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Ageing and the socioeconomic life of older adults in India: An empirical exposition

Sanjeev Bakshi[1] and Prasanta Pathak[2]

Abstract

The study attempts to approach the ageing in India from three perspectives, namely, the well being of an ageing individual, the ageing household and the ageing population. The aspects, namely, work, financial dependence, integration, empowerment and elder abuse are studied and their relation to age, gender and marital status is investigated. The data sets pertaining to the National Sample Surveys for the reference periods 1986-87, 1995-96 and 2004 are primarily utilized for the purpose. The data sets from Building Knowledge Base on Population Ageing in India Survey, 2011 are also utilized for information on elder abuse. The results show that the older males are more likely to participate in household activities when compared to the older females. The married older adults are also more likely to participate in household activities when compared to their widowed counterparts. In a similar way gender and marital status are found to be associated with empowerment of older adults. The working older adults, those who possess property and / or assets are more likely to be financially independent. Further, the older females and the financially dependent older adults are more likely to face abuses of different kinds. Households are classified into three different types. Type- I households have no older adults, Type – II households have older adults and other younger members and Type – III households have older adults only. Results show that Type – III households are found to be relatively more deprived and report higher average monthly expenditure when compared to other types of households.

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Ageing in India

India has witnessed high rate of growth of population in the nineteenth century. The decadal growth rates for the population of India during the decades 1971-81, 1981-91, 1991-2001 and 2001-11 were 21.33 %, 25.40 %, 23.02% and 18.03% respectively. The distribution of age too has been changing over the period. The change in the distribution of age over time is evident as the quartiles of the distribution show a shift towards higher ages (Figure 1). This shift is an indicator of ageing of population (ageing in brief).

In India, the demarcation line to separate the older adults from the rest of the population, for formulating and implementing welfare schemes, ranges from 55 years to 74 years (Rajan 2007). Henceforth, the older adult age group shall mean the age interval 60 years and above. The individuals belonging to this age group shall be called Older Adults (OAs).

The number of OAs enumerated in the 1971 census and 2011 census of India were 32699731 and 103849040 respectively. Corresponding to these census years their proportions in the population were 0.06 and 0.09 respectively (Table 1). Let F denote the distribution function of age in a given population at a given time. Then $1 - F(60)$ gives the proportion of older adults in the population. This is one of the indicators of ageing. The old age dependency ratio (OADR) expressed as $\frac{F(\infty)-F(60)}{F(60)-F(15)}$ is another such indicator. For an ageing population, the values of these indicators form an increasing sequence over time. The median age, the index of ageing, parent support ratio and the potential support ratio are other measures of ageing that are used along with OADR. Values for various indicators of ageing for India over the census years are shown in

Table 1. The increasing number and proportion of the older adults and an increasing old-age dependency ratio that characterize an ageing population are quiet visible in the Indian population also. In this context older females enjoy a greater average person years than the older males during all the census years. Hence, the ageing of population of India is evident. To put it in simple terms the proportion of people in higher age groups is gradually increasing. In fact, the increase is not only in terms of proportion but also in terms of absolute numbers.

According to the demographic transition theory, ageing occurs at a later stage of a demographic process when life expectancies in the populations gradually increase and birth rates simultaneously decrease over time. When this process is on, due to higher life expectancies of the females as compared to that of the males, the sex composition of population, at higher ages, shifts in favour of females. This is termed as feminisation of ageing. However, Indian population was one of the exceptions to feminisation of ageing. India was one of the few countries of the world where older males outnumber older females. It was in the recent censuses of 2001 and 2011 that the sex ratio was observed to be 1029 and 1023 respectively. Apart from the aggregate level/macro perspective, as discussed above, the process of ageing can also be regarded from a household level/ semi-macro perspective.

Ageing: household level / semi-macro perspective

Households are residential units. Within households family members live in physical proximity. A household may have residing OAs or it may not have residing OAs. For the households with residing older adults there may be or may not be co-resident younger people. Thus, from an OA

perspective we have trichotomy of residential patterns given as follows:

1. Type – I: the households with no older adults.
2. Type – II: the households with older adults and other members.
3. Type – III: the households with older adults only.

The second and the third types of households are called the Co-residence and the Alone type of living arrangements of the older adults respectively.

Ageing may change the composition of the household types. It is expected that in an ageing society the proportion of Type- II and Type – III combined may increase over time and the proportion of Type – I may decrease over time. Further among Type –II and Type – III households the proportion of Type – III may increase over time and Type – II may decrease over time. It is also possible that the proportion of OAs in Type – II households may increase over time. In both the ways households also age.

Apart from the macro and the semi-macro perspectives discussed above ageing can also be regarded from an individual perspective. This perspective is vital as the individual is central to the Quality of Life (QoL).

Ageing: the micro perspective

Human beings age since the time of inception and their chronological span is divided into

different realms of childhood, youth, adulthood and older adulthood, in that order, on the basis of their age. Moving into the realm of older adulthood most of the people find themselves to be either retired from active economic life or at the verge of retirement. The marital status too is at the risk of a change from married to widowed one. The social role and status also changes with younger generation occupying the roles that were once performed by the older adults. Further, physical mobility is at stake and vulnerabilities to chronic health conditions are also very common. The social roles expected out of an individual change accordingly while transcending from one realm to the next. Hence, each such realm is identified by the status one acquires and the corresponding role one has to perform; although depending on the cultural context the status and the corresponding roles may differ. It should be noted that there is no universally accepted demarcation points that separate youth, adulthood and older adulthood from each other. It is asserted that the OAs are distinct from the rest of the population not only in respect of age but also with respect to social, economic and health profiles. In what follows, concerns specific to the well being of OAs are discussed in the background of existing literature.

Economic activity and financial independence

Economically productive life span of an individual may terminate with her/his age at retirement. In developing countries, the official age at retirement ranges from 55 years to 60 years (Dinesh and Rayappa 1983). In India the per cent of workforce employed in public sector has been recorded to be 4.28, 5.91, 7.03, 6.66 and 6.13 in the five decadal censuses respectively (1961 to 2001). Therefore, a large part of the workforce remains devoid of any post-retirement benefits. Besides, working at older ages may not be at par with working at younger ages in the

remunerative sense. The numbers of working hours also get reduced with increasing age (Singh et al. 1987). Besides, low income households may not be able to cope with the financial dependency of the older adults (Alam 2006). It is quite possible that the older adults either work willingly or they are forced to work for monetary benefits (Dinesh and Rayappa 1983). India, like other developing countries, has a large agricultural sector. This sector can absorb and sustain human resources at older ages unlike the manufacturing and the service sectors that require skilled work force. Accordingly, we find in this sector of India a large proportion of economically active older adults. This situation is akin to what is observed in developing countries in general (Nasir and Ali 2000; Chen and Jones 1989; Choe 1989; Perara 1989). An older adult is free to drop himself/herself from economic activity or continue with it. That economically active older adults are more favourably treated by their family members is well-recognized phenomenon in day-to-day life (Yadava et al. 1996).

Status, capability and gender differences

As mentioned earlier, the status and the roles of an individual change as the age proceeds. Looking at these peculiar changes, detrimental to power in a sense, the question naturally arises regarding the capability of the older adults to make choices regarding the issues that matter them the most. This vulnerability cannot be overcome unless the older adults are powerful enough to make choices about the alternatives in deciding about these issues. Hence, the salience of power and empowerment at the older ages is self evident.

Kar et al. (1999) have identified four domains or aspects of life that affect overall quality of life

of the powerless. These are basic human rights, equal rights for women, economic enhancement and health promotion and disease prevention. Citing from earlier works (Freire 1973; Rappaport 1987; Zimmerman et al. 1992; Zimmerman 1995; Wallerstein et al. 1994), the author has defined empowerment as a process through which individuals, communities and organizations gain control over issues and problems that concern them most. According to Kabeer (1999) the process of empowerment is about making choices. The concept incorporates three interrelated dimensions namely, agency, resources and achievements, defined as follows:

Choices: choice necessarily implies the possibility of alternatives, the ability to have chosen otherwise.

Power: the ability to make choices.

Resources/Pre-conditions: resources include not only material resources in the more conventional economic sense, but also various human and social resources which serve to enhance the ability to exercise choice.

Agency/Process: the ability to define one's goals and act upon them. Agency is more than about observable action; it also encompasses the meaning, motivation and purpose which individuals bring to their activity, their sense of agency, or "the power within".

Achievements are outcomes.

Autonomy in decision-making reflects the power within an OA to make choices regarding his/her owned assets/property. The underlying continuum of power manifests itself as a binary outcome. Either an older adult is powerful or she/he is not powerful. It should be noted that this power is felt or visible only if an older adults has sufficient grounds to exercise the agency. In the present context the choice regarding managing ones owned assets/property is possible only

when one owns assets/property. Hence, owing assets/property provides grounds for exercising power.

Gender differentials may also prevail at older ages. Though gender issues are well addressed in recent literature (Bhattacharya 2006; Devi 1993; Gulati 1993; Koenig et al. 1992; and Selveratnam 1988) we lack quantitative studies of the issues of older adults in the empowerment perspective. The gender differentials at older ages may prevail in social setups that are known for gender differentials at comparatively younger ages. The reasons being firstly that the older women in traditional societies were never a part of the work force and secondly their social status has association with the marital status and having son (Vlassoff 1990). Their continuous financial dependence during the life course may be detrimental to their well-being at older ages.

Integration

Another important aspect is the integration of OAs with the household. It shows the acceptability levels of the older adults in the household. It is manifested in the participation of the older adults in the household matters including social, religious and daily household chores. In absence of any quantitative scale that describes the quantum of integration binary indicators are simple recourses to assess the integration. The empowerment and familial integration derive heavily on the financial dependence of the older adults. This reflects on the state of economic well-being and hence the QoL.

The living arrangements, integration with the household and the society in general, health, the

financial dependence, the work status and livelihood, the amount of assets and property possessed and above all the capacity to take decisions independently are instrumental in well-being and hence the QoL of the OAs. In addition the gender and marital status may regulate the QoL of OAs. The various issues discussed above are a subset of the issues that demand in-depth investigation for assessing the QoL of OAs. The motivation for the present work has been because of two main reasons. Firstly, the exiting literature on OAs in India lacks an integrated approach towards the QoL and secondly studies based on country wide time-varying representative samples are few. Hence, the present study shall attempt to investigate the following issues:

1. Changes in the composition of the Type – I, II and III households over time.
2. To compare Type – I, II and III with respect to ageing and measures of household prosperity.
3. To provide a descriptive account of the life of the older adults pertaining to QoL indicators namely, integration, financial independence, work, empowerment, health and abuse faced by the OAs.
4. To investigate the association of indicators mentioned above with the gender and the marital status of the OAs.

Data and methods

The study defines Type – I, II and III households. Sample proportions are utilized to study the change in the composition of Type of households. To compare the households in the perspective

of ageing specially defined household level measures of ageing are utilized. These are household old age dependency ratio/ household young dependency ratio (HOADR/HYDR).

Definition 1:

$$household\ old\ age\ dependency\ ratio\ :=\ \frac{number\ of\ OAs\ in\ a\ household}{number\ of\ adults\ (age\ 15-59)\ in\ a\ household}$$

Definition 2:

$$household\ young\ dependency\ ratio\ :=\ \frac{number\ of\ young\ ones\ (age\ 0-14)\ in\ a\ household}{number\ of\ adults\ (age\ 15-59)\ in\ a\ household}$$

The geometric mean is used as an average for the measures defined above. The value of HOADR is 0 for a Type I households and more than 0 for Type III household. Its value is undefined for Type II households.

The household average monthly expenditure (HAME) and multidimensional poverty index (MPI) have been utilized to assess the economic condition of the households. The MPI has been calculated based on the human development reports (UNDP 2012). For calculating the MPI two, four and five indicators have been used for the reference periods 1986-87, 1995-96 and 2004 respectively (Table 4). Consider people residing in each type of households as separate population. A household is said to be deprived if it is lacking in any one of the selected indicators under consideration at a given time period.

Participation of OAs in household matters indicates involvement and hence integration of the

OA with household. However, at older ages the differentials in integration may arise among OAs. Gender and marital status of OAs may be attributed to create such differentials. The odds ratios, older males vs older females and married OAs vs widow OAs, have been evaluated to investigate the role of gender and marital status in creating differentials in integration.

OAs are either working or non - working. She/he may be financially independent, partially dependent or completely dependent. Considering working and dependence as ordinal variables gamma measure has been utilized to investigate the association between the two. Assets and property are economic resources that are already acquired by a person in her/his lifetime prior to the older adulthood. It can reasonably be argued that the quantum of assets / property owned by an OA is not a result of her / his financial condition at older ages. However, the quantum of assets / property owned by an OA may affect her / his financial dependence at older ages. A multinomial logit regression model is utilised utilize for investigating the association of financial dependence with owing assets and owing property. Due to the absence of information on the quantum of assets / property owned by an OA, we limit ourselves to incorporating these variables as binary variables with two categories having and not having. The model is as follows:

$$\boldsymbol{D = A + P + E + R + G + A}$$

Where A, P, E, R, G and A denote assets, property, employment, place of residence, gender and age group respectively. D denoted the categorical variable dependence. This model provides association of D with A and D with P after controlling for the effects of rest of the variables.

Plausible factors that influence decision making are gender, marital status, age, education and health. To understand the effect of marital status and age on decision making consider the sample of OAs who own property and assets. Further consider a four dimensional contingency table:

$$gender(\alpha) \times marital\ status(\beta) \times managing\ assets(\gamma) \times managing\ property(\delta)$$

The corresponding log linear model has been utilised to assess the effect of widowhood on male older adults and female older adults in respect of decision making with respect to management of assets and management of property. The saturated model for the cell frequencies is given as follows:

$$\boldsymbol{log}(\boldsymbol{c_{ijkl}}) = \boldsymbol{\mu} + \propto_{\boldsymbol{i}} + \boldsymbol{\beta_j} + \boldsymbol{\gamma_k} + \boldsymbol{\delta_l} + (\boldsymbol{\alpha\beta})_{\boldsymbol{ij}} + (\boldsymbol{\beta\gamma})_{\boldsymbol{jk}} + (\boldsymbol{\gamma\delta})_{\boldsymbol{kl}} + (\boldsymbol{\alpha\delta})_{\boldsymbol{il}} + (\boldsymbol{\alpha\gamma})_{\boldsymbol{ik}} + (\boldsymbol{\beta\delta})_{\boldsymbol{jl}} + (\boldsymbol{\alpha\beta\gamma})_{\boldsymbol{ijk}} + (\boldsymbol{\alpha\beta\delta})_{\boldsymbol{ijl}} + (\boldsymbol{\beta\gamma\delta})_{\boldsymbol{jkl}} + (\boldsymbol{\alpha\gamma\delta})_{\boldsymbol{ikl}} + (\boldsymbol{\alpha\beta\gamma\delta})_{\boldsymbol{ijkl}}$$

We start with the saturated model as given above, search for the best model among hierarchical models using backward elimination (at level of significance 0.05) removing higher order interaction terms first in that order without significantly affecting the fit of the model. The best model is thus obtained that reflects the association structure among variables.

The BKPAI survey classifies elder abuse into Physical Abuse[i] (PA), Verbal Abuse[ii] (VA), Economic Abuse[iii] (EA), Showing Disrespect[iv] (SD) and Neglect[v] (NE). Logistic regression models were utilized to investigate the association of gender, age, marital status and financial dependency with different types of abuses. An effect in a model is considered significant if the p-

values corresponding to the effects are 0.1 or lesser.

Sources of data

Apart from the decennial censuses in India, various rounds of the National Sample Surveys provide data on the socioeconomic and health conditions of the older adults. These surveys were conducted during the period July 1986 – June 1987 (the 42nd round), July 1995 - June 1996 (the 52nd round) and January - June 2004 (the 60th round). The 42nd, 52nd and the 60th rounds surveyed 32231, 16357 and 13344 households respectively with residing OAs. Although, the information content of each of the survey differs in some aspects from the other, similar definitions are used for all the three surveys. The data sets from Building knowledge base on Population Ageing in India Survey (BKPAI), 2011 is also utilized for additional information on elder abuse.

Results

Ageing of households

Estimates of the proportion of Type – I, Type – II & Type – III households show an increase in the proportion of Type – II & Type – III combined (Table-2) in rural and urban areas. This shows an increase in households with OAs over the decade 1995-96 to 2004. Further, among the households with OAs the ratio of co-residence to alone type of households has decreases in urban areas from 11.50 in 1986-87 to 8.09 in 2004 (Table-3). It means that by 2004 the proportion of alone type of households increased when compared to their proportion during the

reference period 1995-96. This increase signifies ageing of households.

In what follows the situation for Type II households (co-residence) vis-a-vis HOADR/HYDR is described for rural and urban places of residence during the three reference periods.

The statistics regarding HOADR/HYDR for co-residence (Table 5) demonstrate the following:

1. There is an increase in HOADR in rural and urban areas over time.
2. There is a decrease in HYDR in rural and urban areas over time.
3. On an average the HOADR and HYDR are higher in rural areas when compared to the urban areas for all survey periods.

Economic condition of Type – I and Type – III households relative to Type – II households

The statistics provided in Table 6 demonstrate the following:

1. The alone type of households have a higher HAME on an average when compared to the co-residence type of households for all the given reference periods and for rural and urban places of residence.
2. Looking at the MPI values for each reference period it is observed that the Alone type of households are more deprived than the co-residence type of households.
3. The households without older adults when compared with the co-residence type of households do not differ with respect to the HAME but they are found to be more deprived

than the co-residence type of households.

Let us now consider the economic condition of the three types of households in terms of deprivation with respect to selected indicators. The extent of deprivation is assessed for each population using the MPI. Keeping in view that the MPIs are not comparable across time periods we present certain salient observations (Table 7) regarding the three populations as follows:

1. For all the time periods and for all the three types of populations the rural people are more deprived than the urban people.
2. OAs having alone type of living arrangements are more deprived than people residing in co-residence type of households. This holds for rural as well as urban areas for all the time periods considered.
3. People residing in Type – I households are more deprived than people living in co-residence type of households. However, they are less deprived when compared to OAs having alone type of living arrangements.

Integration with the household among co-resident older adults

Form earlier analyses it is evident that co-residence is the modal living arrangement among older adults. Additionally it also signifies a comparatively lesser deprived living. Moreover, it provides direct interface between OAs and the younger ones. In fact, participation in household matters indicates involvement and hence integration of the OA with household. In what follows participation is investigated from an age, gender and gender × marital status perspective.

Age and participation

For a better QoL participation of OAs in matters like social matters (SM), religious matters (RM) and daily household chores (DHC) ought to be total i.e. all the OAs in a given population are expected to participate in these matters. However, samples from the 42nd and 52nd rounds of NSS indicate that (Figures 2, 3 and 4) the proportion of older males and older females who report participation in these matters decline as one moves from lower age groups to higher age groups.

Gender and participation

The sample proportions of older females who report participation are lesser than the sample proportion of older males (Figures 2, 3 and 4). The gender differences in participation are exposed as the odds ratios (older males vs older females) for both the time periods are found to be significant and more than 1. The odds ratios for participation in SM, RM and DHC are 1.86, 1.63 and 1.50 respectively for 1986-87. The figures for the year 1995-96 are 2.17, 1.73 and 1.16 for the respective indicators of integration (Table 8).

Marital status and participation among older males and older females

Most of the OAs are either married or widowed. The married OAs are more likely to get integrated with their household through participation in SM, RM and DHC when compared to widowed OAs. The estimated odds ratios (married vs widowed) for older males, during the

reference period 1986-87, are 1.48, 1.98 and 2.12 for SM, RM and DHC respectively. During the period 1995-96 the estimated odds ratio are 1.85, 1.82 and 2.04 for SM, RM and DHC respectively. Similarly, for older females the figures are 1.11, 1.16 and 1.61 for SM, RM and DHC respectively during 1985-86 and 2.27, 2.58 and 2.94 during the period 1995-96 (Table 9).

Work and financial dependence

The participation of OAs in SM, RM and DHC was discussed in previous section. Along with participation in SM, RM and DHC the OAs may also be involved in income generating activities that contribute to their individual income as well as the household income. The Tables 10, 11 and 12 give a details account of engagement of older males and older females in rural and urban areas for the 42nd, 52nd and 60th round of the NSS. The statistics indicate that while most of the older females, at all the given time periods, are engaged in attending domestic duties their male counterparts are employed. In rural areas the percentages of self-employed older males are 41.84, 46.89 and 45.54 per cent in the 42nd, 52nd and 60th round of the NSS respectively. In the urban areas the respective percentages of self-employed older males are 28.19, 26.17 and 24.59.

Age, working and financial dependence

For simplicity we collage the categories of economic activity into two broad groups the working group and the non working group. Figure 5 shows the proportion of older males and older females who are employed during the three reference periods. The proportion of working OAs falls as we move from lower to higher age groups. It is also clear that work participation is

higher for older males than older females in all the age groups. It has been pointed out in earlier discussions that employment in older ages may not be financially remunerative. The proportion of older males and older females, who report to be financially dependent (complete / partial), also increase with increasing age (Table 13 and Figure 6). However, financial dependence among older adults is found to be is associated with working. This argument is supports by statistically significant high values of gamma measure of association between financial independence and working (Table 14).

Support and intergenerational transfers

There is a presumption in the literature that traditionally family was responsible for caring for the OAs. This presumption seems logical as we do not find any other means to support OAs in the past. In other words, family can be termed as traditional support system (TSS) for the OAs. Material and non-material support in a family may flow from rest of the family to OAs or vice versa or there may be a simultaneous flow of support to and from OAs. Hence, we can say that there is a source of support and a recipient of support. The source has capacity and will to provide support and the recipient is in need of support. When these conditions are met we see a flow of support. These flows of support are called intergenerational transfers (IGT). The "direction" of IGT can be Upward (from children to parents), Downward (from parents to children) or Lateral (from sibling to sibling) and these transfers vary in "type" as Time (including help, services and visits), Money and Goods (including shared space and goods through co residence) (Gauthier et al, 2006).

Financial dependence and upward IGT

The children are the main contributors of the upward IGT to the economically dependent OAs (other than the children the support providers are the spouse, the grand children or others). In case of married older males the support predominantly comes from children and to a lesser extent from spouse (Figure 7). The widowed older males also depend on children for financial support. Married older females on the other hand receive financial support from children. A very high proportion is supported by spouse (Figure 8). However, widowed older females depend on children for support.

Financial independence and downward and lateral IGT

Further, the economically independent OAs are found to be in a position to provide downward and lateral IGT. Among the financially independent OAs 68.57, 91.99 and 85.62 per cent are reported to be supporting other members of their families during 1986-87, 1995-96 and 2004 respectively.

Having assets/property and financial dependence

Possessing assets increases the odds in favour of financial independence, by 1.51 times and 2.17 times for the times periods 1986-87 and 1995-96 respectively, when compared to being financial dependence. Similarly possessing property increases the odds in favour of financial independence, by 2.06 times and 2.27 times for the times periods 1986-87 and 1995-96

respectively, when compared to being financial dependence. In a similar way the OAs who possess assets or property are more likely to report partially dependent when compared to reporting financially dependent (Table 15 and Table 16).

Ageing and empowerment

Although possessing of assets and / or property is conducive to financial independence of an OA, being financially independent cannot be the ultimate goal for QoL. A broader issue needs to be addressed that do OAs have choices regarding matters that affect them; and in case they have choices can they take decisions? In other words are the OAs empowered pertaining to making choices regarding their owned property and /or assets?

If an OA is able to manage her/his property and /or asset she/he shall be deemed empowered in this aspect. Ideally we expect all OAs to be empowered. However the sample from the 42nd and the 52nd round shows that among the OAs who owned property 62.26% and 67.89% managed it during the respective rounds. Similarly, among the OAs who owned assets 60.84% and 68.63% managed it during the respective rounds (Table 17 and Table 18).

The log linear model for the time periods 1986-87 and 1995-96 denoted respectively as M1 and M2 are given as follows:

$$\boldsymbol{M1}: \boldsymbol{log}\left(\boldsymbol{c}_{ijkl}\right) = \boldsymbol{\mu}+\propto_{\boldsymbol{i}}+\boldsymbol{\beta}_{\boldsymbol{j}} + \boldsymbol{\gamma}_{\boldsymbol{k}} + \boldsymbol{\delta}_{\boldsymbol{l}} + (\boldsymbol{\alpha\beta})_{\boldsymbol{ij}} + (\boldsymbol{\beta\gamma})_{\boldsymbol{jk}} + (\boldsymbol{\gamma\delta})_{\boldsymbol{kl}} + (\boldsymbol{\alpha\delta})_{\boldsymbol{il}} + (\boldsymbol{\alpha\gamma})_{\boldsymbol{ik}} + (\boldsymbol{\beta\delta})_{\boldsymbol{jl}} + (\boldsymbol{\alpha\beta\delta})_{\boldsymbol{ijl}}$$

$$\boldsymbol{M2}: \boldsymbol{log}(\boldsymbol{c_{ijkl}}) = \boldsymbol{\mu}+\propto_{\boldsymbol{i}}+\boldsymbol{\beta_j} + \boldsymbol{\gamma_k} + \boldsymbol{\delta_l} + (\boldsymbol{\alpha\beta})_{\boldsymbol{ij}} + (\boldsymbol{\beta\gamma})_{\boldsymbol{jk}} + (\boldsymbol{\gamma\delta})_{\boldsymbol{kl}} + (\boldsymbol{\alpha\delta})_{\boldsymbol{il}} + (\boldsymbol{\alpha\gamma})_{\boldsymbol{ik}} + (\boldsymbol{\alpha\beta\gamma})_{\boldsymbol{ijk}}$$

In the model M1 the presence of the interaction term indicates that the association of gender and agency (for management of property) varies by the marital status (Table 19). The association between the gender and agency is reflected in the odds ratio. As per the model M1, the odds ratios vary with states of marital status. Given the population of older adults who manage assets the odds ratio for married and widowed older adults are respectively 0.31 and 0.84. This variation in odds ratio with marital status is due to the fact that the odds in favour of agency for older males and older females change by marital status. For older females these odds are 31.00 and 19.59 for married and widowed ones respectively. For older males the respective values of odds are 100.89 and 23.31. The reduction in odds is more for older males (0.23 times) than for older females (0.63 times). For the older adults who donot exercise agency with respect to managing assets, according to M1, are having very less prospect to do the same in case of managing property.

In the model M2 the presence of the interaction term indicates that the association between the gender and exercising agency changes with the states of marital status as the odds ratios for married older adults and widowed older adults are respectively 0.41 and 0.65 (Table 20).This difference comes as a result of differences in odds in favour of exercising agency with respect to the management of assets for older males as well as older females. Explicitly speaking for the older adults who exercise agency with respect to management of property, these odds are 75.34 and 31.19 for married older males and married older females. Whereas for widowed older males

and widowed older females these odds are 35.13 and 22.99 respectively. The reduction in odds with marital status is more for older males (0.41 times) than older females (0.65 times).

The model M2 is qualitatively different form model M1. This indicates a change in association structure among the four variables over time. Notably the changes are as follows:

1. Absence of conditional association between marital status and exercising agency with respect to management of property while controlling for rest of the variables.
2. The presence of second order interaction among gender, marital status and exercising agency with respect to management of assets. This interaction was absent in M1. The second order interaction among gender, marital status and exercising agency with respect to management of property is absent in M2.

Abuse of older adults

Gender is found to be associated with VA, EA and NE. Older females are 2.03 times more likely to face VA when compared to older males (Table 21). Older females are more prone to EA and NE as they are 1.67 times and 2.17 times more likely to face EA and NE respectively when compared to older males. Financially dependent OAs are 1.81 times more likely than the financially independent OAs to face PA. Widow OAs are 0.61 times less likely to face EA when compared to their married counterparts. SD is less likely to happen with increasing age as the odds in favour of SD reduce by 0.98 times with a unit increase in age of OAs. Further, the model for any type of abuse indicates that older females are 1.25 times more likely than older males to

face abuse. Older adults who are financially dependent and partially dependent are 1.96 and 1.26 times more likely than their financially independent counterparts to face abuse.

Discussion

The foregoing analysis contains a descriptive account of the living arrangements of the OAs in India and their life there in. The three reference periods span over 17 years from 1986 to 2004. However, throughout this period similar patterns are observed regarding the work, integration and empowerment among the OAs. Alone kind of living arrangements is found to be increasing among the OAs. Further, in the co-residence type of living arrangements the share of younger ones is observed to be declining during the time period under study. The younger ones in a household are potential care providers to the OAs. However, if this trend continues an alternative structure for providing care to the OAs needs to be developed. Another crucial aspect is the relatively deprived condition of OAs in the alone type of living arrangements. It may be possible that their higher expenditure may be responsible for this deprivation. The higher expenditures observed among the households with alone type of living arrangements may be due to the costs incurred in maintaining healthy lives at older ages. Focused in depth studies are called for to understand and address the reasons for relative deprivation in alone kind of living arrangements. Further, as co-residence depicts a relatively lesser deprived life it may be promoted.

A change in work status, marital status and susceptibility to chronic conditions are some of the changes that are quiet possible at older ages. Life of an OA may not be immune to such changes. In this study the married OAs are found to be more participating in their household matters. They

are also more likely to be empowered than their widow counterparts. In the matters pertaining to exercising power in financial matters and participation in household affairs gender differential prevail in favor of the older males. These differentials may be attributed to the socio-cultural structure prevailing in the Indian society. Family and society needs to be educated and sensitize on these issues so that these differentials cease to exist. There is also a need to sensitize public to regard the dignity of the OAs. This is so because different types of abuses are reported by the OAs. Older women and financially dependent OAs are more likely to face abuses. It is recently that such information is being made available in large scale surveys in India. However, the national surveys need to incorporate this crucial information in their surveys related to OAs.

Financial independence is desirable among OAs. Work, having economic resources in the form of property and assets enhance financial independence. However work participation declines with age. Besides, working at older ages may not be financially remunerative. Old age pensions schemes are in effect in Indian states. However, the adequacy of the pension amount in ensuring financial independence among OAs needs more investigation.

The present study provides an aggregate picture of India as a whole pertaining to the issues discussed above. Any regional differences in all these aspects, if present, need separate studies. The scope of the study is limited only to the socio-economic aspects of OAs. Other important aspects including health are not covered by the present study. The study does not attempt to provide any estimates of the standard errors for the statistics namely, MPI, HYDR, HOADR and HAME. It was assumed that the large sample sizes would produce estimates for these statistics that are accurate enough for a general discussion. The data on elder abuse pertains to the states of

Himachal Pradesh, Punjab, West Bengal, Orissa, Maharashtra, Kerala and Tamilnadu in India. Therefore, any inferences pertaining to elder abuse are limited to these states only.

Acknowledgements

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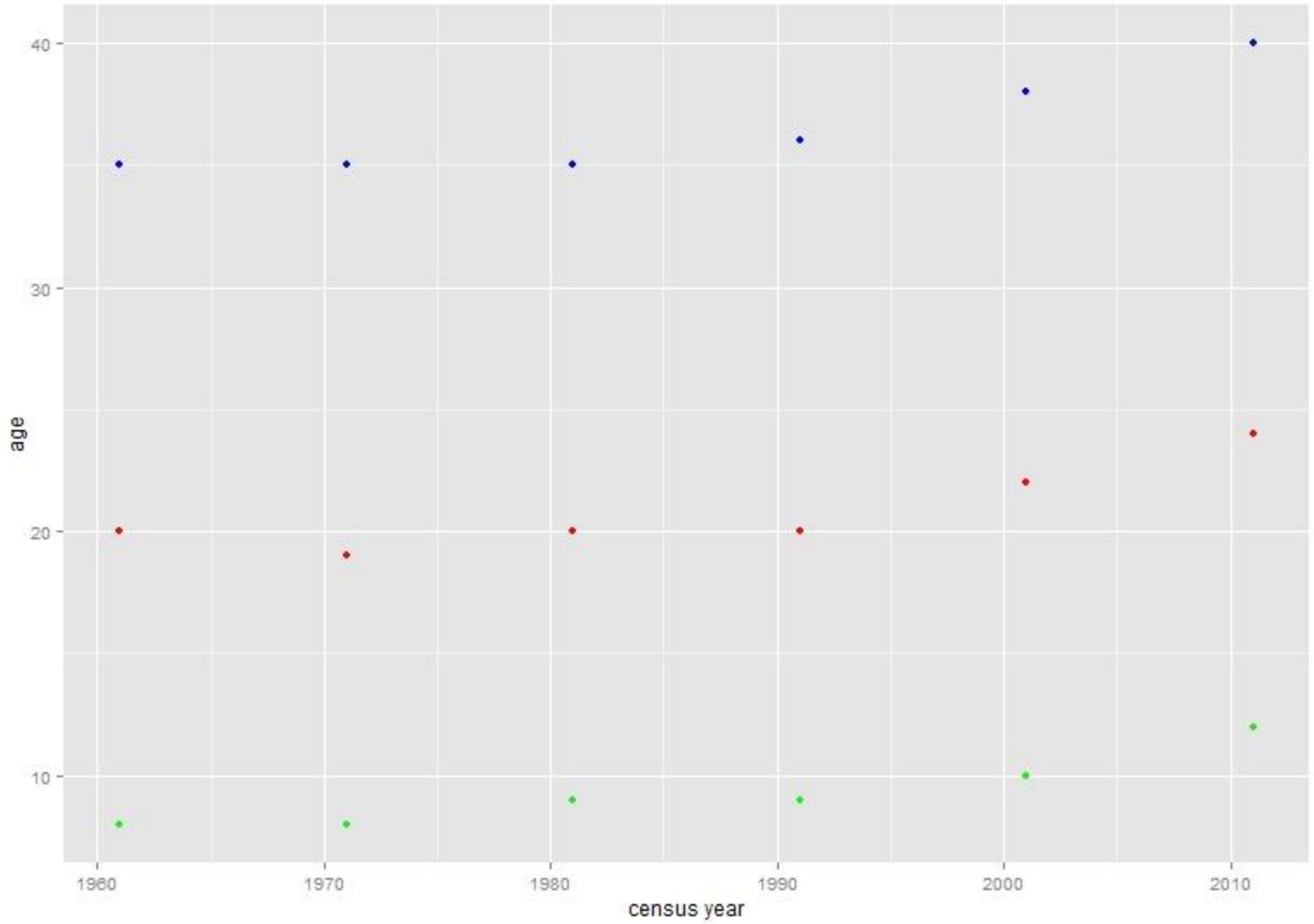

Figure 1: Age quartiles over different census years calculated based on single year age returns provided by the census of India reports

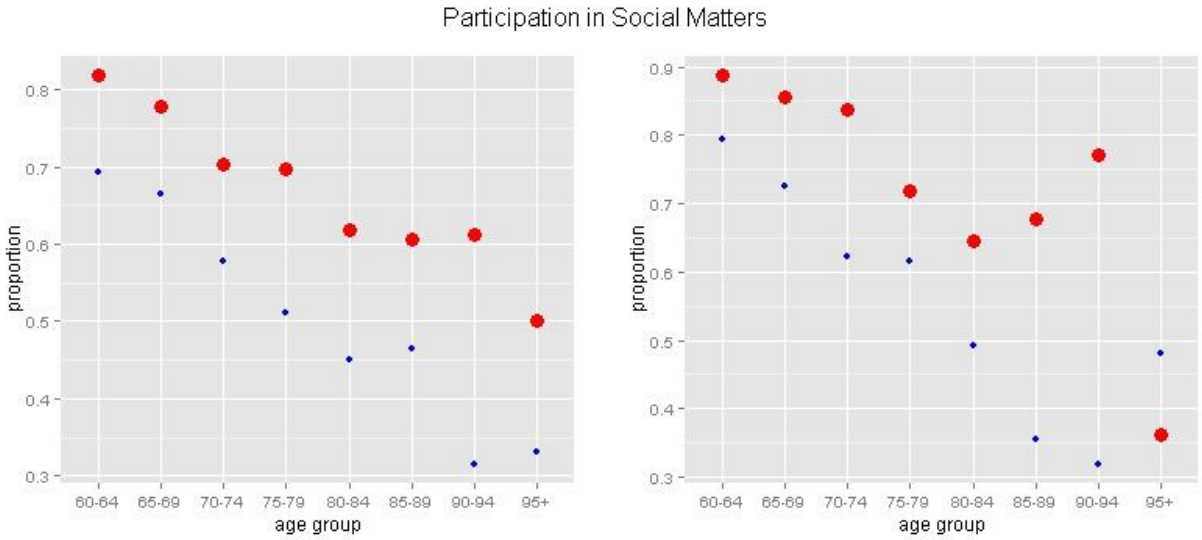

Figure 2: the proportion of older males (larger circles) and older females (smaller circles) who report participation in social matters over different age groups in 42nd (left figure) and 52nd (right figure) rounds of the NSS.

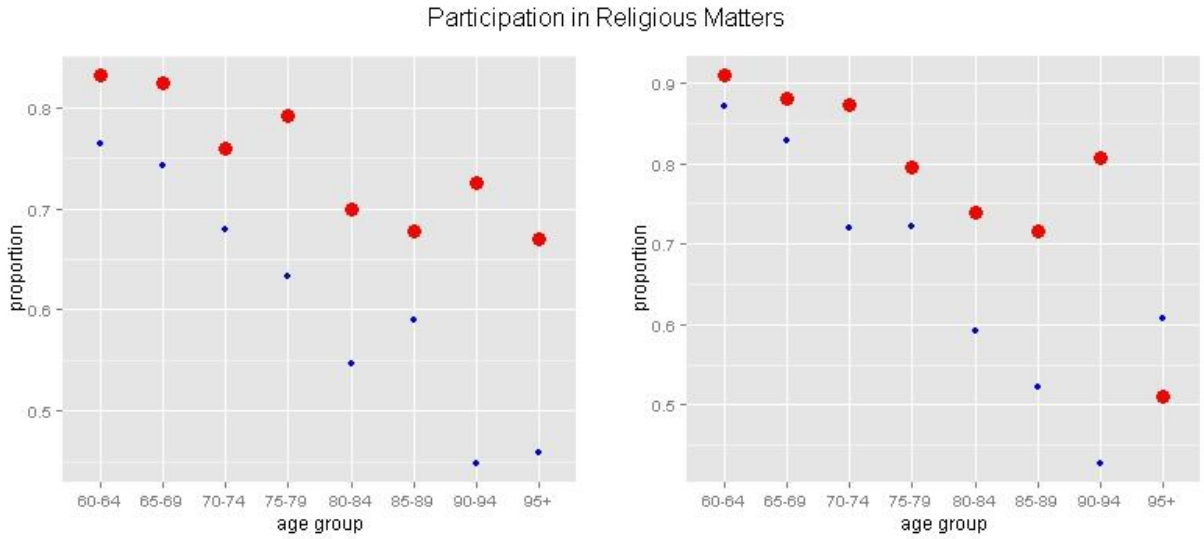

Figure 3: the proportion of older males (larger circles) and older females (smaller circles) who report participation in religious matters over different age groups in 42nd (left figure) and 52nd (right figure) rounds of the NSS.

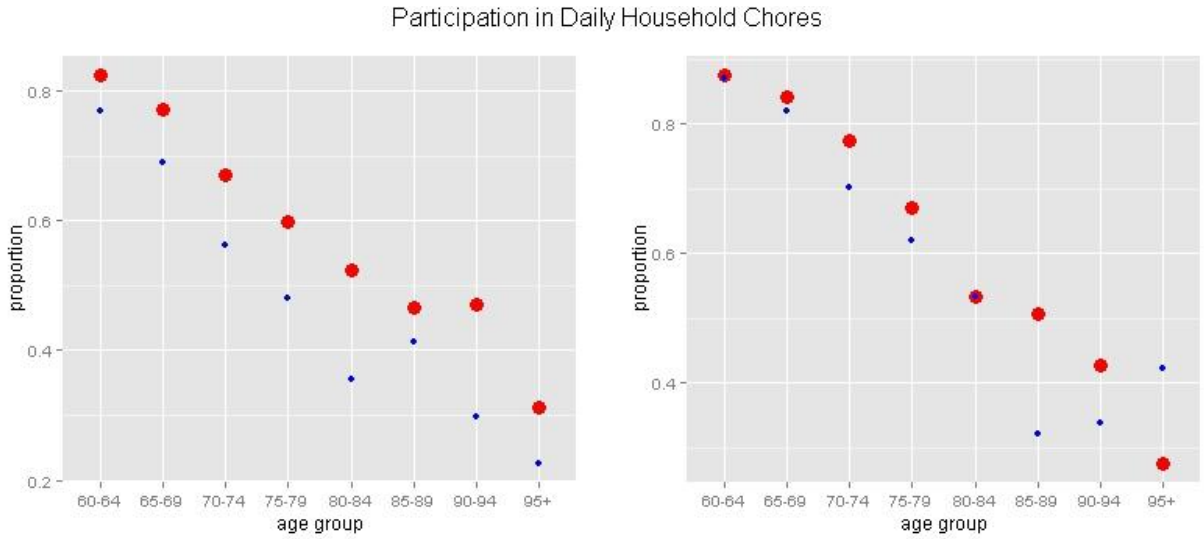

Figure 4: the proportion of older males (larger circles) and older females (smaller circles) who report participation in daily household chores over different age groups in 42nd (left figure) and 52nd (right figure) rounds of the NSS.

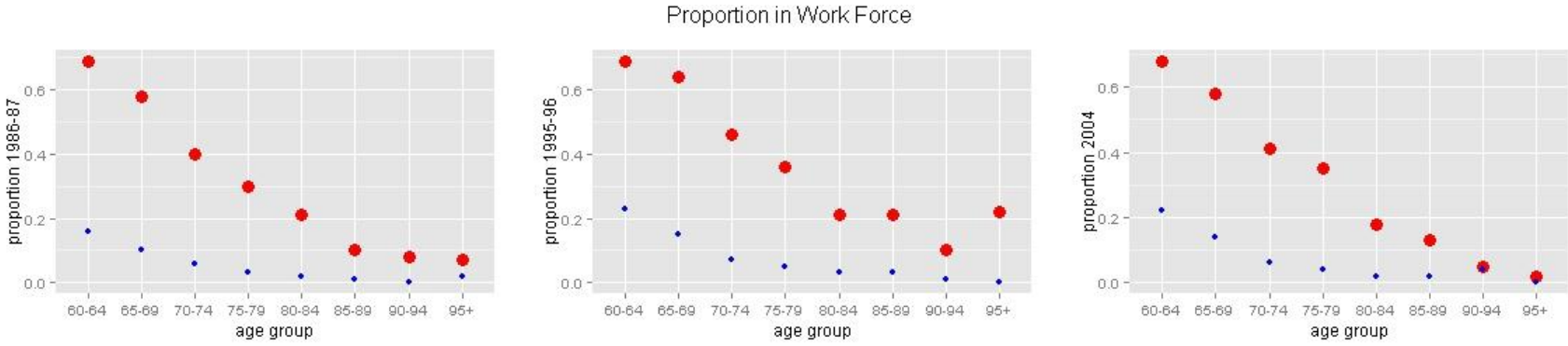

Figure 5: the proportion of older males (large circles) and older females (small circles) who are reported to be employed during the three time periods 1986-87 (left), 1995-96 (center) and 2004 (right)

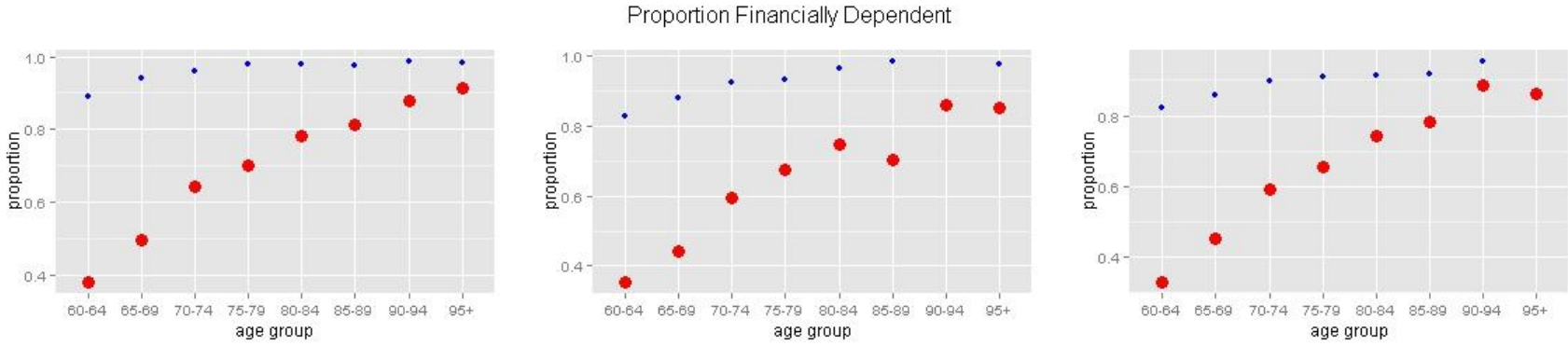

Figure 6: the proportion of older males (large circles) and older females (small circles) who are reported to be financially dependent (patially/completely) during the three time periods 1986-87 (left), 1995-96 (center) and 2004 (right)

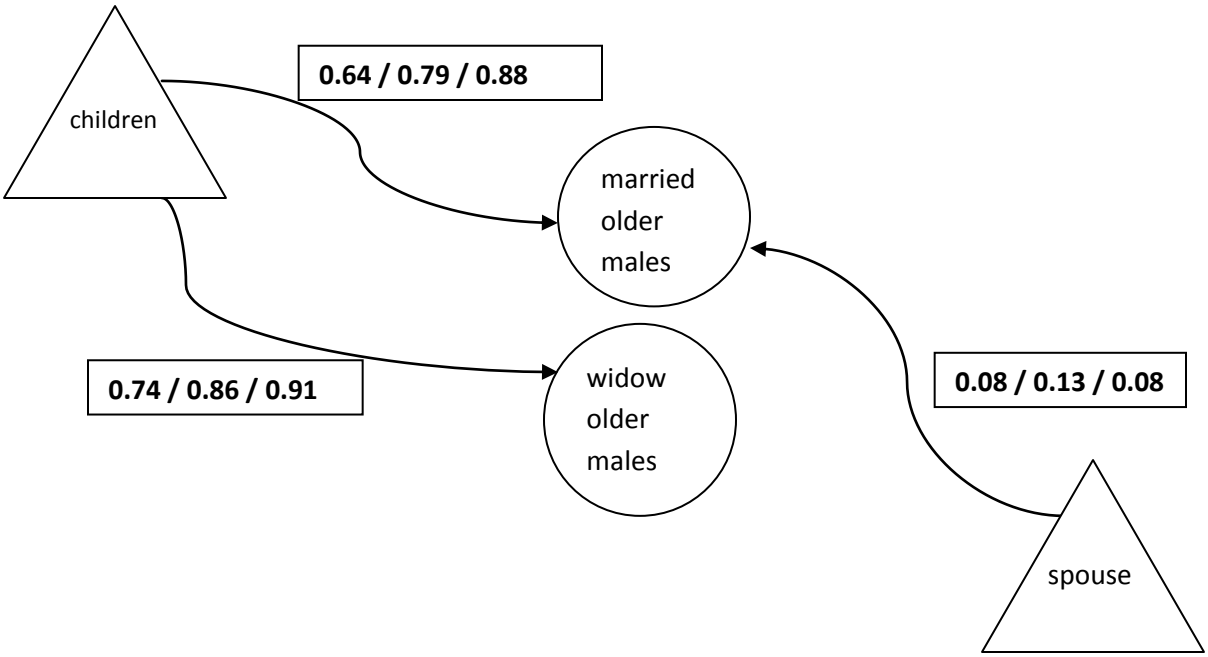

Figure 7: proportion of married / widowed older males, who are financially dependent, being supported by children / spouse

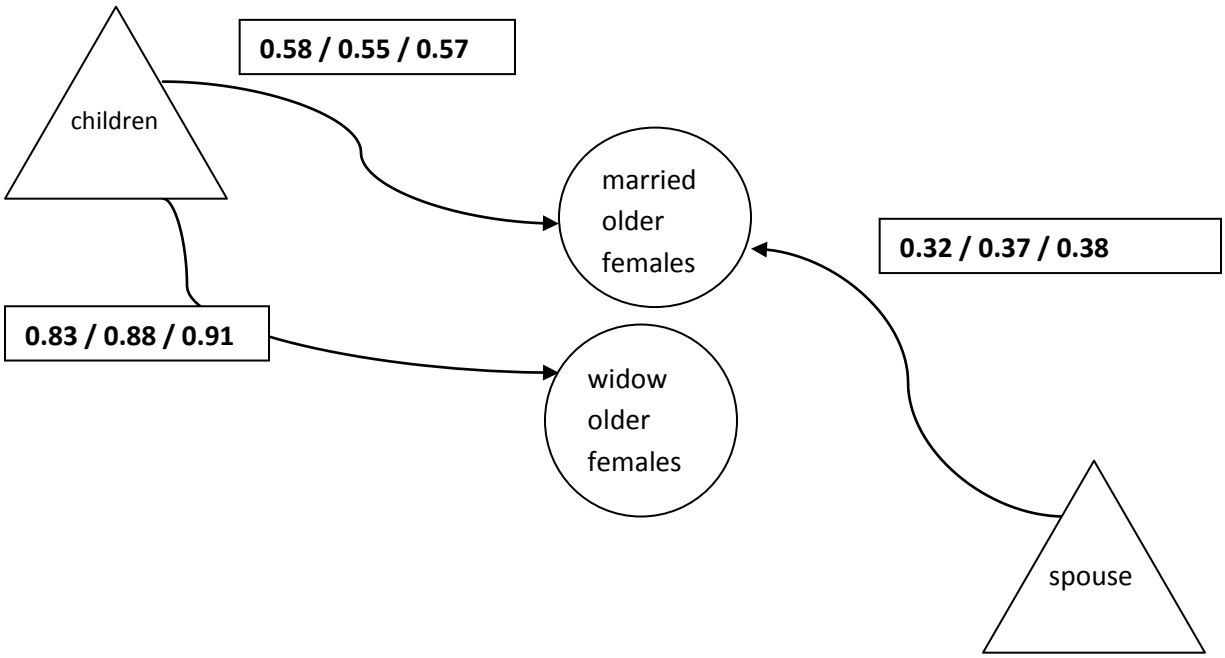

Figure 8: proportion of married / widowed older females, who are financially dependent, being supported by children / spouse

Table 1: Indicators of ageing for the Indian population for census years 1961-2011

census year	number of older adults	average person years for males aged 60-99 years	average person years for females aged 60-99 years	proportion of the older adults	old-age dependency ratio (per 100 adults)	sex-ratio among older adults (per 1000 older males)
1961	24712109	66.43	66.68	0.0563	10.56	928.66
1971	32699731	66.46	66.64	0.0597	11.47	937.84
1981	43167329	66.55	66.66	0.0649	12.04	960.12
1991	56681640	67.09	67.07	0.0680	12.19	930.32
2001	76622321	67.70	67.68	0.0747	13.08	1028.93
2011	103849040	67.93	68.10	0.0861	14.22	1033.39

Source of data: single year age returns provided by the census of India reports

Table 2: sample proportions of combined Type – II & Type – III households

reference period	Place	Type – II & Type – III (95% C.I. for population proportion)
1995-96	rural	0.22 (0.217, 0.223)
	urban	0.18 (0.177, 0.183)
2004	rural	0.27 (0.266, 0.274)
	urban	0.22 (0.215, 0.225)

Source of data: the 42nd, 52nd and the 60th rounds of the National Sample Survey

C.I. : confidence interval

Table 3: sample proportion of Type – III (alone) households among Type – II (co-residence) & Type – III households

reference period	Place	Alone (95% C.I. for population proportion)	ratio of co-residence to alone type
1986-87	rural	0.11 (0.107, 0.113)	8.09
	urban	0.08 (0.076, 0.084)	11.50
1995-96	rural	0.10 (0.095, 0.105)	9.00
	urban	0.09 (0.084, 0.096)	10.11
2004	rural	0.12 (0.114, 0.126)	7.33
	urban	0.11 (0.102, 0.118)	8.09

Source of data: the 42nd, 52nd and the 60th rounds of the National Sample Survey

C.I. : confidence interval

Table 4: Selected indicators for constructing multidimensional poverty index

Time Period	Indicator	Weight
1986-87	Maximum general education	1
	Structure of the house	1
1995-96	Maximum general education	1
	Structure of the house	1
	Drinking Water	1
	Drainage	0.5
	Drainage: Latrine	0.5
2004	Maximum general education	1
	Structure of the house	1
	Drinking Water	1
	Drainage	0.5
	Drainage: Latrine	0.5
	Source of energy for cooking	1

Table 5: sample G.M. of HOADR/HYDR in rural and urban areas for Type II households in India

Reference period	Rural		Urban	
	G.M. of HOADR	G.M. of HYDR	G.M. of HOADR	G.M. of HYDR
1986-87	0.41 (32124)	0.77 (32124)	0.37 (17391)	0.66 (17391)
1995-96	0.43 (15972)	0.77 (15972)	0.40 (8976)	0.59 (8976)
2004	0.44 (13191)	0.72 (13191)	0.42 (6019)	0.59 (6019)

HOADR: household old age dependency ratio

HYDR: household young dependency ratio

The figures in the brackets denote the size of the sample used to calculate the statistic

G.M. denotes the geometric mean

Table 6: ratio of median HAME for Type - I, II and III households in India

Reference period	Place of residence	Size of the sample	ratio of median HPCME		
			Type – I	Type – II co-residence	Type – III alone
1986-87	Rural	32124	*	1	2.19
	Urban	17454	*	1	2.74
1995-96	Rural	71284	1.04	1	1.28
	Urban	49658	1.09	1	1.28
2004	Rural	47302	0.99	1	1.25
	Urban	26556	1.03	1	1.34

Source of data: the 42nd, 52nd and the 60th rounds of the NSS

* Data not available

HAME: household average monthly expenditure

Table 7: H, A and MPI for Type - I, II and III households in India

Reference period	No. of indicators used	Place of residence	Type – I no OAs			Type - II co-residence			Type - III alone		
			H	A	MPI (sample size)	H	A	MPI (sample size)	H	A	MPI (sample size)
1986-87	2	Rural	*	*	*	0.59	0.66	0.39 (28507)	0.91	0.77	0.71 (3617)
		Urban	*	*	*	0.29	0.57	0.16 (15928)	0.63	0.64	0.40 (1463)
1994-95	4	Rural	0.66	0.64	0.42 (55312)	0.56	0.57	0.32 (14297)	0.89	0.79	0.70 (1675)
		Urban	0.19	0.58	0.11 (40682)	0.12	0.56	0.07 (8149)	0.50	0.62	0.31 (826)
2004	5	Rural	0.55	0.63	0.34 (34111)	0.45	0.59	0.26 (11547)	0.88	0.81	0.71 (1644)
		Urban	0.14	0.63	0.09 (20547)	0.09	0.62	0.06 (5362)	0.43	0.67	0.29 (657)

Source of data: the 42nd, 52nd and the 60th rounds of the NSS

* Data not available

A: household deprived of any of the selected indicators is considered as deprived

H: sample headcount ratio; A: sample intensity of poverty; MPI: sample multidimensional poverty index

Table 8: proportion of co-resident older adults who participate in social matters, religious matters and daily household chores and odds ratios for participation (OM Vs OF)

Participation	1986-87 Older males	Older females	Odds ratio(older male Vs older female)	1995-96 Older males	Older females	Odds ratio(older male Vs older female)
Social matters	0.76 (0.75, 0.76)	0.62 (0.62, 0.63)	1.86 (1.81, 1.91)	0.83 (0.82, 0.84)	0.69 (0.68, 0.70)	2.17 (2.11, 2.23)
Religious matters	0.80 (0.79, 0.81)	0.71 (0.70, 0.72)	1.63 (1.57, 1.68)	0.87 (0.86, 0.87)	0.79 (0.78, 0.80)	1.73 (1.67, 1.80)
Daily household chores	0.73 (0.72, 0.74)	0.64 (0.64, .65)	1.50 (1.45, 1.54)	0.79 (0.78, 0.80)	0.76 (0.76, 0.77)	1.16 (1.10, 1.22)

note: the figures in brackets show 95% confidence interval for the respective statistics

Table 9: Odds ratios (Currently married Vs Widow) for older females and older males for participation in social matters, religious matters and daily household chores

Gender	Participation	Odds ratio (Currently married Vs Widow) 1986-87	1995-96
Older males	Social matters	1.48 (1.37, 1.58)	1.85 (1.74, 1.96)
	Religious matters	1.98 (1.88, 2.09)	1.82 (1.70, 1.93)
	Daily household chores	2.12 (2.02, 2.21)	2.04 (1.94, 2.14)
Older females	Social matters	1.11 (1.02, 1.19))	2.27 (2.19, 2.36)
	Religious matters	1.16 (1.07, 1.25))	2.58 (2.48, 2.68)
	Daily household chores	1.61 (1.52, 1.70)	2.94 (2.85, 3.04)

note: the figures in brackets show 95% confidence interval for the respective statistics

Table 10: sample percentage of working older adults during 1986-87 in India

	Rural Males	Rural Females	Urban Males	Urban Females
self-employed in agriculture	35.40	6.09	8.28	1.12
self-employed in non-agriculture	6.44	1.28	19.91	2.66
regular waged/salaried employee	3.14	0.47	6.42	0.81
casual labor	12.29	3.98	6.43	1.34
did not work but seeking and/available for work	0.13	0.05	0.14	0.04
attended educational institution	0.03	0.07	0.03	0.16
attended domestic duties	7.45	41.69	9.59	47.30
renters/pensioners	2.64	0.69	16.15	1.92
others	32.47	45.68	33.06	44.65

Table 11: sample percentage of working older adults during 1995-96 in India

	Rural Males	Rural Females	Urban Males	Urban Females
self employed in agriculture	40.30	8.63	6.36	1.53
self employed in non-agriculture	6.59	1.59	19.81	2.89
regular wage/salaried employee	0.62	0.27	4.52	1.15
casual wage labor in agriculture	11.83	5.33	1.34	0.95
casual wage labor in non-agriculture	1.35	0.53	2.68	1.20
did not work but seeking and/or available for work	0.16	0.05	0.33	0.05
attended educational institution	0.13	0.09	0.03	0.16
engaged in domestic duties	2.08	41.06	2.90	51.65
others	36.95	42.46	62.03	40.42

Table 12: sample percentage of working older adults during 2004 in India

	Rural Males	Rural Females	Urban Males	Urban Females
self employed: own account worker	40.63	3.43	21.74	2.42
self employed: employer	1.52	0.49	1.13	0.02
self employed: helper	3.39	5.71	1.72	1.92
regular salaried or wage employee	1.16	0.19	4.80	1.16
casual wage labor in public works	0.03	-	0.03	0.00
casual wage labor in other types of works	12.76	6.06	3.42	1.98
not working but seeking and/or available for work unemployed	0.03	0.05	0.08	-
not in labor force: attended educational institutions	0.08	0.30	0.28	0.27
not in labor force: attended domestic duties only	1.25	29.27	1.76	43.35
not in labor force: domestic duties plus other	0.47	14.41	0.43	4.99
not in labor force: recipients of rent, pension, remittance	9.39	5.68	35.16	9.45
not in labor force: not able to work due to disability	5.19	3.73	3.72	3.02
beggars, prostitutes etc.	0.19	0.22	0.09	0.24
others	23.92	30.47	25.64	31.18

Table 13: proportion of older adults who are reported to be financially dependent by age groups

age group	1987-88				1995-96				2004			
	Older males		Older females		Older males		Older females		Older males		Older females	
60-64	0.38	(0.37, 0.39)	0.89	(0.88, 0.90)	0.35	(0.34, 0.37)	0.83	(0.82, 0.84)	0.33	(0.31, 0.34)	0.82	(0.81, 0.83)
65-69	0.49	(0.49, 0.50)	0.94	(0.94, 0.95)	0.44	(0.43, 0.46)	0.88	(0.87, 0.89)	0.45	(0.44, 0.46)	0.86	(0.85, 0.87)
70-74	0.64	(0.63, 0.65)	0.96	(0.95, 0.97)	0.60	(0.58, 0.61)	0.92	(0.91, 0.93)	0.59	(0.57, 0.61)	0.90	(0.89, 0.91)
75-79	0.70	(0.68, 0.72)	0.98	(0.97, 0.99)	0.68	(0.65, 0.70)	0.93	(0.92, 0.95)	0.65	(0.63, 0.68)	0.91	(0.89, 0.93)
80-84	0.78	(0.76, 0.80)	0.98	(0.97, 0.99)	0.75	(0.72, 0.78)	0.97	(0.95, 0.98)	0.74	(0.71, 0.77)	0.91	(0.89, 0.94)
85-89	0.81	(0.78, 0.85)	0.97	(0.96, 0.99)	0.71	(0.66, 0.76)	Insufficient data		0.78	(0.74, 0.83)	0.92	(0.88, 0.95)
90-94	0.88	(0.83, 0.92)	Insufficient data		0.86	(0.80, 0.91)	Insufficient data		0.89	(0.83, 0.94)	0.96	(0.92, 0.99)
95+	0.91	(0.87, 0.96)	Insufficient data		0.85	(0.76, 0.95)	Insufficient data		0.86	(0.77, 0.96)	Insufficient data	

note: the figures in brackets show 95% confidence interval for the population proportion

Table 14: sample proportion of working (symbol 1) and not working (symbol 0) older males and older females with their reported state of financial dependence during the three time periods. Gamma indicates the extent of association between working and financial independence.

	1986-87				1995-96				2004			
	Older males		Older females		Older males		Older females		Older males		Older females	
	1	0	1	0	1	0	1	0	1	0	1	0
not dependent on others	0.76	0.17	0.35	0.04	0.74	0.21	0.74	0.21	0.76	0.26	0.47	0.09
partially dependent on others	0.19	0.14	0.43	0.09	0.21	0.15	0.21	0.15	0.18	0.12	0.30	0.09
dependent on others	0.05	0.69	0.23	0.87	0.05	0.64	0.05	0.64	0.06	0.62	0.23	0.82
Gamma (p-value)	0.88 (0.00)		0.88 (0.00)		0.84 (0.00)		0.84 (0.00)		0.81 (0.00)		0.82 (0.00)	

Table 15: odds ratios and their 95% CI based on multinomial logit regression model for financial dependence of older adults (not dependent on others vs dependent on others) for the time periods 1986-87 and 1995-96

	1986-87		1995-96	
	Odds ratios	95% CI for odds ratios	Odds ratios	95% CI for odds ratios
Intercept	0.02		0.03	
Assets				
having	1.51	(1.40, 1.63)	2.17	(1.89, 2.48)
not having®				
Property				
having	2.06	(1.88, 2.25)	2.27	(1.95, 2.64)
not having®				
Employment				
working	52.28	(48.31, 56.59)	54.33	(48.21, 61.23)
not working®				
Place of residence				
urban	1.49	(1.38, 1.61)	2.41	(2.17, 2.67)
rural®				
Gender				
male	8.06	(7.45, 8.72)	4.19	(3.80, 4.62)
female®				
Age group				
80+	0.31	(0.27, 0.36)	0.31	(0.26, 0.37)
75-79	0.38	(0.33, 0.43)	0.40	(0.33, 0.47)
70-74	0.45	(0.41, 0.49)	0.41	(0.36, 0.47)
65-69	0.63	(0.58, 0.68)	0.67	(0.60, 0.75)
60-64®				

Table 16: odds ratios and their 95% CI based on multinomial logit regression model for financial dependence of older adults (partially dependent on others vs dependent on others) for the time periods 1986-87 and 1995-96

	1986-87		1995-96	
	Odds ratios	95% CI for odds ratios	Odds ratios	95% CI for odds ratios
Intercept	0.09		0.09	
Assets				
having	1.28	(1.18, 1.38)	1.61	(1.40, 1.85)
not having®				
Property				
having	1.52	(1.40, 1.66)	1.62	(1.40, 1.88)
not having®				
Employment				
working	18.06	(16.65, 19.60)	22.01	(19.51, 24.82)
not working®				
Place of residence				
urban	1.22	(1.13, 1.31)	1.41	(1.27, 1.57)
rural®				
Gender				
male	2.06	(1.93, 2.20)	1.61	(1.46, 1.77)
female®				
Age group				
80+	0.38	(0.33, 0.44)	0.44	(0.36, 0.52)
75-79	0.51	(0.45, 0.58)	0.66	(0.56, 0.78)
70-74	0.60	(0.55, 0.66)	0.59	(0.52, 0.67)
65-69	0.76	(0.70, 0.81)	0.84	(0.75, 0.93)
60-64®				

Table 17: the details of having property and assets for the sample pertaining to the 42nd round 1986-87

	Owing property		not owing property	All
owing assets	21830 *managing property* / *not managing property* *managing assets* 60.08% / 0.99% *not managing assets* 2.78% / 36.15%		569	22399 *managing* 60.84% *not managing* 39.16%
not owing assets	9994		12620	22614
All	31824 *managing* 63.26% *not managing* 36.74%		13189	45013

Table 18: the details of having property and assets for the sample pertaining to the 52nd round 1994-95

	Owing property		not owing property	All
owing assets	15595		499	16094
	managing property	*not managing property*		*managing* *68.63%*
	managing assets *67.90%*	*1.06%*		*not managing* *31.37%*
	not managing assets *1.59%*	*29.45%*		
not owing assets	2724		9450	12174
All	18319		9949	28268
	managing *67.89%*			
	not managing *32.11%*			

Table 19: interaction of gender, marital status and managing property as obtained from the log linear model for 1986-87

reference period	managing assets	marital status	Gender	odds in favour of managing property	odds ratio (managing property)
1986-87	yes	married	female	31.00	0.31
			male	100.89	
		widowed	female	19.59	0.84
			male	23.31	
	no	married	female	0.05	0.31
			male	0.16	
		widowed	female	0.030	0.84
			male	0.036	

Table 20: interaction of gender, marital status and managing assets as obtained from the log linear model for 1995-96

reference period	managing property	marital status	Gender	odds in favour of managing assets	odds ratio (managing assets)
1995-96	yes	married	female	31.19	0.41
			male	75.34	
		widowed	female	22.99	0.65
			male	35.13	
	no	married	female	0.0251	0.41
			male	0.0606	
		widowed	female	0.0184	0.65
			male	0.0283	

Table 21: odds ratios (facing abuse vs. not facing abuse) based on logistic regression models

variables	Logistic regression models for various types of abused faced by the older adults											
	All abuses		Physical Abuse		Verbal Abuse		Economic Abuse		Showing Disrespect		Neglect	
	coefficients (p-value)	odds ratios	coefficients (p-value)	odds ratios	coefficients (p-value)	odds ratios	coefficients (p-value)	odds ratios	coefficients (p-value)	odds ratios	coefficients (p-value)	odds ratios
intercept	-2.68 (0.00)	0.07	0.28(0.74)	1.32	2.22(0.11)	9.18	-1.20(0.14)	0.30	1.26(0.12)	3.51	-1.41(0.09)	0.24
Gender												
older female	0.22(0.06)	1.25	-0.27(0.22)	0.76	0.71(0.06)	2.03	0.52(0.02)	1.67	0.33(0.12)	1.40	0.77(0.00)	2.17
older male®												
age	0.00(0.65)	1.00	-0.01(0.56)	0.99	0.00(0.98)	1.00	0.02(0.19)	1.02	-0.02(0.09)	0.98	0.01(0.29)	1.01
Marital Status												
widowed	-0.02(0.86)	0.99	-0.33(0.15)	0.72	-0.34(0.36)	0.71	-0.49(0.03)	0.61	-0.03(0.87)	0.97	-0.05(0.81)	0.95
married®												
Financial dependence												
dependent	0.67(0.00)	1.96	0.60(0.02)	1.81	0.45(0.37)	1.56	0.25(0.30)	1.28	-0.12(0.61)	0.88	-0.12(0.63)	0.89
partially dependent	0.23(0.02)	1.26	-0.14(0.44)	0.87	-0.40(0.18)	0.67	0.05(0.77)	1.05	0.10(0.57)	1.11	0.12(0.51)	1.13
Not dependent®												
Model chi square (p-value)	34.21 (0.00)		17.60 (0.00)		8.73 (0.12)		8.88 (0.11)		7.77 (0.16)		21.60 (0.00)	

® denotes the reference category

The effects are considered significant if the p-values corresponding to the effects are 0.1 or lesser.

[i] **Physical Abuse**: It includes beating, kicking, slapping, stabbing, shooting, pushing, biting, pinching, strangling etc.

[ii] **Verbal Abuse**: It is a form of abusive behavior involving the use of language. It is a form of vulgarity that can occur with or without the use of expletive. It can be either through oral communication which is the most common form of verbal abuse or abusive words in written form.

[iii] **Economic Abuse**: This is a common abuse elderly face in many countries. The illegal or improper use of an elder's funds, property, or assets will come under this abuse. Examples include, but are not limited to, cashing an elderly person's checks without authorization or permission; forging an older person's signature in cheques or documents and misusing or stealing an older person's money or possessions; coercing or deceiving an older person into signing any document (e.g., contracts or will) etc will come under this category.

[iv] **Showing disrespect**: It is expected to show proper respect to elders particularly in our culture. Any act or behaviour showing lack of respect to elder will come under this category.

[v] **Neglect**: The failure for a caregiver to meet the needs of a dependent elderly person, which may be intentional such as withholding of food, medications, failure to clean or bathe etc come under this category.