

Disability among geriatric females: an uncared agenda in rural India

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Abstract

Background: In our country India females are neglected since birth. As aging is increasing geriatric females are more prone to suffer from different morbid conditions and ultimately develop disability. As social factors and chronic diseases are the major reasons for geriatric disability, the study was undertaken with the following objectives: To assess the prevalence of chronic diseases and disability and associated factors among geriatric females in a rural area of West Bengal. **Methods:** Cross-sectional, Observational Community based study was conducted in a rural community of West Bengal, India by house-to-house visits, clinical examination, observation and interview with a pre-designed pre-tested proforma. **Results:** Prevalence of disability was 23.8%. Different socio-demographic and chronic diseases were found associated with disability. **Discussion:** On analysis of different chronic diseases it was observed that Acid peptic disorder, tuberculosis, hypertension, ischemic heart disease, osteoporosis, genitourinary disorder and osteoarthritis were significantly associated with disability. Among the risk factors of disability considered for this study 82.1% could be explained by logistic regression analysis. **Conclusion:** These data highlighted the different risk factors associated with disability. No single measure; but rather a multi-dimensional approach should be the model for the prevention of geriatric female disability.

Key words: Geriatric population, social factors, chronic conditions, disability

INTRODUCTION

Aging is a natural process. Due to improved health care services there is decreased infertility and mortality and these lead to increased geriatric population both in developed as well as developing countries. It has been projected that by the year 2025 there will be 1.2 billion older persons, with two out of three living in a developing country [1]. In comparison to male population, females are less in India though among geriatric population the reverse is true and females are more than that of males. As people become older the functioning and adaptability of the tissues and different organs decline and chances of suffering of geriatric populations are more. Geriatric populations suffer both from communicable and non-communicable diseases

but due to changing patterns of socioeconomic factors and urbanization, non-communicable diseases are increasing. Old aged people suffer from the dual impact of different chronic diseases. Firstly, they are affected with the chronic diseases itself and secondly, these chronic diseases lead to disability. Both incidences of chronic disease and disability increase with age. In our society females are neglected since birth. Scope of getting nutrition and care during illness are less among the females. All these lead to ill health in older age. Females have to adjust themselves for survival since birth and many of them neither inform anybody nor avail any health care services till their illness becomes severe. So prevalence of chronic diseases and disability do not reflect the actual magnitude and severity of the problem. The general concept is that increased medical cost is a

usual phenomenon among geriatric population as they suffer more in old age. But the reverse is true. If early prevention could be taken there will be a less chance of morbidity which ultimately leads to reduce medical costs of the family as well as of the community. It has been estimated in the USA that due to decline of disability, medical spending will be 20% less over the next 50 years [2]. Savings of nursing home costs alone were estimated more than 17 billion dollars between 1982 and 1991³. Cost of prevention is less than the treatment of any disease. To make any policy, policymakers need the detailed picture about prevalence of any problem and the different factors responsible for it. And the same is true for geriatric morbidity and disability. But studies about morbidity, disability and associated factors among geriatric females are very few; both nationally and internationally. So the study was undertaken with the following objectives.

Objectives:

- 1) To assess the prevalence of chronic diseases and disability among geriatric females in a rural area of West Bengal..
- 2) To find out the association between socio-demographic profile and chronic diseases with disability.

Materials and Methods

A community based cross sectional study was conducted in the Tarkeswar block at Hooghly district. Tarkeswar is around 50 km from Kolkata and it is the rural field practice area of the Department of Community Medicine, Medical College, Kolkata. Multistage sampling technique was followed. Among the three PHCs, 30% PHC that is one PHC was randomly selected. There were ten subcentres under this PHC and 30% of these subcentres that is three subcentres were selected by simple random sampling technique. Female population aged 60 years or more were considered as female geriatric population. All female geriatric population under these subcentres was enumerated from the voters list. From this list every alternate geriatric female was taken and it came to 255. Considering 10% of the non response rate about 270 were considered as the sample. After data collection due to incompleteness of the proforma, nine cases were excluded from this study and finally 261 samples

were analysed. Data was collected by house-to-house survey and after taking verbal consent, individuals were interviewed with a pre- designed and pre-tested proforma. Clinical examination and review of records, if available was carried to assess the chronic disease. Later chronic diseases were coded as per ICD-10. Chronic disease was considered if any body was suffering from any disease for the last ≥ 3 months at the time of the survey. Cured morbidity was excluded from the study. Disability was ascertained by self reporting in performing ten non instrumental activity of daily living (ADL) [4]. ADL consists of ten questions and each question carries three points. Based on the ADL scoring individuals were classified into three groups, (I) score < 7 - dependent, (II) score 7-10 partially dependent, (III) score > 10 -independent. First two groups were considered as disabled population. Data were analyzed by Epi-info version 3.5.1. Binary logistic regression analysis was done to find out the association between socio demographic characteristics, chronic diseases and disability using SPSS statistical package version 17.

Results

A community based cross sectional study was conducted in the Tarkeswar block at Hooghly district. The initial sample was 255 and considering 10% of the non response rate, it was decided to take 270 samples. Due to incompleteness of the proforma nine cases were excluded from the study and finally 261 samples were analysed.

Table - I showed that the majority of the study population (58.6%) were in the age group between 60 - 70 years. 53.6% of the study populations were widows and 93.1% were Hindu by religion. 61% of the participants were illiterate, 6.9% lived alone, 27.2% belonged to socio economic class - V and 20.7% felt that loneliness was a social problem. Disability status was measured by using ADL score and the prevalence of disability was 23.8%. The mean age at marriage of the study population was 15.74 ± 1.7 years.

Characteristics	No.	%
Age in Yrs		
• 60-69	153	58.6

• 70-79	63	24.1
• ≥ 80	45	17.3
Religion		
• Hindu	243	93.1
• Muslim	18	6.9
Literacy Status		
• Illiterate	180	61.0
• Literate	81	39.0
Mean age at marriage—15.74±1.704	-	-
Parity		
• One	10	3.8
• Two	26	10.0
• Three	68	26.1
• Four	116	44.4
• More than four	41	15.7
Family Composition		
• Alone	18	6.9
• With spouse	9	3.4
• With spouse & Children	126	48.3
• With children	108	41.4
Socio-Economic class (Prasad Scale)		
• Class-I (Rs.>2200)	10	3.8
• Class-II (Rs.1100-2199)	19	7.3
• Class - III (Rs.660 - 1099)	91	34.9
• Class - IV (Rs. 330 - 659)	70	26.8
• Class - V (Rs. < 330)	71	27.2
Social Problems		
• Loneliness	54	20.7
• Lack of security	72	27.6
• Lack of adjustment	9	3.4
• Not Present	126	48.3
Disability Status		
• Non disable (ADL score	199	76.2

>10)		
• Disable (ADL score 7-10)	62	23.8

Table I: Basic Characteristics of the Sample population (n = 261)

Table - II presented the prevalence of different chronic diseases as per ICD-10. 89.7% of the study population had one or more chronic diseases. A total of forty three chronic diseases were found. Important chronic diseases were osteoarthritis (49.8%), cataract (44.8%), hypertension(43.3%), acid peptic disorder(37.9%) and dental caries (33.7%). 14.6% of the study population suffered from different genitourinary disorders like chronic renal failure (N18), chronic cervicitis (N72), pelvic inflammatory diseases (N73), genital prolapsed (N81) and dysplasia of cervix uteri (N87). Prevalence of malignant neoplasm was 4.6%.

Association of different socio demographic characteristics and chronic diseases with disability was analyzed by binary logistic regression and showed in **table - III**. Among the socio demographic variables age, literacy status, parity and family composition were significantly associated with disability. Chronic conditions like acid peptic disorder, tuberculosis, hypertension, ischemic heart disease, osteoporosis, genitourinary disorder and osteoarthritis were also significantly associated with disability. Other socio demographic variables like marital status, age at marriage, socio economic class and chronic diseases like anemia, cataract, deafness, COPD, depression, dental caries, neuropathy, CVA and cancer were analyzed but no significant association was found. Among the risk factors of disability considered for this study 82.1% could be explained by logistic regression analysis.

Chronic Diseases (ICD - 10 Code)	No.	%
Anemia (D50 D53)	42	16.1
Cataract (H25 H26)	117	44.8
Deafness (H90 H91)	35	13.4
C.O.P.D (J44 J45)	50	19.2
Tuberculosis (A15 A18)	21	8.0

Depression (F32 F33 F34)	45	17.2
Dental Carries (K02)	88	33.7
Osteoarthritis (M13)	130	49.8
Genito-urinary disorder (N18,N72,N73,N81, N87,)	38	14.6
Diabetes (E11, E12)	35	13.4
Neuropathy (G35, G37)	18	6.9
Hypertension (I10, I11, I15)	113	43.3
I.H.D. (I20, I25, I27)	36	13.8
Acid-Peptic Disorder (K25, K26, K27, K29, K30)	99	37.9
Osteoporosis (M80, M82)	42	16.1
CVA (I61,I64)	9	3.4
Malignant neoplasm (C23,C50,C53,C56)	12	4.6

Table II: Prevalence of chronic diseases (ICD – 10 codes) among study population (n = 261)

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Age	-2.739	1.052	6.782	1	.009	.065
Literacy	3.843	1.354	8.061	1	.005	46.687
Marital status	.377	.720	.274	1	.601	1.458
Age at marriage	.245	.243	1.018	1	.313	1.278
Parity	-.1.124	.470	.5.733	1	.017	.325
Family Composition	4.080	1.640	6.192	1	.013	59.145
Socioeconomic Class	.873	.715	1.493	1	.222	2.395
Anemia	.273	1.406	.038	1	.846	1.314
Cataract	-3.096	1.824	2.881	1	.090	.045
Deafness	-.452	1.329	.115	1	.734	.637
Acid peptic disorder	10.056	3.516	8.179	1	.004	23.284
Dental caries	-1.203	.961	1.567	1	.211	.300
Depression	-.588	1.002	.345	1	.557	.555

Tuberculosis	4.973	2.205	5.086	1	.024	14.447
COPD	1.308	1.055	1.536	1	.215	3.699
IHD	3.168	1.176	7.263	1	.007	23.768
Hypertension	1.955	.859	5.187	1	.023	7.066
Osteoporosis	9.045	2.237	16.347	1	.000	84.734
Neuropathy	-1.623	2.184	.552	1	.458	.197
Diabetes	4.429	2.275	3.790	1	.050	83.807
Genitourinary disorder	-5.742	2.405	5.702	1	.017	.003
Malignant neoplasm	1.677	1.174	2.042	1	.153	5.349
Osteoarthritis	3.154	1.460	4.667	1	.031	23.438
CVA	.988	1.996	.245	1	.621	2.685
Constant	-62.156	20.240	9.431	1	.002	.000

Table III: Association between disability and risk factors by binary logistic regression analysis

Discussion

Women have the advantage of longer life expectancy than males but they have faced several disadvantages since birth. As a result of several disadvantages like domestic violence, discrimination of getting food, education, care during illness and social security experienced during their life time they were more prone to develop chronic diseases and ultimately disability and death. As no single factor is fully explainable for disability and study regarding this is scarce especially in India we have tried to explore different socio demographic factors and chronic diseases responsible for disability among geriatric females, which are of great concern in this regard.

In our study, the majority (58.6%) were in the age group between 60-69 years. In a study at Udipi Taluk, Karnataka⁵ it was also reported that the majority was in the age group between 60-69 years. 61% of the study population were illiterate

which is similar to the study done by *Lena et al* [5]. The study revealed that 53.6% of the elderly women were widows. Higher proportions of widows (67.7% and 64.3%) were also reported in various studies [5,6]. As a cultural practice men had the tendency to marry younger women and because of their longer life expectancy widows outnumbered the married when the women became older and this was reflected in those studies.

As the studies among geriatric females were scarce, comparisons were made with different studies mainly with geriatric people as a whole. The study showed that the prevalence of disability was 23.8%. Higher prevalence was due to the consideration of the geriatric age group which was different to our study. In a rural community of Karnataka, similar prevalence of disability (21.5%) was reported⁷, though it was among geriatric population of aged 60 years or more. In a cross sectional study at rural and urban area of Chandigarh among geriatric people *Joshi et al* found that 87.5% had minimal to severe disabilities⁸. Prevalence of disability was high in comparison to our study because the scale used for determination of disability was different. The present study showed that Osteoarthritis (49.8%) was the most prevalent chronic disease followed by cataract (44.8%) and hypertension (43.3%). *Lena et al* [6] observed that the prevalence of osteoarthritis among geriatric females were 57% and overall 41.3% among the elderly people. High prevalence of osteoarthritis was also reported in different studies [9, 10, 11]. In a study among geriatric females attending the outreach clinic, the prevalence of hypertension was found to be 60.3% [6]. This difference may be due to the fact that this was a clinic based study where as our study was community based. Contrary to this in two other studies [7,9] low prevalence (30% and 11.25%) of hypertension was reported. Different criteria for considering hypertension may be the reason for different prevalence of hypertension found in these studies. Other important chronic diseases were acid peptic disorder and dental caries and the prevalence of genitourinary disorders were 14.6%. Various morbidity patterns were reported in different studies. In a study at the rural area of Pondicherry it was observed that important morbidities among geriatric people were cataract and refractive errors, joint pain and joint stiffness, dental and chewing complaints, hearing impairment and hypertension [12]. *Shah et al* found

hearing and visual impairment were the two most common morbidities among the elderly people [13]. A study conducted in the rural area of Varanasi district found that the prevalence of genitor-urinary disorder was 5% and among them 1.25% was due to genital prolapse⁹. Morbidity can differ from place to place due to different socio-demographic and environmental factors. Moreover criteria used for defining and identifying morbid conditions were not identical in each of the studies and these might be the reason for various morbidity patterns found in different studies.

On search many studies were available regarding the prevalence of morbidity and disability among geriatric people. But studies on identification of risk factors responsible for disability among geriatric females were scanty especially in India. So we have tried to analyze the data by binary logistic regression statistical method to identify different socio-demographic variables and chronic diseases as risk factors responsible for disability among geriatric females.

In our study we found that increasing age, low literacy status and people living alone were associated with disability. Similar association was also reported in different studies [9,14,15,16,17]. Older women who have low literacy status and living alone are highly vulnerable to poverty and social isolation and lead to a decline in both physical and mental well being which corroborate with our observations along with different studies. Contrary to this, in two other studies, one, among Great Lake American Indians [18] and another at the John Hopkins Functional Status Laboratory among community-dwelling volunteers [19] association of educational status and marital status with disability was not found. In our study we too could not find any association between marital status and disability. The study revealed that increased parity was significantly associated with disability. Similar association of parity with disability was also observed by *Kondo et al* [20].

On analysis about different chronic diseases it was observed that acid peptic disorder, tuberculosis, hypertension, ischemic heart disease, osteoporosis, genitourinary disorder and osteoarthritis were significantly associated with disability. *Rozzini et al* in a study among geriatric people aged 70 years or more living at North Italy observed diabetes, hypertension and heart disease

were associated with disability [21]. In a cross-sectional study at rural and urban area of Chandigarh (India) association between morbidities like asthma, COPD, hypertension, osteoarthritis, gastrointestinal disorders, anemia, and eye and neurological problems with disability were reported⁸ but in our study we could not find any association between eye and neurological disorder with disability. Association between different chronic diseases and disability were also reported in different studies though the chronic diseases were not same in all studies [22, 23]. The reason for these differences are firstly, all those studies were among geriatric people but our study was exclusively among geriatric females, secondly criteria for considering chronic diseases and disability and statistical methods used for analysis were different. The study showed that among the risk factors of disability considered for this study 82.1% could be explained by logistic regression analysis.

Conclusion

The study was of a cross-sectional nature; so the risk factors identified for disability could be suggestive and unable to draw any conclusion whether these factors were antecedent or consequences of disability. Moreover 82.1% of the risk factors for disability were explained by this study. There may be other factors for disability, which were not identified in this study. Future longitudinal study with a large sample may be conclusive of identifying the risk factors for disability. However the study has some positive points. Different socio-demographic variables like increased age, low literacy status, living alone, parity and chronic diseases like acid peptic disorder, tuberculosis, hypertension, ischemic heart disease, osteoporosis, genitourinary disorder and osteoarthritis were identified as associated risk factors for disability and the study emphasized considering both socio-demographic factors and chronic diseases for the prevention of disability. Policymakers should consider these factors for future planning of gender sensitive geriatric friendly health and social care services in order to prevent disability and to improve quality of life of geriatric female populations.

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