	21248
	Older Females	13281.507	13102.175	179.332 ***	13083.744	18.431 **	11078
Managing Assets	Older Males	14198.939	13697.984	500.955 ***	13554.972	143.012 ***	15367
	Older Females	9798.631	9636.520	162.111 ***	9626.320	10.20	8466
Participation in Social Matters	Older Males	24026.797	23851.347	175.450 ***	23439.598	411.749 ***	26554
	Older Females	22738.901	22638.603	100.298 ***	22427.731	210.872 ***	18760
Participation in Religious Matters	Older Males	21379.412	21249.847	129.565 ***	20957.428	292.419 ***	26562
	Older Males	20411.378	20346.964	64.414 ***	20146.445	200.519 ***	18771

\* p value less than 0.1, \*\* p value less than 0.05, \*\*\*p value less than 0.01

<sup>13</sup> Variable Y and Z have three states 1(having and managing), 2(having and not managing) and 3(not having). Control (1, 2) means the state of “having and managing” with respect to variable Y and the state of “having and not managing” with respect to variable Z.

<sup>14</sup>Variable Y and Z each has two states 1(not participating) and 2(participating). Control (1,2) means the state of “not participating” with respect to variable Y and the state of “participating” with respect to variable Z.

<sup>15</sup> Model-I includes individual level characteristics only

<sup>16</sup> Model-II includes Model-I characteristics plus household level characteristics

<sup>17</sup>Model-III includes Model-II plus socio-cultural and geographic characteristics. The analysis was conducted based upon this model.

**Table 3-A: Odds Ratios Based on Logistic Regression Showing Relative Odds in Favour of Participating in Various Socio-economic Activities by Different Categories of Demographic Characteristics for Older Females and Older Males**

Demographic Characteristics	Participation in Management of Assets		Participation in Management of Property		Participation in Social Matters		Participation in Religious Matters	
	Older female	Older male	Older female	Older male	Older female	Older male	Older female	Older male
<b>Age Group</b>								
79+	0.573***	0.508***	0.581***	0.592***	0.419***	0.633***	0.48***	0.64***
69-78 (60-68)	0.738***	0.652***	0.751***	0.753***	0.656***	0.832***	0.71***	0.83***
<b>Marital status</b>								
Others	0.439**	0.342**	0.394**	0.181***	0.705	0.488**	0.75	0.62**
widowed (currently married)	0.676***	0.637***	0.736***	0.558***	0.895**	0.97	0.85**	0.95
<b>Having son</b>								
No son	0.949	1.101	0.975	1.240**	0.754***	0.83**	0.74***	0.88
One son	0.948	0.923	0.947	0.912	0.873**	0.913**	0.84***	0.94
Two sons (more than two sons)	0.89	0.982	0.906	0.966	0.914**	0.937	0.94	0.96

\*\*\* indicates p values less than 0.001, \*\* indicates p values less than 0.05

**Table 3-B: Odds Ratios Based on Logistic Regression Showing Relative Odds in Favour of Participating in Various Socio-economic Activities by Different Categories of Individual Level Economic Characteristics for Older Females and Older Males**

Individual Level Economic Characteristics	Participation in Management of Assets		Participation in Management of Property		Participation in Social Matters		Participation in Religious Matters	
	Older female	Older male	Older female	Older male	Older female	Older male	Older female	Older male
<b>Activity Status</b>								
Other Workers	0.988	0.624***	0.797	0.589***	0.637**	0.727***	0.75**	0.75***
Regular Wage or Salaried	1.288	0.610**	1.04	0.615***	0.586**	0.796**	0.83	0.84
Not economically active (Self-employed)	0.298***	0.129***	0.292***	0.121***	0.666***	0.557***	0.86	0.65***
<b>Economic Dependency</b>								
Dependent on others	NA	NA	NA	NA	0.535***	0.454***	0.53***	0.48***
Partially dependent on others (Not dependent on others)	NA	NA	NA	NA	0.827**	0.727***	0.87	0.81***

\*\*\* indicates p values less than 0.001, \*\* indicates p values less than 0.05

NA indicates not applicable/ variable not included in analysis

**Table 3-C: Odds Ratios Based on Logistic Regression Showing Relative Odds in Favour of Participating in Various Socio-economic Activities by Different Categories of Individual Level Health Characteristics for Older Females and Older Males**

Individual Level Health Characteristics	Participation in Management of Assets		Participation in Management of Property		Participation in Social Matters		Participation in Religious Matters	
	Older female	Older male	Older female	Older male	Older female	Older male	Older female	Older male
Heart disease-Yes	0.981	0.85	0.984	0.926	1.062	1.149	0.97	1.11
Heart disease-No (Not Aware)	0.912	0.964	0.917	0.892	0.955	1.14	0.92	1.05
Diabetes-Yes	0.734	0.693**	0.733	1.048	0.881	0.941	0.86	0.9
Diabetes-No (Not Aware)	1.132	1.151	1.157	1.301**	1.165**	0.964	1.06	0.9
Hypertension-Yes	0.93	0.926	0.967	0.857	0.885	0.743**	0.82**	0.72***



Hypertension-No (Not Aware)	1.008	0.972	1.071	0.976	0.986	0.868	0.92	0.85
Urinary Problems-Yes (No)	0.877	0.829	0.826	0.925	0.747**	0.919	0.92	0.97
Cough-Yes (No)	1.271***	0.954	1.187**	0.957	1	1.02	1.12**	1.06
Problems in Joints and Limbs-Yes (No)	0.794***	0.849**	0.834***	0.849***	0.871***	0.923**	0.92**	0.98
Piles-Yes (No)	0.884	0.979	0.858	1.047	1.049	1.119	1.03	1.13
<b>Difficulty in Mobility</b>								
Severe	0.597***	0.396***	0.569***	0.396***	0.41***	0.377***	0.37***	0.36***
Partial (No)	0.815	0.663***	0.660***	0.609***	0.678***	0.646***	0.66***	0.66***

\*\*\* indicates p values less than 0.001, \*\* indicates p values less than 0.05

**Table 3-D: Odds Ratios Based on Logistic Regression Showing Relative Odds in Favour of Participating in Various Socio-economic Activities by Different Categories of Household Level Characteristics for Older Females and Older Males**

Household Level Characteristics	Participation in Management of Assets		Participation in Management of Property		Participation in Social Matters		Participation in Religious Matters	
	Older female	Older male	Older female	Older male	Older female	Older male	Older female	Older male
<b>Living Arrangements</b>								
Co-residence-III	1.288	0.712**	0.975	0.824	0.64***	0.727**	0.66***	0.66***
Co-residence-II	1.533**	1.015	1.246	0.844	0.856	0.837	0.9	0.81
Co-residence-I (Alone-II)	1.069	0.722***	1.124	0.672***	0.899	0.854***	0.91	0.92**
<b>Ownership of the House</b>								
by the Co-residents	0.535***	0.399***	0.544***	0.397***	0.94	0.786***	0.97	0.8***
by Others ( by an Older Adult)	0.88	0.574***	0.965	0.583***	0.73***	0.705***	0.86	0.76**
<b>Household Size</b>								
≤ 2	1.771***	1.809***	1.636***	1.699***	1.213**	0.915	1.05	0.94
>2 & ≤ 5	1.296***	1.246***	1.197***	1.207***	1.013	0.991	0.98	0.99
≥ 11 (>5 & ≤ 10)	1.006	0.932	1.083	0.952	1.075	1.201**	1.08	1.25***
<b>Economic Status of Household</b>								
Low-II	0.996	0.690***	0.983	0.620***	0.743***	0.715***	0.81***	0.81**
Low-I	0.876	0.589***	0.847**	0.575***	0.8***	0.718***	0.87**	0.78***
Medium-II	0.725**	0.530***	0.758**	0.511***	0.705***	0.624***	0.86	0.69***
Medium-I	0.823**	0.657***	0.887	0.671***	0.85**	0.81***	0.89**	0.85***
High-II (High-I)	1.145	0.754**	1.069	0.814	0.926	0.821	0.92	0.69***

\*\*\* indicates p values less than 0.001, \*\* indicates p values less than 0.05

**Table 3-E: Odds Ratios Based on Logistic Regression Showing Relative Odds in Favour of Participating in Various Socio-economic Activities by Different Categories of Socio-cultural and Geographical Characteristics for Older Females and Older Males**

Socio-cultural and Geographic Characteristics	Participation in Management of Assets		Participation in Management of Property		Participation in Social Matters		Participation in Religious Matters	
	Older female	Older male	Older female	Older male	Older female	Older male	Older female	Older male
<b>Education</b>								
Non-literate	0.915	0.524***	0.918	0.539***	0.937	1.1	0.72**	1.04
Literate, Below Primary/ Primary/ No Formal Education (Middle and above)	0.828	0.636***	0.830	0.641***	0.906	0.972	0.75**	0.97
<b>Religion</b>								

Other followings	<b>0.616</b>	<b>0.591**</b>	<b>0.640</b>	<b>0.475***</b>	<b>0.985</b>	<b>0.593**</b>	<b>1.02</b>	<b>0.58***</b>
Islam	<b>0.912</b>	<b>0.932</b>	<b>0.942</b>	<b>0.916</b>	<b>0.76***</b>	<b>0.817***</b>	<b>0.77***</b>	<b>1.05</b>
Christianity	<b>0.766</b>	<b>0.631***</b>	<b>0.739**</b>	<b>0.612***</b>	<b>0.409***</b>	<b>0.377***</b>	<b>0.44***</b>	<b>0.5***</b>
(Indigenous Religions)								
<b>Caste</b>								
Scheduled Tribes	<b>1.080</b>	<b>1.007</b>	<b>1.072</b>	<b>0.955</b>	<b>0.711***</b>	<b>0.711***</b>	<b>0.68***</b>	<b>0.62***</b>
Scheduled Castes & neo-Buddhists	<b>0.983</b>	<b>1.00</b>	<b>1.106</b>	<b>1.069</b>	<b>1.056</b>	<b>1.024</b>	<b>0.9**</b>	<b>0.93</b>
(General)								
<b>Place of Residence</b>								
Rural	<b>0.903</b>	<b>0.863**</b>	<b>0.884**</b>	<b>0.931</b>	<b>0.909**</b>	<b>0.86***</b>	<b>0.81***</b>	<b>0.84***</b>
(Urban)								
<b>Intercept</b>	<b>2.522***</b>	<b>38.545***</b>	<b>2.587***</b>	<b>43.066***</b>	<b>12.409***</b>	<b>20.947***</b>	<b>22.47***</b>	<b>25.47***</b>

\*\*\* indicates p values less than 0.001, \*\* indicates p values less than 0.05