Do family and social network make a difference in health among older persons? Evidence from rural Uttar Pradesh, India

Lucky Singh

Assistant Professor
School of Health Systems Studies, Tata Institute of Social Sciences (TISS)
V.N. Purav Marg, Deonar, Mumbai – 400088 INDIA
Email: lucky.singh@tiss.edu; lucky_5bhu@yahoo.com

Introduction

India, like other countries in Asia, is experiencing rapid demographic transition, which has resulted in an increasingly ageing population (Mujahid, 2006; Chaudhury, 2004). This includes a substantial growth in the number and proportion of older adults in the country, estimated at an annual growth rate of 2.8% per annum during 1991 to 2001 compared to the growth rate of the general population at 2% per annum. The United Nations statistical projection indicate that the size of India's older population aged 60 and above is expected to increase 117 million in 2015, 193 million in 2030 and further to 335 million in 2050 .The proportion is likely to reach 13 percent of the population in 2030 and 20 percent in 2050 (United Nations, 2006). Recent and predictable increases in the proportion and number of elderly persons in many developing countries, including India have drawn attention to issues concerning the health and well-being of this potentially vulnerable age group (Mason, 1992, Understanding the factors that are associated with disability in older persons has been deemed a critically important public health issue. Several theoretical models have been put forward to explain differing level of physical disability (World Health Organization, 1980, 2002). All of these models share the concept that disability results from a complex relationship between an individual's health, environment, personal attributes, and psychosocial factors.

Scholars and policy makers have voiced the concern that demographic and socioeconomic changes leading to potential threat to the well-being of the older population throughout Asia by reducing the availability of care givers. One primary concern is that the recent changes in socio-economic structure are weakening the institution of the family, which has historically held primary responsibility for the care of the elderly when disabilities or illness limit their ability to care for themselves. Another concern is that the changes in socio-economic

structure have contributed to a weakening respect for the elderly and commitment to supporting one's parents. These changes have profound implications for the support and care of the older population. There is rich evidence in the context of developed countries that social networks and relationships to elders have positive effect for physical and mental wellbeing (Berkman, 1984; Callaghan & Morrisey, 1993; Wenger, 1997). However, in India hardly there is any comprehensive effort to understand the dynamics linking social ties and social support with the health of the aged population; which can help to suggest effective and efficient social policies to promote well-being of the older population.

Objectives: To investigate the effects of total social networks and specific social networks with children, relatives and friends, and confidant on disability among the older persons in rural Uttar Pradesh, India. Berkman's theoretical model of social relations linking to health is used to determine their applicability to the Indian older persons.

Data and Methods: Although, the elderly are highly heterogeneous group in relation to public health; no large or small socio-economic survey in India collects empirical data among elderly. Keeping the data constrains, the objectives of the present study accomplished through primary data collection. A sample of 600 older persons aged 60 years or older living in the 12 village in the rural Uttar Pradesh was recruited using multi-stage random sampling. Data were collected by face-to-face interviews using a structured questionnaire. Two well known scales Activity of daily living (ADL) and instrumental activity of daily living (IADL) were used to assess disability in older persons. Social networks were broken down into four sub-groups: children, relatives, friends, and confidant. For children, relatives, and friends, social network scores were derived based on the number, proximity, and frequency of contact. For confidants, scores reflected the number, and whether the confidant was a spouse. The effect of social network with children, relatives, friends and confidant on disability was analysed using multinomial logistic regression.

Results: Table 1 indicates percentage of elderly persons with ADL disability by specific and total social network. Relatives and confidant network significantly associated with ADL disability, while network with children, friends and total were not significantly associated with ADL disability. Elderly who had upper relatives network reported 30 percent suffering for more than one ADL disability. Whereas, elderly who had low and mid relatives network were 48 percent and 49 percent reported more than one ADL disability respectively. The same pattern was evident for confidant network, shows lower percent of suffering more than

one ADL disability among elderly who had upper confidant network. More than one ADL disability was highest reported by those elderlies who had mid confidant network (49 percent), followed by low confidant network (44 percent).

IADL disability with specific and total social network was also shown in **Table 1**. Total network along with relatives and confidants specific network was significantly associated with IADL disability. However there were no significant difference in IADL disability by network with children and friends. Nearly, one in every four elderly who had low and mid relatives social network reported more than one IADL disability. Whereas, more than one IADL disability was lowest among elderlies who had upper relative network (15 percent). Similarly, suffering for one IADL disability was also highest (16 percent) among elderlies with low and mid relatives network, and lowest at 11 percent among those from the upper relatives network.

Elderly with mid confidant network reported higher percentage of more than one IADL disabilities (27 percent). However, this was lowest among elderlies who had upper confidant network (14 percent), followed by low confidant network (17 percent). Just 6 percent of elderly with upper confidant network reported one IADL disability, followed by 13 percent among elderlies who had mid confidant network. Suffering for one IADL disability was highest reported among elderlies with low confidant network (20 percent).

Total social network is also significantly associated with IADL disability. Elderly with mid total network was reported lowest, more than one IADL disability (18 percent), followed by elderlies who had upper total network (22 percent). However, about one in every four elderly from low total network reported more than one disability. Elderlies with low and mid total social network were 17 percent reported suffering for one IADL disability, whereas it was just 8 percent among elderlies who were belonged to upper total social network.

Multivariate analysis (**Table 2**) shows that even after adjusting the chronic illness along with other variables socioeconomic and demographic variables; friends and confidant network significantly associated with ADL disability. Again as shown in previous models, not much difference was evident by friend's social network on more than one ADL disability. However, elderly belonged to mid friends network observed lowest probability of only one ADL disability (PP=0.071; 95% CI= 0.053-0.09) followed by upper friends network (PP=0.098; 95% CI= 0.087-0.11) and low friends network (PP=0.131; 95% CI= 0.12-0.141).

The probability of more than one ADL disability was lowest among elderly who had upper confidant network (PP=0.237; 95% CI=0.202-0.272), and the highest probability of more than one ADL disability was among elderlies with mid confidant network (PP=0.487; 95% CI=0.459-0.515).

In the final Model (**Table 2)**, after controlling for chronic illness along with all other predictors; the probability of one and more than one IADL disability is significantly determine by the extent of confidant network among the elderly. The result shows that, there was consistent pattern of decline in the probability of suffering one IADL disability by the confidant network category. Compare to low (PP=0.172; 95% CI=0.152-0.193) and mid (PP=0.269; 95% CI=0.248-0.291) confidant network, the probability of more than one ADL disability was lowest among elderlies who had upper confidant network (PP=0.136; 95% CI=0.112-0.159). As similar to previous models, the final model also suggest protective effect of upper confidant network for the probability of one IADL disability among elderlies (PP=0.059; 95% CI=0.051-0.067). However, probability of one IADL disability was highest among those elderlies who had low confidant network (PP=0.201; 95% CI=0.186-0.216).

Similar to the results of ADL disability, there was no effect of networks with children and 'relatives' upon IADL disability, although significant positive effect of the 'friends' networks was only upon ADL disability not for IADL disability. In summary, the multinomial logistic regression analyses suggested that better confidant networks are significantly associated with a decrease in the risks of ADL disability and IADL disability while networks with 'friends' was protective against ADL disability not for IADL disability.

Conclusion: After controlling for a range of health and personal factors, social network with friends and confidant were protective against ADL and IADL disability. Social sub-networks with children, and relatives did not have a significant protective effect on the disability. The findings have implications regarding the non-kin support particularly from friends in aging families and to provide elders with opportunities to interact with friends and confidant person.

Reference:

Mujahid G. Population aging in east and south - east Asia, 1950 – 2050: Implications for elderly care. *Asia Pacific Population Journal*.2006; 21 (2): 25 – 44.

Chaudhury, RH. Ageing in Nepal. *Asia-Pacific Population Journal*.2004; 19(1): 61 – 77.

United Nations Population Division. *Revision World Population Prospects*. New York: United Nations; 2006.

Berkman, L.F. (1984) Assessing the physical health effects of social networks and social support. *Annual Review of Public Health* **5**, 413-432.

Callaghan, P. & Morrisey, J. (1993) Social support and health: a review. *Journal of Advanced Nursing* **18**(2), 203-210.

Wenger, G.C. (1997) Social Networks and the Prediction of Elderly at Risk. *Aging and Mental Health* **1**(4), 311-320.

Mason, K.O. (1992) Family change and support among the elderly in Asia: What do we know?" *Asia Pacific Population Journal* **7**(3), 13-32.

Table 1: Percentage of older persons with ADL and IADL disability by specific and total social network (n=600)

Variable	ADL disability		IADL disability	
	One difficulty	More than one difficulty	One difficulty	More than one difficulty
Children network	p-value=.291		p-value=.895	
0-33 $^{1/3rd}$	11.5	38	14.5	20.5
33 $^{1/3}$-66$^{2/3rd}$	13	41	15	21
66$^{2/3}$-100th	9.5	48	12	23
Relatives network	p-value=.000		p-value=.012	
0-33 $^{1/3rd}$	10.1	48.3	15.5	24.6
33 $^{1/3}$-66$^{2/3rd}$	13.3	49.4	15.7	25.3
66$^{2/3}$-100th	12.5	30	10.5	15
Friends network	p-value=.592		p-value=.100	
0-33 $^{1/3rd}$	13.1	42.1	17.2	20.2
33 $^{1/3}$-66$^{2/3rd}$	7.1	42.9	8.6	21.4
66$^{2/3}$-100th	9.8	42.5	9.8	23.8
Confidant network	p-value=.000		p-value=.000	
0-33 $^{1/3rd}$	11.5	43.7	20.1	17.2
33 $^{1/3}$-66$^{2/3rd}$	11.4	48.7	13.3	26.9
66$^{2/3}$-100th	11	23.7	5.9	13.6
Total network	p-value=.225		p-value=.024	
0-33 $^{1/3rd}$	14.4	45.3	16.9	24.4
33 $^{1/3}$-66$^{2/3rd}$	9.5	40.2	16.6	18.1
66$^{2/3}$-100th	10	41.5	8	22
Total	11.3	42.3	13.8	21.5

Note: p-value based on Chi-squared test.

Table 2. Multinomial Logistic regression model showing the predicted probabilities and confidence intervals for the effect of specific social networks on Activity of daily living, (ADL) among older people in Rural Varanasi (n=600)

Variable	ADL[#]		IADL[#]	
	One difficulty	More than one difficulty	One difficulty	More than one difficulty
Children network	p-value=0.6924		p-value=0.1985	
0-33 $^{1/3rd}$	0.115[0.103-0.127]	0.380[0.345-0.415]	0.145[0.131-0.159]	0.205[0.181-0.229]
33 $^{1/3}$-66$^{2/3rd}$	0.130[0.116-0.144]	0.410[0.376-0.444]	0.150[0.137-0.163]	0.210[0.185-0.235]
66$^{2/3}$-100th	0.095[0.083-0.107]	0.480[0.446-0.514]	0.120[0.108-0.132]	0.230[0.206-0.254]
Relatives network	p-value=0.1014		p-value=0.1416	
0-33 $^{1/3rd}$	0.101[0.092-0.110]	0.483[0.457-0.509]	0.155[0.144-0.165]	0.246[0.226-0.266]
33 $^{1/3}$-66$^{2/3rd}$	0.133[0.111-0.154]	0.494[0.444-0.544]	0.157[0.136-0.177]	0.253[0.215-0.291]
66$^{2/3}$-100th	0.125[0.112-0.138]	0.300[0.267-0.333]	0.105[0.094-0.116]	0.150[0.13-0.17]
Friends network	p value=0.031		p-value=0.1139	
0-33 $^{1/3rd}$	0.131[0.12-0.141]	0.421[0.396-0.447]	0.172[0.162-0.182]	0.202[0.184-0.219]
33 $^{1/3}$-66$^{2/3rd}$	0.071[0.053-0.09]	0.429[0.364-0.493]	0.086[0.071-0.1]	0.214[0.17-0.259]
66$^{2/3}$-100th	0.098[0.087-0.11]	0.425[0.388-0.462]	0.098[0.089-0.108]	0.238[0.212-0.265]
Confidant network	p-value=0.0279		p-value=0.0649	
0-33 $^{1/3rd}$	0.115[0.102-0.128]	0.437[0.404-0.469]	0.201[0.186-0.216]	0.172[0.152-0.193]
33 $^{1/3}$-66$^{2/3rd}$	0.114[0.103-0.124]	0.487[0.459-0.515]	0.133[0.125-0.141]	0.269[0.248-0.291]
66$^{2/3}$-100th	0.110[0.094-0.126]	0.237[0.202-0.272]	0.059[0.051-0.067]	0.136[0.112-0.159]

Model is controls for support from respective network, age, sex, educational attainment, current work status, caste, wealth status, living arrangement and presence of chronic illness.

Note: Figures in parentheses are 95% Confidence Intervals for the predicted probabilities; p-value refers to adjusted Wald test.