Policies and politics of ageing in India: Social and technological options

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H. Ansari, R. Priya Mehrotra. Policies and politics of ageing in India: Social and technological options. Gerontechnology 2014;12(4):219-228; doi:10.4017/gt.2014.12.4.006.00 Formal sector pensions as social security and technological inputs for individual assistive aids and health care cater to the needs of the elderly of the urban upper and middle class in India. Social security programmes for the majority, even though large-sized, make provisions only for minimal subsistence to a fraction of the rural and poor through non-contributory pensions, minimal access to health care and that primarily curative, as well as free cereals alone for the extreme destitute only. Use of technological inputs for the majority of elderly is only now beginning to be conceived. This paper presents a brief overview of the situation of the Indian elderly and policies relating to them. It examines the possible appropriate large-scale social and technological developments for their health and wellbeing from a social psychology and public health perspective.

Keywords: Culture of Ageing in India, Mobility and Disability

The proportion of elderly (persons of 60 years or more) in India's population has been and continues to be relatively small, having increased from 6.8% in 1991 to 8.6% in 2011, i.e., less than 2% increase over two decades[1]. Even so, with India being the world's second largest population, it is also second in the number of elderly, the census of 2011 counting 103.8 million elderly persons. Also, with the shifting demographic pattern, the proportion of elderly can be expected to increase rapidly in the coming decades.

In contrast to their small demographic presence, the elderly have enjoyed a high social status and critical importance in Indian society. Traditionally, the elderly have been heads of family and households, and have exerted decision-making powers in matters big and small. Elders fixed marriage alliances, adjudicated the distribution of family resources to various members, and were decisive in making education and career choices of younger family members. In fact, the age hierarchy in Indian society has been almost unchallenged until the rapid economic and technological changes of the 1990s. Planned development and 'modernisation' of society had led to widespread economic, social and cultural changes initiated soon after Independence from British colonial rule in 1947.

In 1990, almost 75% of Indians still lived in rural areas, and almost half the households comprised of joint families[2]. In 2011, the census showed that 69% Indians continue to live in rural areas but that there has been a shift to 18% joint, and 82% nuclear families[3]. However this data, indicating a major shift in family structure, needs to be interpreted with caution. Surveys on large population samples as recent as 2010 find that almost 40% elderly live in joint families and the rest in 'nuclear and small' families[4,5]. Even when siblings do branch out into nuclear units, they often continue to live in proximity and share in the family responsibilities (including care of the elderly), i.e., economic nuclearisation but socially acting as joint families. Probably this has also allowed the recent reversal of the trend of nuclearisation found in urban areas: the proportion of urban households with just a single married couple has declined in 2011[3].

While the elderly remain formal heads of households and owners of family property, their role in decision-making is diminishing[6-10]. The pervasive technological shift, the shifts in governance paradigm and work cultures, with the market playing a larger role than ever before, require a mindset and skills for which the younger generations are better equipped. Ideas of individual autonomy and competition, careers and livelihood options that are not family-based, all are leading to ruptures in traditional family processes. Assertion of independence by young women is also beginning to question the authority of elders.

Since the elderly have been valued as sources of knowledge and wisdom, their guidance and transmission of knowledge to the younger members was considered crucial to wellbeing of the family. Some families would not readily marry their daughters to families where there was no elderly woman[9]. It was believed that the bride learns to perform various roles through her mother-in-law. These perceptions are now changing.

However, the importance of the elders is still seen at community level; especially in their social participation. In rural India, they are members of the village 'panchayat', the local body for decision-making related to developmental activities and conflict resolution within communities and between. Their active social participation is regularly seen in various social occasions[2,9].

With high rates of migration for livelihood, intergenerational relationships sustain well even after division of the family and/or migration of the younger generation. They get together on various occasions such as weddings, festivals, and during vacations. The migrated children try to maintain a close relationship with their parents and grandparents. The elderly of poor families benefit by monetary remittances from migrant children. Role of the elderly in management of family affairs enhances since they look after the land and other assets back home. If the son has migrated alone, elders also become important sources of security for the wife and children[9].

Thus, conditions of the elderly are intertwined with that of their families. With almost 40% of Indians still living below poverty line which is set close to destitution level, this poses serious limitations to what support the family alone can provide to the elderly. Majority of elderly continue to engage in economic activities as long as they have the physical capacity to do so[9,11]. It is also widely recognised, 'ageing' is an earlier phenomenon among the poor and therefore an age of 50 or 55 years is the common age to be considered 'elderly'. It has been proposed by activists for rights of the elderly that this is also how they should be identified for benefits by official schemes[12].

How do Indians view the problems of old age?

Old age is traditionally considered a stage of maturity and wisdom, of being free of family responsibilities and yet being active in society and meaningfully contributing to the family and community. It is traditionally viewed by the young as a time when the role of the elderly members in their upbringing and growth must be gratefully acknowledged, catering to their special needs being one way of expressing gratitude. Relationships were interwoven such that elders and younger members were mutually required for specific roles. The younger generation was socialised to fulfil these obligations, otherwise they faced social disapproval. Culturally, specific meaning was attached to behavioural patterns, for instance offering food and water to the elderly was considered a 'punya' (good deeds that accumulate to provide redemption in one's after-life). Hindus considered serving the elderly equivalent to a holy dip in the River Ganga, while Muslims believed it is equivalent to a 'Haj' (pilgrimage to Mecca)[7]. Community members consider it their duty and privilege to serve elders in the neighbourhood, especially if they do not have elders in their own family. However, this thinking is diminishing, with the existential realities of an increasingly competitive and rapidly 'developing' world.

Anxieties of the elderly

An important finding of several social psychology studies has been that the elderly in India tend to have much less of a 'death anxiety' than the industrialised world [7, 9,13,14] . Among the rites and rituals associated with death is celebration when a senior departs from this earth with 2-3 generations of successors in the family. The condition most dreaded in old age is becoming completely bedridden. In north Bihar this is called the state of 'alath' ('lath'= walking stick; so 'a-lath' = when even the walking-stick does not help), a state of complete dependence on others. It is the future possibility of having to suffer this state that people desire security measures. They save money, keep property, and do good deeds during active life to ensure a dignified life during this last phase. The longing for sons is also attributed partly to being taken care of during this period, since, institutionally; it is the sons who have the responsibility to take care of the parents and grandparents. Thus, despite all the change, family is still the primary care and support system for the elderly[2,14,15].

Diversity among the elderly

The proportion of elderly in the population varies across the 35 political and administrative units from 4% to 12.6%, marking significant social differences. The elderly are not a homogeneous group. Their needs and problems vary according to social and economic status, extent of disability and vulnerability. Majority of the rural elderly are uneducated, working in the unorganized sectors mainly agriculture, unskilled and semi-skilled laborers, or engage in handicrafts, as artisans or some petty business. For the poor landless who constitute about 40% of the rural population, there is no other source of income except manual labor in agriculture, construction, and small-scale

industry such as brick kilns, quarries, mines, etc. The poor older people have to work as long as they feel physically able; there is no retirement, no employment-linked pension. There is shortage of formal medical services; whether governmental or private, which are often distant, with poor roads and transportation facilities. Specialized tertiary care is even more remote and inaccessible. However, in rural areas there is strong family, neighbourhood and kin affinity which are relatively weaker in urban areas, and thereby relatively fewer psycho-social problems[2].

There are elderly among all economic groups who have greater care needs. These are the widows, childless, those living alone and disabled elderly. In a rural area of north India among those aged 60 years and above, there were nearly 29% widows and 10.5% widowers, 0.43% divorced and in same proportion (0.43%) unmarried elderly. There were 8% elderly childless or alone[14]. Large-scale official surveys provide a similar picture[11]. They have problems all over - of housing, everyday food and bodily care, mobility, health care, and emotional support. About 65% of the aged depend on others for their day-to-day maintenance.

A cross-sectional study conducted with a sample of 50,000 persons aged 60 years and above[4] provides useful data. There is an increasing feminisation of the elderly, and among the elderly women over 50% are widows, with 70% of the 80+ being widowed[11]. Dependence of the less educated women, who are generally not owners of any property, on their sons and daughters-in-law, places them in a vulnerable situation. Studies have recorded the pitiable state of many in this category[16,17]. However, elderly women also have a strong presence and status as home-makers and mothers-in-law, wielding power in family and community matters[18]. This wide divergence in the conditions of elderly women in India reflects the two faces of Indian society with regard to the elderly and to women.

Interviewers of the Agewell study assessed 77% elderly as leading satisfactory lives. Of the 23% going through a crisis in old age, 76% lived alone, and 86% were widows/widowers and childless. 32% of them reported that they did not get adequate health care and 13% said they are not getting adequate food. 49% elderly said they were not getting appropriate respect by their family members and society[4].

Mobility, disability and social neglect

The proportion of elderly men and women physically mobile decline from about 94% in the age-group 60-64 years to about 72% for men, and 63 to 65% for women of age 80 or more[4]. Thus, from 6% among the young elderly to about 33% of the oldest elderly, have significantly restricted or no mobility. A much larger proportion will be mobile, but will be living with various infirmities and at risk of injury, or will decrease activities and external interactions involving mobility.

However, the major problem reported by the elderly is of feeling marginalised, neglected and shown disrespect (*Table 1*).

Dependence

To understand the problems of the most affected elderly, i.e., those 80 years and above, a study among the urban oldest elderly was conducted across urban households by HelpAge India[5]. It found that 12% were still economically active. Over 70% were financially dependent, of which 80% reported dependence on sons, 25% on daughters and 23% on daughters-in-law. Of the total sample, 71% lived with their sons, and 61% were dependent on their daughters-in-law for household chores. 20% faced abuse at household level, largely at the hands of the daughters-in-law and sons. The nature of abuse included verbal abuse that was reported by over 10%, almost 10% reported neglect and 5% reported physical abuse. Thus the family is the mainstay of support and care, even among the direst conditions of poverty. Thereby it is also the site for neglect and abuse.

Besides the family and kin network, various religious and caste groups have traditionally created institutions to look after the more vulnerable members of their own communities; the orphans, widows, unemployed youth, the ill, disabled and elderly. It has traditionally been the desti-

Table 1. Priority problems reported by the elderly of India[4]

Problem	First priority		Second priority	
	#	%	#	%
Marginalised / neglected	16,824	33.6	10,998	22.0
No/less respected / no say in family matters	6,624	13.2	7,248	14.5
No work / jobs available	6,096	12.2	6,456	12.9
Safety & security	6,090	12.2	5,908	11.8
No / not easy access to healthcare / medicines	4,040	8.1	5,482	11.0
Financial problems	3,224	6.5	4,308	8.6
Mobility restricted	2,282	4.6	3,908	7.8
Restriction on outings	2,482	5.0	2,214	4.4
Meeting with relatives / friends not allowed	1,244	2.5	1,890	3.8
Confined to bed	1,094	2.2	1,588	3.2

tute elderly from poor families that have required such institutional community support. Such arrangements have been created more for widows rather than for the male elderly, probably as a response to the larger demographic presence of widows as well as to their greater maltreatment or abandonment. In the present times, often these arrangements are very inadequate or even exploitative[18]. The changing context and increasing numbers require a range of institutional responses. India, as a self-proclaimed welfare state, has to be a major provider, catering to the needs of vulnerable sections.

Public initiatives for the Elderly 1980s-1990s

The Constitution of India adopted in 1950, identifies the welfare of the elderly as a responsibility of the state, "within the limits of its economic capacity and development". Priority was given to social services for the children and women who formed the largest demographically vulnerable groups. The elderly were covered by the general social services and schemes, a public distribution system for food grains, and pension schemes for formal sector employees. However, the implementation and coverage of each of these was itself weak, and it reached the elderly even less than other age groups. Over the years many more initiatives were adopted and implemented. Civil society organisations also initiated measures.

Integrated Programme for Older Persons (IPOP)

IPOP 1992[19] provided support to Non-Governmental Organizations (NGOs) for running and maintenance of old age homes, day care centres and mobile medicare units for older persons living in slums, rural and inaccessible areas where proper health facilities are not available, in the form of financial assistance up to 90% of the project cost. The funds are, however, very limited (*Table 2*), having increased to over five thousand Indian Rupees (i.e., approx. USD 85) per beneficiary annually in 2008-2011. But even more significant is the small number of beneficiaries relative to the number of elderly (0.037%).

The National Institute of Social Defence

The National Institute of Social Defence was set up to provide technical inputs to the Government of India and is now the nodal training and research institute for interventions in the area of 'social defence'. It conducts several diploma and certificate courses on geriatric care and also programmes for caregivers organised in collaboration with NGOs, and provided training to 4,500-6,000 persons per year over the period 2007-2011[20].

Other public services

All public services provide some privileges and concessions for the elderly[19]. The Ministry of Health and Family Welfare created separate queues for older persons and geriatric clinics in government hospitals. The ministries concerned with transport have made provisions such as a separate ticket counter for senior citizens, fare concessions and provision of lower berths to elderly passengers, wheelchairs at stations for old age passengers and introducing bus models that are convenient to the disabled and elderly.

Old age pension and social security

In 1995 the 'National Social Assistance Programme' (NSAP) was initiated by the central government 'to ensure minimum national standards for social assistance' in addition to the benefits that states might provide. Two of its schemes address the elderly: the 'Indira Gandhi National Old Age Pension Scheme' (IGNOAPS), a non-contributory old age pension (launched 2007), and the 'Annapurna Scheme' for free food grain to the poor elderly.

Under IGNOAPS Rs 200 (approx. USD 3.3) monthly per poor elderly was provided as central government assistance to all persons below poverty line aged over 65. In 2011, Government lowered the age limit to 60 years, increasing the number of beneficiaries from 17.1 million to 24.3 million. Simultaneously, the rate of pension was increased from Rs 200 to Rs 500 to persons of 80 years and above. Even with this large programme, it is only token support, and only about one-fifth of the elderly population is covered. For the poor elderly, it barely mitigates their destitution.

The government has also started Project OASIS (Old Age Social and Income Security) through which the beneficiary has to deposit Rs 5 per day and if it is continuous and sustained for the whole of one's working years (an average of 35 years) then there would be a large pool of money which could be given as pensions. But such schemes have "failed to understand the economy of the rural poor, their daily cash income and household expenditure that barely keeps hunger at bay"[21]. The Pension Parishad, a civil society campaign network,

Table 2. Annual expenditure under the integrated programme for older persons[19]

Year	Expenditure INRx10^7	Number assisted		
		NGOs	Projects	Beneficiaries
2007-08	16.12	391	660	43,563
2008-09	17.72	304	437	32,560
2009-10	19.72	362	559	33,100
2010-11	20.67	359	595	38,785

is currently demanding that old age pension be universalised and amount enhanced to INR 2,000 per month[12].

'Annapurna Scheme' was launched by Ministry of Rural Development in 2000-2001 for indigent senior citizens of 65 years of age or above who were not getting the pension. Under the scheme, 10 kg of food grains per person per month is to be supplied free of cost[22].

Legal framework

Abuse and abandonment of the elderly by their children and other relatives coming into public discussion, civil society advocacy has led to legal protection for them. The 'Maintenance and Welfare of Parents and Senior Citizens Act 2007' provides for: maintenance of parents/senior citizens by children/relatives made obligatory and justifiable through tribunals, revocation of transfer of property by senior citizens in case of negligence by relatives, penal provision for abandonment of senior citizens, establishment of old age homes for indigent senior citizens, and adequate medical facilities and security for senior citizens[23].

'National Programme for Health Care for the Elderly (NPHCE) 2010-2011[24] provides dedicated preventive, curative and rehabilitative services to the elderly persons. Health care of the elderly is viewed in a medicalised, institutional framework, linked to non-communicable diseases alone. Also, there is no explicit mention of the traditional systems. While there is widespread use of the traditional systems and practices especially for non-communicable diseases, even by modern doctors, there is no formal mechanism for integrating the strengths of various systems.

'National Policy on Older Persons 1999' envisaged state support to ensure financial and food security, health care, and shelter for older persons. While this policy statement explicitly recognised the needs of elderly of the poorer segments, it placed all activities and strategies together without any prioritisation or social contextualisation.

In 2010, the Ministry of Social Justice and Empowerment set up a committee to draft a new National Policy on Senior Citizens which draft was submitted in 2011. It takes a broader view of the issues involved. The draft Policy has been placed on the Ministry's website for comments from the general public and circulated to State Governments for their response.

12th Plan: 2012-2017

One of the working groups of '12th Plan' covered the welfare of 'senior citizens, drug demand reduction and rehabilitation of beggars'. The cluster in which the planning for the elderly is placed reflects the perspective with which welfare of the elderly is viewed by planners and policy makers, that of the indigent and 'worthless' sections who are a societal burden. Financial support directly provided through government agencies and local elected bodies as non-contributory old age pension falls within this framework. Thereby, it is limited to those below the poverty line and is a paltry sum that cannot make the elderly live independent lives, or to provide income and nutritional security. It is thus, at best, only a token payment to ward off extreme destitution, or a financial contribution to the families who are taking care of their elder members. Implementation lags even further. Inadequacy of state support is evident in the financial allocations and coverage, despite increase over the years[25] (*Table 3*). Still, only about half the elderly below poverty line are being reached, and only about one in five of all elderly.

Inappropriate models of care

Initiated as NGO activity by those who had witnessed services of the old age homes in the industrialised high income countries, similar homes were initially started in urban areas and for the better-off elderly (often as a response to the needs of parents of those who had immigrated abroad for professional careers). This cost-intensive institutional form severely limited the support of old age support to old-age-homes, an institution that is increasingly recognised as unaffordable and unsustainable even for the better-off. In a society where old age in the family is still the norm, it is also not the priority solution for problems of the elderly.

The formal sector employs less than 8% of the work-force and thus provisions such as pensions to retired persons cater to this small fraction. Travel concessions, income tax relief, extra interest on savings, schemes by the police for secu-

Table 3. Expenditure under NSAP (National Social Assistance Programme) by the Union Government (including Nutrition) for older adults who fall under the NOAP/IGNOAPS schemes [25]; prices are adapted to their current value

Year	Expenditure INRx10^8	Beneficiaries x10^5
2002-03	59,410	66.97
2003-04	65,600	66.24
2004-05	86,840	80.79
2005-06	103,390	80.02
2006-07	196,830	87.09
2007-08	312,310	115.14
2008-09	396,150	150.21
2009-10	491,490	163.56
2010-11	535,240	170.82
2011-12	618,870	213.84
2012-13	485,580	223.18

rity of older persons, are measures usable largely by the better-off sections. The financial support provided to NGOs for old age homes, day care centres, medical vans, help lines, etc., all initially catered largely to the urban areas and only in the last decade have begun extending services to rural areas. However, models for the kind of care given is a replica of what was done in urban areas, not addressing the specific needs of the rural context or making use of the social and cultural resources that exist there.

For the elderly of rural and poor sections, the only provision for long was non-contributory pension schemes. Then came support for old age homes in rural areas. In fact, the increasing decline of social and cultural resources, primarily responsible for detriment of the conditions of the elderly of all sections, needs to be checked or replenished by new forms. The social capital and social cohesion across caste, class, gender and religious identities can be strengthened through appropriately designed measures that meet 'felt needs', such as for breaking the loneliness and providing meaningful activity for the elderly.

Towards appropriate approaches

Recognising the need for a shift in approach, the policy draft of 2011 values an 'age integrated society'. It states that the endeavour will be to facilitate interaction between the old and the young as well as strengthen bonds between different age groups. It believes in the development of a formal and informal social support system, so that the focus is on strengthening the capacity of the family to take care of senior citizens. The policy seeks to reach out in particular to the bulk of senior citizens living in rural areas who are dependent on family bonds and intergenerational understanding and support[26].

Technological solutions

Traditional health care of the elderly was common including services such as preparing soft foods for those with loss of dentition, foot and body massages, seasonally appropriate herbal decoctions and foods. These were promotive, preventive, curative, palliative and rehabilitative measures, in concordance with the codified traditional health knowledge systems, Ayurveda, Unani, Siddha, Sowa Rigpa, and a fund of local folk knowledge. Special oils and herbal preparations, and the modes of processing them, involved technological principles that were known within households and to folk practitioners.

India has officially recognised 7 systems of medicine other than modern medicine -6 systems of traditional medicine and homeopathy- that are codified knowledge systems with their own texts, colleges producing graduates and specialists, dispensaries and hospitals, both in public and private sectors. The Ministry of Health and Family Welfare supports their growth and development. It has initiated a National Geriatrics Campaign to make widely available benefits that these systems have for health and wellbeing of the elderly. Their strength lies in the focus on internal processes of the body rather than targeting the external disease-producing factors. For instance, Ayurveda has a focused branch of medicine called 'Rasayana' (Rejuvenation) which exclusively deals with the problems related to aging and methods to counter the same. Geriatrics or 'Jara Chikitsa' or 'Rasayana' in Ayurveda is a method to control/slow down/arrest the aging process in the human being during the degenerative phase of one's life[27].

In present times, services of the traditional systems are utilised by a large section of Indians for non-communicable diseases such as arthritis, diabetes, hypertension, constipation, and for acute everyday problems such as respiratory infections and diarrhoea. Home remedies for common ailments validated by the traditional sciences, abound in practice even today, and folk practitioners too are often resorted to[28]. Several government hospitals have yoga and naturopathy centres linked to their cardiology and/or psychiatry departments since there is evidence that they are supportive in the treatment. Policy concerns include funding for strengthening Ayurvedic geriatric research and clinical services, and specialized trans-disciplinary post-graduate courses and research in geriatric care.

Technological options of living environments

There has historically been a wide diversity in the nature of habitations and housing patterns, from high density human conglomerations in the river plains to sparse hill habitations; from mud, thatch and bamboo houses in warmer climatic areas to solid stone and wood structures in the colder regions. The norms of family structure and sharing of space among family members, also vary widely. For instance, in the urban areas several generations could be crowded into one-two room tenements, in several tribal and peasant communities the son makes a separate hut once he gets married, while in other peasant communities the elderly male moves to an 'outhouse' where male guests can be entertained and collective community activities can happen, while the elderly woman remains within the original home with the young couple[9]. These arrangements are dependent on economic status and on the expected roles of each member, the elder male becoming more the one interacting with the outside on behalf of the family, the elder woman becoming the matriarch within the fam-

ily. This also has bearing on the infrastructural amenities and everyday attention to the requirements of the elderly.

With modern developments and construction, a greater homogenisation is occurring in habitation patterns and housing, with brick and concrete taking over everywhere, less suited to warm and cold climates together. Further, as families get closeted within the closed structure of these homes, there is decrease in space for collective activities and community interactions for the elderly.

Water sources and toilet facilities were traditionally outside the home but are now becoming a part of the house, a great asset especially for the elderly. However, the Agewell study found that only 47% households of the elderly had source of water within the premises and similarly only 47% households had domestic toilet facilities. Clearly, improving access to amenities is essential, and there is much infrastructure construction activity on in the country.

There is an imperative to ensure that the new construction of living environment is safe for older people and facilitates independent movement and routine self-care. Public spaces too need to be structured taking into consideration the needs of safety and convenience for the elderly. This is especially critical in the present context where infrastructural changes are occurring in the country on a large scale and at heavy cost. Old models of housing, water and toilets, transport and communication are undergoing a sea change and the new should be built with due consideration to the needs of the elderly.

This will require a major intervention to orient the town and country planners as well as architects. Policy makers and the public at large will have to be aware and sensitive to allow expenditures that may be more than of ordinary building, but are wise from a preventive approach for families, communities and the country. Solutions will have to be in consonance with the way of life of people in urban and rural areas, low cost and sustainable for large-scale use, so that they become part of the norms at a societal level and not only within reach of the elite. With diversity of geography, housing patterns, lifestyles, etc., across the country, context specific designs appropriate to climate, terrain and cultures have to be devised.

Assistive aids

Context specific assistive aids have also hardly been thought about or developed in the country. Mobility aids need careful thought not only about individual appropriateness, but about local infrastructural context as well. Walking sticks are traditionally the most ubiquitous, made from a range of local traditional materials to the modern ones. Wheelchairs and walkers are also becoming available, but quality and cost remain issues. Besides the cost factor, specificities of the rural and hilly terrain have been found to act as barriers to their use.

A systems approach to developing context-specific solutions for the various health needs of the elderly will provide holistic and affordable measures. The 'Jaipur Foot'[29] is easy to maintain and innovatively devised to produce artificial limbs that (i) allowed the users to squat and to run or climb trees without shoes, (iii) and is produced using local materials that local artisans could mould to the needs of individual patients The 'Jaipur Foot' is an illustration of the possibilities of such a conception to development of modern technologies suited to the Indian context. It has been recognised worldwide and universities such as Stanford have collaborated to develop other prosthetics along similar lines. Yet it lacks formal mainstream acceptance[30,31].

A few technological innovations for the elderly that have been documented by the Honeybee Network of the National Innovations Foundation, an autonomous organisation under the Department of Science and Technology, reflect the same approach[32]. A battery operated tricycle and another battery operated wheelchair, innovated by the son of a paralysed elder, have been tailor made for the local terrain and convenience of use for his father who is paralysed on one side[33].

Sporadic voluntary and professional efforts are ongoing, such as the one at the Indian Institute of Technology, Mumbai, where residential interior design for the elderly and physically challenged have been developed using ergonomics and the anthropometry of Indians[34]. The Ministry of Science and Technology has attempted to promote technology development under a programme titled in 2012 as Technology Interventions for Disabled and Elderly (TIDE), with a comprehensive list of potential areas for research and development.

Availability and use of ICT

Mobile phones have proven to be a boom for large sections, since they are affordable and connect the elderly with their migrant family members and married daughters. However, for majority of the elderly, advent of other information technology in the market, such as computers, laptops, and internet, makes them feel inferior, and has created a digital divide between the older persons and the youth. But they have a feeling of happiness that younger persons of their family are able

Table 4. Percentage of households in India having assets for communication (2011)[3]

Asset	%	
Telephone / mobile phone total		63.2
Only mobile phone	53.2	
Landline + mobile phone	6.0	
Only landline phone	4.0	
Television		47.2
Bicycle		44.8
Scooter / motorcycle / moped		21.0
Radio / transistor		19.9
Computer / laptop total		9.5
Computer / laptop without internet	6.4	
Computer / Laptop with internet	3.1	
Car / jeep/ van		4.7
None of the specified assets possessed		17.8

to handle mobile phones, laptops, and other electronic appliances. Availability and use of technology is a matter of social prestige in Indian society.

Census 2011 reports that only 63% of Indian households have a telephone/mobile phone out of which 82% of households live in urban and 54% in rural area (*Table 4*). Many of the elderly using mobile phones keep a paper note book to enter the phone numbers as they are not able to digitally save the numbers with names.

Talking about the elderly of India regarding using computers, laptops, tablets, internets etc.,: it is still a dream of the majority of the Indian people. Only 9.5% of the total households of India have a computer or laptop, only 3.1% households have computers with internet facility. The penetration of internet is 8% in urban as compared to less than 1% in rural area[3,35] (*Table 4*).

Even the basic home appliances are not available to the majority of the households, with only 28.6% of the households using cooking gas LPG/ PNG and 49% using firewood (*Table 5*).

Social innovations

The need for a 'meaningful life' for the elderly requires new social mechanisms to be evolved in the light of the changing context along with continuity of elements of the old. Remaining integrated with family and community life has been the traditional advantage for the elderly, and now new forms must be developed as well. The middle class elderly are still meaningfully involved in organised community activities, for instance in urban areas, resident welfare associations and local associations for the elderly are new structures that have emerged in recent years.

Table 5. Percentage of households in India using certain types of fuels for cooking (2011)[3]

Fuel	%
Firewood	49.0
LPG / PNG	28.6
Crop residue	8.9
Cow dung cake	8.0
Kerosene	2.9
Coal / lignite / charcoal	1.5
Biogas	0.4
Electricity	0.1
Any other	0.5
No Cooking	0.3

Similarly, several websites are available to provide information to the middle class elderly such as on health and fitness, income tax, housing, old age NGOs, entertainment, etc[36]. Post-retirement livelihoods are also being generated for urban middle class elderly. Jobs60+, a centre which is a part of the NGO, 'Nightingale Trust' in Bangalore, motivated and facilitated a group of 20 seniors who run a BPO (Business Process Outsourcing), the first of its kind in the country[37].

Among the poor in both urban and rural areas, besides forced economic activity for subsistence, there is little scope for engagement of the majority of elderly. The elderly who are socially and politically active deal with family and community issues, but rarely address those of the rest of the elderly. It is for these sections that structures need to be creatively evolved. The structure should link their need for a livelihood that involves light work, that brings interaction with the young, and that caters to their need for health care and cultural engagement.

While such structures would minimise the need for psycho-social support, the severely disabled and destitute elderly would need special attention. Palliative care and home nursing skills are required even when family members give care and should be provided institutionalised support.

The State of Tamil Nadu has created a simple solution for food security of destitute elderly, allowing them to take the hot cooked food served to school-children at the mid-day mal. It would be hardly any additional expense, given the small number of such elderly in any community relative to the number of school-children. But obviously, it is not so easy a step for the bureaucracy, given that other states have not adopted this additional category of beneficiary in the education ministry's programme.

The 'Neighbourhood Network for Palliative Care', a large and spreading initiative in the State of Kerala, has developed a three-tier pyramid of community volunteers, primary health care providers and specialists[38]. The learning from this highly successful model is that what works, even in an area that is considered technical/medical,

is a process that aims to increase a community's ability to work together to meet its goals and needs, building on the strengths that a community already has.

Conclusions

With the social change and continuity the country has experienced, conditions of the elderly in India have improved in some ways and deteriorated in others. The gains have been more for those of the urban and upper classes, but with democratic politics and a welfare state, have reached the poor and rural too. The achievements could be much more for all if the economic policies were more egalitarian and the socio-economic development framework more suited to the local context. Societal responses to needs of the urban middle class elderly came from civil society in the 1960s and '70s. State responded with support to these NGOs in the 1980s, and by initiating minimal programmes for the destitute elderly in the 1990s. Only in the 2000s, did focus shift in a significant way to the rural and poor elderly. However, the Planning Commission now seems to approach the category of elderly as indigent non-productive deviants, rather than as persons who are socially, culturally and economically engaged, and are at a particular juncture in the life cycle with its special needs.

Social security for the elderly in India will come by viewing them as an integral part of families and communities, requiring some financial support that is commensurate with fulfilment of basic needs, access to assistive aids and health care appropriate to their environmental, physical and cultural context. Social and technological innovations are required to respond to the changing context. Innovations for the elderly of the poor and rural majority require to become the focus of planned development by the state. Elderly women are both demographically and socially in need of greater attention across all classes, even while the men need meaningful engagement.

Thus, planning needs a systems approach that is all-inclusive and holistic, based on the strengths of communities and creating collective spaces to bring people of all ages and social segments together. Innovative context specific creating of collective spaces in the villages and urban residential areas such that it brings the three generations together routinely in the day through some economic and cultural activity, childcare and health care provision, could become new need-based community structures. Old age homes should be the last resort, made available for those elderly who have no family or who require special attention that the family is unable to provide. Information technologies need to be creatively developed to make them meaningful for large sections.

Geriatrics and gerontology must come together to integrate the social and technological dimensions of solutions for the problems of the elderly. Traditional and new ways of dealing with problems must be integrated based on their strengths, for instance, the NPHCE requires to promote trans-disciplinary research for innovative integrated medicine.

In infrastructure development, town planning and architecture, furniture and equipment design, all need to be sensitised to preventive concerns for the elderly. Some initiatives in India provide useful lessons and inspiration, for example in technology development of artificial limbs in Jaipur, in community palliative care in Kerala, and of providing a hot cooked meal to destitute elderly through the mid-day meal at the village school in Tamil Nadu,. Context-specific, low cost, community-based and collective solutions seem to be the lessons to be learned for successful social and technological interventions.

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