Original Research Article

Association between Poor Socio Economic Status and Decline in Functional Capacity among Female Geriatric Population

Tanu Gupta[1], Pratibha Singh[2]

[1]Student, Manav Rachna International Institute of Research and Studies, Haryana, India
[2]Professor, Manav Rachna International Institute of Research and Studies, Haryana, India

Corresponding Author: Pratibha Singh

ABSTRACT

Introduction: Ageing is an inevitable and an irreversible process. Improving longevity and declining fertility rates have led to increase in the elderly population globally. Income insecurity is one of the major reasons for increased vulnerability in old age. Due to increased heath care demands and poor socio economic status, the health status of the elderly may deteriorate resulting in declined functional independence. The objective of this study was to find association between socio economic status and decline in functional capacity among female geriatric population.

Methods: A cross sectional study was conducted from November 2018 to March 2019 and 200 female elderly participants aged 60 years and above were selected using simple random sampling. Data was collected using Lawton scale of Instrumental Activities of Daily Living (IADL), Katz Index of Activities of Daily Living (ADL) and Kuppuswamy Socio economic scale (SES) by interview method and analysed using chi square test and multivariate logistic regression.

Results: The prevalence of ADL dependence was 16% and prevalence of IADL dependence was 63%. Maximum percentage of population belonged to middle socio economic class (58.5%) whereas 17% belonged to upper SES and 24.5% belonged to low SES. Dependence increased in individuals with low income while significantly improving in individuals with high income.

Conclusions: Significant association was found between socio economic status and functional dependence. Healthy diet, regular physical exercise, regular health check-ups, support by family, economic independence, legal security and special government schemes for the elderly can improve their health status and nutritional status resulting in improved functional capacity thus promoting healthy aging.

Key words: functional dependence, Elderly, SES, ADL, IADL

INTRODUCTION

When populations show rapid aging, the governments may not be prepared for the consequences resulting in decline in the health status and socioeconomic status of elderly. [1] Generally, ageing is expressed as chronological age with cut off age between 60 and 65 years. This definition is due to the fact that age of retirement also corresponds to this cut off age. Globally, elderly (60 years and above) constitutes 11.5% of the total population of 7 billion. By 2050, this proportion is forecasted to rise to about 22%. In Asia as a whole, the proportion of the elderly is expected to increase from 10.5% to 22.4% during 2012–2050. [3]

The shift in age structure from young population to elderly population can be attributed to demographic changes such as declining fertility, increasing survival at

older ages and decrease in mortality. With the increase in the old age, dependency in population gradually increases. The shift from period of short lives, high mortality and large families to the one with longer lives and few children is an indicator of demographic transition. The top heavy age structure reflects that the elderly population has to depend upon the revenues and incomes generated by the reducing number of young population. [2]

Decline in nutritional status affects and is affected by socio-economic status among the elderly. Kuppuswamy scale is widely used in India for the assessment of SES in rural areas, urban areas and semi urban areas. This scale is based not only on income of the family but also on their social conditions. It considers three factors- education of the head of the family, occupation of the head of the family and total monthly income of the family. The overall score ranges from 3-29 and it categorizes families into 5 classes namely- upper, upper middle, lower middle, upper lower and lower SES. [4]

Due to aging there is progressive decline in food intake and purchasing capacity compromising the nutritional status leading to increased functional dependence in the elderly population. Functional capacity is the "ability of an individual to perform living task independently and consist of Activities of Daily Living (ADL) and Independent Activities of Daily Living (IADL)". ADL includes "self-care activities such as bathing, dressing, toileting, transferring, continence and feeding". IADL includes "telephone use, shopping, preparation of meals, housekeeping, laundry, transportation use, self-medication and handling money". Identifying people with risk of retrograded functional capacity can help in development of effective interventions which may help in preventing further loss. [5]

Among elderly only few studies were conducted on functional capacity in North India. The objective of this study was to find the association between poor SES and functional capacity decline among female elderly population.

METHODOLOGY

The study was conducted from November 2018 to March 2019 in the areas of South Delhi, New Delhi, India among female geriatric population aged 60 years and above. 200 samples were selected and data was collected from all the subjects after taking their written consent.

Data was collected using random sampling method. Out of 25 wards in South Delhi, 5 wards were selected randomly and 40 participants were selected from each ward. Only those subjects who were willing to participate in the study were included. Subjects with any mental/physical disability interfering with proper communication during interview were excluded. Data collection was done through a structured questionnaire.

SES was assessed using Kuppuswamy scale, ADL was assessed using Katz Index and IADL was assessed using Lawton scale. While measuring IADL dependence if participants were actually not doing a particular activity then their response was based on whether they will be able to perform the activity if they were supposed to do it. Ethical approval was taken from Institutional Ethical Committee and written consent forms were filled by participants.

Data was analysed using STATA 14.0 version. Socio-demographic variables were represented using percentages. Association between SES and functional capacity was found using chi square test and multivariate logistic regression test.

RESULTS

Total 200 female elderly subjects were studied. Most of the participants were between the age group of 60-64 years (53.5%). Mean age of total subjects was 66.63±6.14 years. 33% of them were illiterate and 24.5% had basic education. Majority of the elderly females were unemployed (75.5%) and married (60.5%).

Table1: Socio-demographic profile of the surveyed participants.

Variable	N	%
Age	66.63±6.14	
61-65	107	53.5
66-70	40	20
71-75	31	15.5
76-80	22	11
Education		
Graduate & above	65	32.5
High School	20	10
Basic Education	49	24.5
Illiterate	66	33
Occupation		
Employed	49	24.5
unemployed	151	75.5
Marital Status		
Married	121	60.5
Widowed	79	39.5

Table 2 depicts the screening variables of Kuppuswamy Scale for assessing the SES of an individual. In community based studies as well as in hospitals, SES assessment was found useful as it directly or indirectly influences health status of an individual/ family. Family's head in majority (30.5%) participants worked as a skilled worker, market sales worker or owned a shop. Most of the head of the family had primary school education only (28.5%) and about 13% had education of diploma and above. Maximum (24.5%) participant had family income between ₹63,182 and ₹126,356 while minimum number of participants had family income below or equal to ₹6323.

Table 2: Socio- economic status screening variables of Kuppuswamy scale			
Variable	**Answer**	**frequency**	**Percentage**
Head occupation	Senior Official and Manager	13	6.5
	Professionals	44	22.5
	Technicians	2	1
	Clerks	14	7
	Skilled workers, market sales worker and shop	3	1.5
	Agriculture and Fishery Workers	61	30.5
	Craft and related trade workers	2	1
	Plant and machine operators	3	1
	Elementary occupation	44	22
	Unemployed	14	7
Head education	Professionals	2	1
	Graduate	13	6.5
	Intermediate or diploma	11	5.5
	High school certificate	27	13.5
	Middle school certificate	39	19.5
	Primary school certificate	57	28.5
	Illiterate	51	25.5
Family monthly income (in ₹)	>126,360	23	11.5
	63,182-126,356	49	24.5
	47,266-63178	39	19.5
	31,591-47262	12	6
	18,953-31589	41	20.5
	6327-18949	30	15
	≤6323	6	3

Table 3 categorizes families of the participants into upper, upper middle, lower middle, upper lower and lower SES. Middle SES (Upper middle and lower middle) together constitutes 58.5% of the subjects. Upper socio-economic status constitutes 17% subjects while lower socio-economic status constitutes 24.5% of total subjects.

Table 4 and table 5 shows the association between SES and functional capacity in the elderly participants. At P<0.05, it was found that low SES influences the dependence in ADL and IADL.

Table 3: Overall Socio-economic status of the surveyed participants

Socio-economic class	Frequency	Percentage (%)
Upper	34	17
Upper middle	81	40.5
Lower middle	36	18
Lower	49	24.5

Table 4: Association between Socio-Economic status with ADL in older adults							
Economic Class	Independence in ADL (N=168)	Dependence in ADL (N=32)	Chi-square	Unadjusted OR (95%CI)	P value	Adjusted OR (95%) CI	P value
	n (%)	n (%)					
Upper	112 (97.39)	3 (2.61)	p= 0.000 χ^2=37.40	1	-	1	-
Middle	22 (61.11)	14 (38.89)		23.75 (6.29, 89.65)	0	10.52 (1.37, 80.33)	0.023
Lower	34 (69.39)	15 (30.61)		16.47 (4.49, 60.29)	0	14.58 (1.93, 109.63)	0.009

Table 5: Association between Socio-Economic status and IADL in older adults							
Economic Class	Independence in IADL (N=74)	Dependence in IADL (N=126)	Chi-square	Unadjusted OR (95%CI)	P value	Adjusted OR (95%) CI	P value
Upper	59 (51.3)	56 (48.70)	p= 0.000 χ^2=26.50	1	-	1	-
Middle	10 (27.78)	26 (72.22)		2.73 (1.21, 6.19)	0.015	1.60 (0.53, 4.85)	0.0398
Lower	5 (10.20)	44 (89.80)		9.27 (3.4, 25.06)	0	6.69 (2.13, 20.96)	0.001

DISCUSSION

This study presents the association between poor SES and functional dependence in female geriatric population. The nutritional status, health status, mortality and morbidity are often influenced by the individual's SES. SES determines the acceptability, accessibility, affordability and utilization of existing health care facilities. Kuppuswamy scale is based on 3 factors, first income of the family which reflects type of diet, medical care, housing and spending power; second is occupation which measures physical activity, responsibility, work exposure and prestige; third education which indicates skills acquired for positive physical, psychological, economic and social resources. [6-7]

This study shows that individuals with high SES were more functionally more independent whereas individuals with low SES were functionally more dependent. Lower SES people are more prone to suffer from chronic diseases, [8-11] have low life expectancy, [12] receive less diagnostic test and limited access to medications [13-17] and treatments due to high cost and coverage. [18] When compared with high SES patients, physicians tend to perceive patients with low SES as less intelligent, more dependent, irresponsible in taking medications complying less with medical advices and irregular follow up visits. [19-20] Due to delayed diagnosis, inaccurate medications and less access to speciality care they are more likely to become functional dependent in both daily and instrumental activities. Some physician feels that tailoring the health care option according to the financial status of the patient can improve patient's compliance [21] towards health care program leading to increase in functional capacity. Other physicians also feel that patients with lower SES having medical insurance may not also get proper treatment due difficulty in getting reimbursement from the companies. [22-23]

Functional capacity discusses the ability to perform daily and instrumental activities which can be directly related to income of the individual. [24] Functional disability increases the economic burden of the country. Older persons living in urban areas along with advancing age and low income are more vulnerable to decline in functional capacity. Low SES is shown to increase in the functional dependence in the patients and also functional dependence also interferes with the income of the family negatively.

CONCLUSION

The results of this study shows that majority of the participants were in the age group of 60-65 years. Most of them were illiterate, unemployed and married. A relationship of interdependence between low socio economic status and functional dependence was established among female geriatric population. Functional dependence for IADL was present in more than half of older females and most of them belonged to middle socio-economic status. It is of great importance to identify such individuals at an early stage followed by adequate interventions. Adequate local, national and international health care programs should be

developed for the elderly especially belonging to poor SES to limit their progression to functional dependence.

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