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Age Identity, Social Exclusion and Wellbeing: Implications for Elder Inclusive Societies

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ABSTRACT

A cross sectional study was conducted on randomly selected 573 older persons aged 65years and above to examine the effect of age identity on social exclusion and wellbeing. Using standardized rating scales, age identity, social exclusion and wellbeing was measured and bivariate and multivariate regression analyses was applied to test the key hypotheses of this study. Results revealed significant correlations between age identity, social exclusion and wellbeing. Age identity significantly increased social exclusion and is inversely related with wellbeing. Age identity inversely influenced older persons' wellbeing whereas age identity and social exclusion showed combined inverse effect on older persons' wellbeing. Thus, the study concludes that age identity severe social exclusion while it reduces wellbeing in older persons.

Key words: Age Identity, Social Exclusion, Wellbeing, Older Persons.

Older persons constitute a unique social category across societies. Age identity is therefore ascribed and achieved thus boundaries of age group membership are permeable but defined developmentally

(Howard, 2000). The social constructions of ageing and age identity in the mainstream society have negatively portrayed ageing and older persons. Negatively portrayed age identity is associated with severe psychosocial disability of older persons in terms of poor self-concept, poor self-esteem, compromised personal autonomy, increased dependence, loneliness, poor social integration, poor social support and frequent conflicts in social relations (Jose & Meena, 2015). For example, having developed a poor self-concept in the context of ageing self, may act as a critical barrier for older persons to limit themselves, avoid approaching others that are critical for one's wellbeing and successful ageing (Boban & Sultana, 2014). This belief is induced due to negative ageing experience and resultant negative age identity that influenced older persons to view themselves as bad, useless and inadequate just because they are aged (Mariyam & Jose, 2014; Jose & Jose 2015; Jose & Meena, 2015). Age identity significantly associate with social exclusion in terms of reduced social participation, poor access to basic social rights, poor normative integration with society and increased material deprivation (Mariyam & Jose, 2014; Jose & Meena, 2015).

However, age identity has less researched by sociological and social psychological researchers with a few exceptions (Howard, 2000). Researches on age identity have rarely observed in health and ageing research worldwide (Bailis, *et al.*, 2008). The available evidences have treated (non-dominant) social identity as a liability during old age as it is associated with stressors, from which leads to poor health (Thoits, 1991; Krause & Borawski-Clark, E. 1994; Contrada & Ashmore, 1999). Many researches have conducted on gender and racial identity but less attention was given to age identity (Mumby & Clair 1997; Jose & Meena, 2015). Unlike other areas of identity research, viz., racial, ethnic, and gender identities, lack of reliable and valid measure of age identity further reduced the amount of research on age identity and related constructs (Wodak, 1996; Mariyam & Jose, 2014).

Considering the critical role of age identity on successful ageing (Montepare and Lacuman, 1989; Logan *et al.*, 1992; Demo, 1992; Howard, 2000) and ongoing demographic transition leading to rapidly ageing societies (Mandal, 1998; Rajan, 2006; Agewell Foundation,

2014), we need to advance research on age identity and its influence on social exclusion and wellbeing. Therefore, the aim of present study was to examine how elderly person's self-perceived and internalized age identity and its nature influence social exclusion and wellbeing of older persons.

Academic and policy literature frequently refer the term '*social exclusion*' to designate the multi-dimensional disadvantages experienced by people at the social margins (Levitas *et al.,* 2007). The dominant discourses conceptualize social exclusion as a multi-dimensional and dynamic process leading to negative outcomes in socio-economic, political and cultural aspects of certain aggregates of human lives (Popay *et al.,* 2008). Older persons are one sub-group at risk of social exclusion. Social exclusion research on older persons is in its infancy in global literature while a few studies have conducted worldwide. As a result, we know little about social exclusion of older persons in international research literature (Levitas *et al.,* 2007). Available evidences suggest that the dimensions of social exclusion for older people are on poverty, health, life expectancy, fear of crime, poor housing and lack of independence, which mirrors recent analyses of social exclusion in older people (Aldridge *et al.,* 2011).

The indicators used to operationalize and measure social exclusion in older persons often results from the loss of independence, viz., lack of pension, public transport, housing and promoting the need for state interventions. It is difficult to introduce the centrality of labour market participation of older persons, which excluded them from dominant social exclusion discourses (Kneale, 2012). Older persons' retirement from work is a normal process, therefore this may not treat as a social exclusion. However, this retirement has potential social exclusion effect. The retirement is predominantly shaped through experience of labour market participation, which make social exclusion of older persons more complex (Ibid.).

Even though, the age in itself is not a dimension of social exclusion, the risk of reduced income increases with advancing age (Agulnik, *et al.*, 2002). Age related characteristics such as disability, cognitive decline, low income and widowhood, labour market characteristics, economic decline and crime in local areas and age based discrimination dispose older persons at risk of social exclusion

(Phillipson and Scharf, 2004). Advancing age is associated with decreasing social relationships, restricted access to service provisions and material consumption, thus greater risk for social exclusion. Older persons are less likely to live with their partners, more likely to be widowed, live alone and face exclusion from civic and cultural activities. They are likely to enjoy poor health that further restricted their independence. Older persons are likely to spend more time at home and relay more on immediate environment (SEU, 2006; Burns, *et al.*, 2011).

The single person household, poor mental and physical health, lack of access to private transport, living in rented apartment and reliance on pensions as the main source of income are associated with advanced old age. Older women are more vulnerable to social exclusion than older men since women outlive men. It is not the ethnicity in old age that leads to social exclusion rather their likelihood of living in rented apartment disposed them to social exclusion (Kneale, 2012). The inadequate or lack of access to transport and poor accommodation are frequently reported as factors disposing older persons vulnerable to social exclusion (SEU, 2006; English Housing Conditions Study, 2001) alongside with restricted access to information (Kneale, 2012).

Social exclusion is a complex multi-dimensional process; therefore, it is difficult to study the bi-directional relationships and predictors. Poor life satisfaction is usually an outcome of social exclusion but chronic experience of poor life satisfaction may further worsen social exclusion (Ogg, 2005; Kneale, 2012). Widowed women are at greater risk for poverty (Gordon and Townsend, 1999). Widowhood and divorcees are the risk factors for reduced subjective wellbeing and poor health in old age (Shields and Wooden, 2003). Inadequate or weak social ties including family ties have found to be the frequently reported as a factor for social isolation (Hoff, 2008). Older women and widows are more likely to experience social isolation. Older women are more vulnerable to experience income poverty than older men.

The social deficits or problems accumulation in socioeconomic and familial aspects of elderly life reduced life satisfaction, poor psychological wellbeing, poor quality of life and increased life

alienation. This is especially the case for those who were in institutional care (Vaswani, and Thirty, G. 2001; Prakesh, 2001; Rao, 2010). However, there was a little research conducted on elderly persons' wellbeing and quality of life in developing countries though wellbeing studies had obtained worldwide acceptance and importance as a means to assess and evaluate the dimensions of health care programmes (Abas *et al.,* 2009). Studies on wellbeing was conceptually supported by the positive mental health, which allows individual to realize their abilities to cope and contribute to their communities and capacity to sustain social relationships (WHO, 2001). The measurement of wellbeing was multidimensional that often measured autonomy, self-acceptance and relationships with others (Ryff & Keyes, 1995; Tennant *et al.,* 2007; cited in Abas *et al.,* 2009). In the present study, we measured the quality of life as an outcome variable of psychosocial model of social exclusion, using sub-scales of Older Persons' Quality of Life Scale, viz., life overall and emotional wellbeing.

Studies on social exclusion in India are emerging but such studies on older people are scant (Mariyam & Jose, 2014; Jose & Meena, 2015). As a result, we know little about the nature and severity of social exclusion of older people in Indian context. Little is known about age identity and its relationship with social exclusion and wellbeing. The present study is designed to address some of these identified concerns in the literature. Situating within this, we propose three hypotheses: First, consistent with the psychosocial model of social exclusion (Varghese, 2011; Jose & Meena, 2015), age identity significantly increases social exclusion in older persons. As a result, older persons who have highly perceived and internalized negative age identity are likely to experience severe level of social exclusion. Second, high level of negative age identity perceptions and internalizations reduce older persons' wellbeing. Finally, we hypothesized that age identity and social exclusion is likely to have a combined inverse effect on older persons' wellbeing.

Method

Using a cross sectional research design, the purpose of this study was to examine how age identity alongside with stigma and discrimination influence psychosocial disability in older persons. The universe

formed older persons aged 65 years and more who resided in the southern state of Kerala, India. The sample is defined as 'a person aged 65 years and more, presently living either with family of procreation or in an institutional care facility in the selected districts of Kerala, namely Kannur, Ernakulam and Pathanamthitta'. The study choose 65 years as the minimum age to participate, because older persons at their 60s are likely to be still economically active and engage in familial and social roles (Cornwell and Waite, 2009). Evidence suggests that as the age increases, the levels of functioning decline including cognitive functioning (Sebastian, 2013), which restricted older persons' life choices (Bowling & IIiffe, 2011). The eligibility criteria to select older persons in the study were: aged 65 years and more, who were currently not suffering from any severe forms of mental illness or cognitive deficits and provided informed oral consent.

Sample Selection Procedure

Table 1
Shows the Sampling Procedure in Detail

Districts	*Block Panchayats*	*Village Panchayats*	*Selected Block Panchayats*	*Total VPs in Selected Block Panchayats*	*Selected Panchayats [50%]*	*Selected Sample Size*
Ernakulam	14	84	03	21	10	200
Kannur	11	81	02	15	08	200
Pathanamthitta	08	54	02	14	08	173
Total	33	219	07	50	26	573

NB: Source: Ministry of Panchayat Raj Affairs, Government of India.

Multi-stage cluster sampling procedure was used for this study (Bryman, 2008; Bordens & Abbott, 2011). This sampling procedure involves multiple stages. The researchers selected two to three administrative blocks from each selected district randomly as clusters. These clusters were further divided into different village panchayats. About 50 per cent of the village panchayats were randomly selected using lottery technique. 50 per cent of the wards were selected from each selected village panchayat. A total of 573 older persons were selected for this study.

This sampling strategy was based on following important considerations: First, the study population was too large that posed difficulties for cost effective random sampling; therefore, a multi-stage cluster sampling technique was chosen (Kish, 1965; Bordens & Abbott, 2011). Second, this sampling strategy helped the field researchers to be geographically well concentrated. Third, this sampling strategy saved time and it was an acceptable and cost effective method of acquiring a sample for survey design.

Tools Used in the Study

A socio-demographic schedule was developed to find out the information such as age, gender, years of education, family income, occupation, social group and religion of the older persons of the study.

Age Identity Measurement Scale (Jose & Meena, 2015): It is a 17-items instrument with 4-point rating scale. The responses range from strongly agree (1) to strongly disagree (4). It has three subscales, viz., personalized self-image (2-items), personalized social image (12-items) and importance to age identity (3-items). The scale yielded an overall internal consistency reliability of 0.85. The personalized self-image yielded a Cronbach's alpha of 0.59; second subscale, i.e., personalized social image yielded a Cronbach's alpha of 0.90, and the third subscale, i.e., yielded an internal consistency reliability of 0.72. In a sample of 100 older persons aged 65 years and more in rural areas of Kozhikode district, Mariyam and Jose (2015) studied the test-retest reliability over four weeks interval, using inter-class correlation coefficient. Personalized social image yielded an ICC of 0.666 with a Cronbach's alpha of 0.663, which is within an acceptable limit. The subscale identity importance yielded an ICC of .711 with the Cronbach's alpha of .709, which indicates that this subscale has a high temporal reliability over 4-week period. Finally, the personalized self-image yielded an ICC of 0.120 with a Cronbach's alpha of 0.21, which indicates that this subscale has not yield to acceptable level of temporal reliability. However, the overall scale yielded an ICC of 0.70 with a Cronbach's alpha of 0.70. Besides that, AIMS yielded excellent criterion validity with Rosenberg Self-esteem scale (1965), Negative self-image subscale of the AIDS stigma scale (Berger *et al.,* 2001).

Jehoel-Gijsbers and Vrooman (2007) developed a 15-item instrument to measure social exclusion. It consists of four

sub-domains, viz., material deprivation, inadequate access to social rights, insufficient normative integration and inadequate social participation. The responses are rated on a five-point Likert type rating scale with never (1)...to always (5). High scores on the scale indicate high level of social exclusion. Material deprivation subscale showed a reliability coefficient of 0.79 while access to social rights reported a reliability coefficient of 0.82. Social participation had a reliability coefficient is 0.77 and reliability coefficient of normative integration is0.67. The reliability coefficient of the overall scale is 0.85. In a study of social exclusion among Muslim women under poverty line in Kerala, Cherayi (2015) found evidence for reasonable reliability coefficients of social exclusion scale in Indian samples. Material deprivation yielded an Cronbach's alpha of 0.77, social rights subscale yielded 0.69, social participation subscale yielded a reliability alpha coefficient of 0.71 and the normative integration has yielded an alpha coefficient of 0.69 with an overall reliability coefficient of 0.76 (Ibid.). In the current sample, social exclusion yielded a global Cronbach's alpha reliability of 0.79.

Bowling (2009) developed and standardized *Older People Quality of Life Questionnaire*. It is a 35-item version of the questionnaire. The scores are rated on five point Likert-type rating scale on which the scores range from (1) Strongly agree to (5) Strongly disagree. The instrument has eight subscales. In this study the fist subscale, i.e., life overall that consists of three items was selected. Reported Cronbach's alpha reliability estimates range from á=.70 to á=0.90 across different subscales (Ibid.). In the psychometric validation studies of OPQLQ established convergent and discriminant validity. Consistent with literature (Ibid.), the Old WHO QOL was significantly correlated with active ageing, health, and functioning. Construct validity of three QOL measures was tested by correlating them with independent self-rated QOL measures. OPQLQ was significantly associated with global and domain rating in three samples sets and found in the expected direction of relationships. In the present sample, we found a internal consistency reliability (Cronbach's alpha) as 0.77.

Analyses of Data

Prior to the analysis, the data was processed and transformed on the basis of the factors of the standardized scales. Missing responses were dealt either with deletion of interviews (more than 5% responses

in an interview) or mean substitution (if 5% or less). We examined normality of data on important variables studied using QQ Plots and found normal distribution. The preliminary analysis was performed using frequency, percentile, mean, mode, range and SD. Apart from descriptive statistics; Pearson's correlation and bivariate and hierarchical regression analyses to test the guiding hypotheses were calculated.

Ethical Considerations

Informed oral consent was obtained from each study participant with a view to protect their rights either to participate or to decline the participation after informing the study purpose, nature of participation and the type of information sought.

Results

Socio-demographic Characteristics

Older persons' age ranged from 65 years to 102 years with a mean age of 75.5 years and mode was 75 years (±7.6 years). Most of the older persons were women (61.2%; n=382) and men were 38.3% (n=242). The years of education substantially ranged from no formal education (Mode=0 yr) to 18 years with a mean of 4.2 years (±3.2 yrs). Further, 73.9 per cent reported that they completed up 5 years at schools, while 24.2 per cent of them reported that they completed 6 to 10 years at schools. Evidently, older persons were relatively less educated especially up to primary and secondary levels. Older persons were married (43.4%; n=271) and unmarried constituted merely 12 persons (1.9%). About 8.3 per cent (n=52) men were widowers and 46.3 per cent (n=289) women were widows. The religious composition reveals that 57.4 per cent (n=358) were Hindus, Muslims were 7.9 per cent (n=49) and Christians were 34.8 per cent (n=217). Evidently, there is a significant under-reporting of family income under the pretext of perceived probable exclusion from welfare benefits. As a result, income showed skewed trends while most of the older persons reported that they did not have a sizable family income (Mode=0). Income ranged from no income to Rs 50,000 per year with a mean of 3,607.1 (±6294.6).

Negative Age Identity

Table 1
Shows the Descriptive Scores of Age Identity and Its Subscales

Variables	*N*	*Min-Max*	*Mean*	*SD*
Personalized social image	573	14–44	31.1	6
Identity importance	573	3–12	6.8	1.7
Personalized self-image	573	2–8	4.4	1.1
Negative age identity	573	20–64	42.2	6.6

Table 1 shows the descriptive scores of age identity and its subscales. Personalized social image of ageing ranged from 14 to 44 with a mean of 31.1 (± 6). The result reveals that elderly persons substantially personalized the social image of ageing. The scores on identity importance ranged from 3–12 with a mean of 6.8 (±1.7). The result reveals that inadequate identity importance was substantial among elderly persons. Personalized self-image of ageing ranged from 2 to 8 with a mean of 4.4 (±1.1). The result reveals that elderly persons substantially personalized self-image of ageing. The scores on the global scale on negative age identity ranged from 20 to 64 with a mean of 42.2 (±6.6). The result evidently suggests that elderly persons substantially internalized negative age identity.

Social Exclusion

Table 2
Shows the Descriptive Scores of the Sub-dimension of Social Exclusion

Variables	*N*	*Min-Max*	*Mean*	*SD*
Social participation	573	4–20	10.8	4.3
Normative integration	573	4–20	12.3	3.3
Access to basic social rights	573	3–15	6.3	2.6
Material deprivation	573	4–20	16.4	4.9
Social exclusion (global)	573	15–73	45.9	11.1

Table 2 shows the descriptive scores on social exclusion measured on four sub-dimensions. First sub-scale is on inadequate social participation. The scores obtained on this subscale ranged from 4 to20 with a mean of 10.8 (±4.3). The result reveals that older persons experienced moderate level of inadequate social participation. Second subscale was inadequate normative integration. The scores obtained on this subscale ranged from 4 to 20 with a mean of 12.3 (±3.3). The result reveals that older persons experienced moderate level of inadequate normative integration. Third subscale was on inadequate access to basic social rights. The scores obtained on this subscale ranged from 3 to 15 with a mean of 6.3 (±2.6). The result reveals that older persons suffered inadequate access to basic social rights. Fourth subscale was on material deprivation. The scores on this subscale ranged from 4 to 20 with a mean of 16.4 (±4.9). The result reveals that older persons experienced high level of material deprivation. The scores of overall social exclusion scale ranged from 15 to 73 with a mean of 45.9 (±11.1). The result reveals that older persons experienced high level of social exclusion.

Table 3

Shows the Correlations between Age Identity and Sub-dimensions of Social Exclusion

S. No	*Age identity and Social Exclusion*	*1*	*2*	*3*	*4*	*5*
1.	Age identity	1				
2.	Inadequate social participation	.547**	1			
3.	Inadequate normative integration	.318**	.416**	1		
4.	Inadequate access to basic social rights	.289**	.436**	.330**	1	
5.	Material deprivation	.357**	.355**	.416**	.240**	1
6.	Social exclusion	.534**	.772**	.724**	.611**	.763**
7.	Wellbeing	–.437**	–.474**	–.230**	–.267**	–.417**

Table 3 shows the correlations between age identity and sub-dimensions of social exclusion. Age identity significantly correlate with inadequate social participation ($r = 547$; $p < .001$). The result implies that as the negative age identity increases inadequate social participation also increases. Age identity significantly correlates with

inadequate normative integration of older persons (r=.318; p<.001). The result indicates that as the negative age identity increases, inadequate normative integration also increases. Age identity further correlates with inadequate access to basic social rights (r=.289; p<.001). The result implies that as the negative age identity increases, inadequate access to the basic social rights also increases. Age identity correlates with material deprivations (r=.357; p<.001). The result indicates that as the negative age identity increases, material deprivation in older persons also increases. Age identity shows a significant correlation with social exclusion (r=.534; p<.001). The result implies that as the negative age identity increases in older persons, social exclusion also increases. Finally, age identity was inversely and significantly correlated with older persons wellbeing (r=-.437; p<.01). The result suggests that as the negative identity increases, older persons' wellbeing decreases. Similarly, social exclusion significantly and inversely correlated with wellbeing (r=-.417; p<.01). The result suggests that as the social exclusion increases, the older persons' wellbeing reduces.

Besides, we found significant correlations between sub-domains of social exclusion, viz., inadequate social participation, inadequate normative integration, inadequate access to basic social rights and material deprivations with correlation coefficient ranging from r=.240; p<.001 to r=.763; p<.001). Evidently, all correlations were in the expected directions (positive correlations), which implies that as the negative age identity of older persons increases; their experience of social exclusion in different spheres of life also increases.

Table 4

Shows the Results of Bivariate Linear Regression of Age Identity and Social Exclusion

Variables Model 1	*Unstandardized Coefficients*	*Standardized Coefficients*	*t*	*F*
—	*B*	*Std. Error*	*Beta*	
(Constant)	8.006	2.554	3.135**	225.878***
Negative age identity	.898	.060	.534	15.029***
R2=0.286; Adjusted R2=0.284				

DV: Social exclusion: =negative age identity: .534; NB: ***Significant at .000 level

The test results (Table 4) showed a significant (linear) cause and effect relationship between negative age identity and social exclusion wherein negative age identity significantly predicted social exclusion ($\beta = 0.534$; $p < .001$). Negative age identity explains 28.4 per cent of the total variance on social exclusion ($R^2 = 0.284$). F statistic reveals that this model was statistically significantly at 0.001 level ($F(572) = 297.068$; $p < .000$). The result reveals that negative age identity significantly cause social exclusion in older persons. As a result, the older persons who had highly perceived and internalized negative age identity were likely to experience severe level of social exclusion, evidently supporting the hypothesis.

Table 5

Shows the Results of Bivariate Linear Regression of Age Identity and Wellbeing

Variables Model–2	*Unstandardized Coefficients*	*Standardized Coefficients*	*t*	*F*
–	*B*	*Std. error*	*Beta*	
(Constant)	13.184	.431	30.610**	133.311***
Negative age identity	–.116	.010	–.437	–11.546***
R2 = 0.191; Adjusted R2 = 0.189				

DV: Wellbeing: = negative age identity: .534; NB: ***Significant at .000 level.

The result (see Table 5) showed a significant (linear) inverse cause and effect relationship between negative age identity and wellbeing. The negative age identity significantly reduced wellbeing ($\hat{a} = 0.-.437$; $p < .001$) while it explains nearly 19 per cent of the total variance on wellbeing (adjusted $R^2 = 0.189$). F statistic reveals that this model was statistically significantly at 0.001 level ($F(572) = 30.610$; $p < .000$). Hence, the result reveals that negative age identity significantly reduce older persons' wellbeing, consistent with prior hypothesis.

It was hypothesized that age identity and social exclusion is likely to have a combined inverse effect on older persons' wellbeing. Using hierarchical regression analysis, the researchers examined the combined effect of age identity and social exclusion on older persons' wellbeing as shown in Table 6. Age identity and social exclusion as

Table 6
Shows the Results of Hierarchical Regressionanalysis of Older Persons' Wellbeing

Variables Model–3:	*Unstandardized Coefficients*	*Standardized Coefficients*	*t*	*F*
–	*B*	*Std. error*	*Beta*	
(Constant)	13.507	.422	31.993***	87.702***
Negative age identity	–.080	.012	–.301	–6.914***
Social exclusion	–.040	.007	–.255	–5.852***
R2 = 0.237; Adjusted R2 = 0.235				

DV: Wellbeing: 13.507 = age identity: –.301 + Social exclusion:-.255;***Significant at .000 level

predictor variables while wellbeing as an independent variable was entered into the regression model. First, the possible role of multi-collinearity among the predictor variables (i.e., age identity and social exclusion) through examining the tolerance and VIF was ruled out. Multi-collinearity exists when tolerance is below 1 and VIF is greater than 10. In this analysis, tolerance level of each predictor variable was within the acceptance level (i.e., less than 1; i.e., 0.714) and less than the VIF of 10 for exact values (VIF = 1.400). Secondly, the overall significance of the model using *F* statistic was examined and found that the predictor model of psychosocial disability was significant at 0.000 level ($F(566) = 87.702$; $p < .000$). The results reveal that negative age identity ($\hat{a} = -.301$; $p < .001$) and social exclusion ($\hat{a} = -.255$; $p < .001$) have significant inverse linear relationships with dependent variable, i.e., wellbeing. Two predictor variables together explains 23.5 per cent of variance (as per Adjusted $R^2 = 0.235$). Evidently, this regression model suggests that age identity and social exclusion significantly reduce older persons' wellbeing.

Discussion

The study revealed that age identity, social exclusion and wellbeing of older persons and their respective subscale have showed significant two-tailed correlations. Age identity significantly increased social exclusion in older persons. Older persons perceived and

internalized negative age identity, which severed social exclusion. Negative age identity inversely influenced older persons' wellbeing. We found that age identity and social exclusion have a combined inverse effect on older persons' wellbeing, which implies that these variables significantly reduced wellbeing in older persons.

Age Identity and Social Exclusion

Identity is a critical construct of interest in the contemporary world. Globally, it is a predominant basis for social and psychological theorizations and research. Identity is derived from a person's knowledge about his/her membership a social category along with the value and emotional significance attached to that group membership (Tajfel, 1978). The construct 'age identity' refers to the innermost experiences of a person's age and ageing process (Howard, 2000). Thorough this process, an ageing person identifies and distances self from different aspects of ageing (Mariyam, 2015). The social identity arising out of ageing is contingent, unstable and product of historical circumstances. Negative age identity formation is associated with disabilities and social vulnerabilities on an alarming rate (Mariyam & Jose, 2014) including increasing institutionalization of older persons (Jose & Meena, 2015; Jose & Jose, 2015). This scenario raised serious concerns and challenges to ensure social inclusion, quality of life and wellbeing of older persons (Thomas & Nagaraju, 2012; Jose & Meena, 2015).

Given this premise, the present study measured age identity in terms of ageing self image, ageing social image and importance person attaches to ageing self (Jose and Meena, 2015). The age identity measurement is based on the conceptualization that 'age identity is predominantly negative and devalued through social constructions of ageing and older persons'. The mechanisms of age identity devaluations are stigma, discrimination, negative socio-cultural stereotypes and images that distance, devalue and de-humanize older persons as less worthy than younger and reproductively attractive persons (Major and Brien, 2005; Mariyam and Jose, 2014; Jose and Meena, 2015). Hence, age identity has attributed potentials to isolate and exclude ageing persons. In a multiple regression analysis, Mariyam and

Jose (2014) found that age identity showed an increasing causal effect on social exclusion. However, the study was based on a small sample size of 40 older persons aged 60 years and above. The plausible concerns on these results are inclusion criteria used for selecting older persons was 60 years. In the same study, we found that older persons continue to be economically active, and meaningfully earn, actively contribute to household expenditure, thus might not internalize age identity that is predominantly negative (Jose and Meena, 2015).

In order to address these concerns, we have designed the present study that examined the negative age identity and social exclusion among a randomly selected 573 older persons aged 65 years and more. The results reveal that older persons substantially personalized self and social images as ageing person and attach less importance to age identity; thus formed negative age identity. Though there are ample amount of research on identities globally, age identity is relatively less defined conceptually, theorized and researched except a few (e.g., Demo, 1993; Howard, 2000), which resulted in nearly complete absence of age identity in the social exclusion discourse around the world.

The present study was an effort to address this concern while it made a focused effort to address the knowledge gap on how age identity of older persons influence social exclusion. When tested the hypothesis, the researchers found a significant cause and effect relationship between negative age identity and social exclusion while age identity explained 28.4 per cent of the variance, supporting the first hypothesis. As a result, the study concluded that the older persons who have highly perceived and internalized negative age identity are likely to experience high level of social exclusion. Evidently, result suggest the importance of theorizing age identity and its effect on social exclusion and wellbeing in general while special efforts are needed to understand how age identity influence successful ageing and psychosocial wellbeing of older persons.

Age Identity and Wellbeing

There is a well-established conceptual interaction between social exclusion and quality of life in general where severe social exclusion is

likely to results in poor quality of life in people at social margins (Bayram *et al.,* 2011; Jose, 2014; Jose & Cherayi, 2015). The researchers hypothesized a similar relationship between social exclusion and older persons' wellbeing. The study found that older persons in general reported poor wellbeing, while 'there is an inverse cause and effect relationships between negative age identity and older persons' wellbeing'. The result showed a significant inverse cause and effect relationships between negative age identity and wellbeing. Evidently, social exclusion increases, older persons are likely experience poor wellbeing.

Age Identity, Social Exclusion and Wellbeing

Studies on social exclusion in India are emerging but such studies on older people are scant. Thus, we know little about the nature and severity of social exclusion in older people in Indian context. Age specific and contextualized measurement of social exclusion of older person is a challenge while the current study relied on measurement developed based on generic theories of social exclusion (Jehoel-Gijsbers & Vrooman, 2007), which may be viewed as a limitation of the present study. Globally, studies on social exclusion of older persons have frequently used as indicators to operationalize and measure social exclusion. Such indicates are loss of independence, viz., lack of pension, public transport, housing and promoting the need for state interventions. Further, studies have counted the single person household, poor mental and physical health, living in rented apartment and reliance on pensions. Nevertheless, the present study measured social exclusion of older persons in four subscales, viz., inadequate access to social participation, inadequate normative integration, inadequate access to social rights and material deprivation. The results showed that older persons reported inadequate social participation, reduced normative integration, inadequate access to basic social rights, material deprivation and severe social exclusion, in addition to negative and devalued age identity.

Older persons in general reported poor psychological wellbeing (Jose & Cherayi, 2015) poor life satisfaction due to significant

reduction of social roles and social isolation (Thomas & Nagaraju, 2015), poor subjective wellbeing associated with elder abuse and neglect (Veedon, 2001; Sredhanya, 2014), poor social integration and compromised social life (Jose and Meena, 2015). Given this empirical premises, we hypothesized and tested the combined effect of negative age identity and social exclusion on older persons' wellbeing. The results revealed that negative age identity and social exclusion have significant inverse linear relationships on older persons' wellbeing whereas these variables together explained 23.5 per cent of the variance on wellbeing. Evidently, the results suggest that age identity and social exclusion significantly shape older persons' wellbeing.

Implications for Older Inclusive Society

First, the dominant social construction of ageing and age identity in the mainstream society has negatively portrayed ageing and elderly persons. It necessitates planned and systematic policy and programmatic responses to address this complex issue. The state as well as civil society organizations (CSOs) need to be vigilant and monitor the situation, where ageing and elderly persons are portrayed negatively (for example in media, publicity, campaigns, etc.).

Secondly, participatory and emancipative researches within the right based frameworks need to be considered to generate discussions in the public domain, aiming at positive portrayal of age identity and older persons. The universities, research institutions and civil society organizations (CSOs) may lead systematic efforts and guide public discourses on positive portrayal of ageing and age identity. Thirdly, careful consideration is needed for improving intergenerational interactions and engagement outside primary social unit (i.e., family), where our children, adolescents and youth are sensitized to the need to include and accommodate elderly persons in their everyday social life situations. Fourth, initiating and strengthening social support groups for elderly persons, providing opportunities for meaningful participation in socially relevant issues may give sense of purpose to elderly persons. This

may provide them a sense of usefulness of their time for the common good as well as ensure social participation.

Fifthly, elderly persons with negative ageing experience (age identity) are likely to internalize high amount of stigma and discrimination attached to ageing. Hence, there is a need for positive ageing experience to elderly persons through positive social reframing or construction of ageing that may detach perception and experience of stigma and discrimination from ageing. For this, we need multipronged approaches to challenge the socio-cultural images and stereotypes of ageing and older persons in our society. Finally, older people in general reported poor psychological wellbeing with a significant gender difference while the reported wellbeing needs. Improving social participations, facilitating access to basic social rights, adequate material wellbeing, reducing conflicts in social relations, loneliness, freedom and autonomy are critical for social inclusion and wellbeing in older persons.

Conclusion

Older persons substantially personalized self and social images as ageing person and attach less importance to age identity; therefore formed negative age identity. Age identity significantly increased social exclusion in older persons, implying that they perceived and internalized negative age identity worsening social exclusion. Negative age identity inversely influenced older persons' wellbeing. Therefore, it is concluded that the negative age identity and social exclusion have a combined inverse effect on older persons' wellbeing, which implies that these variables significantly reduced older persons' wellbeing.

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Effect of Home based Self-care Package on Elderly Self-care and Health Seeking Behavior

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ABSTRACT

The present study was conducted to assess the effect of home based self-care package on elderly self-care and treatment seeking behavior. For this community based interventional study was conducted on 103 elderly (aged 60 and above selected by systemic random sampling technique) residing in Dadu Majra colony, Chandigarh. A "Home Based Self-care Package" was developed after conducting Focus Group Discussion with elderly, information gathered by review of literature and with the guidance of experts. The package was in the form of Health Booklet and Flip Book. The package was administered individually among study subjects after pre interventional assessment. Reinforcement visits were done for each client after 1, 2, 4 and 8 weeks and Post assessment was done after 12 weeks of administration of the package. Pre and post interventional assessment among subjects was done using a standardized WHO tool, "World Health Organization Disability Assessment Schedule (WHODAS 2.0)". WHODAS Item Response Theory (IRT) based and Domain specific scores were calculated for every subject. Data was analysed by descriptive and inferential statistics. Improved self-care practices were seen in post intervention in elderly population, it is evidenced by significant difference in mean pre and post scores of WHODAS2.0 and its

domain specific scores ($P < 0.05$). Mean WHODAS 2.0 simple and IRT based pre-test score reduced from 41.6 to 39.8 and 39.9 to 38 respectively. There was increase in number of subjects with controlled Random Blood Sugar and Blood Pressure. It was concluded that home based self-care package resulted in improved self-care practices and health seeking behaviour in elderly.

Key words: Self-Care, Home Based Self-Care Package, Elderly

WHO in 1983 defined self-care in health "*as the activities individuals, families and communities undertake with the intention of enhancing health, preventing disease, limiting disease and restoring health. These activities are derived from knowledge and skills from pool of both professional and lay experience. They are undertaken by lay people on their own behalf, either separately or in participative collaboration with professional*" (Webber, Guo & Mann, 2013). Lack of self-care in most of the elderly lead to difficulty in management and control of their age-related problems and may negatively affect the elderly persons quality of life. Decrease in the ability to perform self-care may lead to increased dependence on the health care system and increased need for in-home supports (Bonder & Bello-Haas, 2009).

A principal goal in health care is to facilitate a persons' ability to maintain and promote their own health. Even though elderly suffer from chronic disease, functional limitation and cognitive impairment they must be encouraged to gain appropriate knowledge and skills so that they can mobilize their self-care resources and minimize their health problems and enhance health and well-being (Hung, *et al.*, 2013). In developing country like India where longevity is gaining rapidly (Sharma, 2003) and resources are limited, promotion of self-care in elderly will help in reducing the over-growing burden on health resources.

Studies have indicated that home based health promotion activities for elderly, carried out by health care professionals has the potential to positively affect health and functional status of elderly leading to increase self-care in them. Educating the elderly in addition to the implementation of a caring programme can help elderly to be

responsible for themselves. The more informed elderly are, more active role they will have in their self-care activities, therefore this study was conducted to assess the effect of home based self-care package on elderly self-care.

Mathod

Sample

The present interventional study was conducted to see the effect of home based self-care package on self-care of elderly residing in Chandigarh. Systematic random sampling technique was used to enroll 103 elderly residing in Dadu Majra (Chandigarh) who could at least read Hindi. Every second house was surveyed to identify the study subjects.

Tools Used

1. *Home based self care package:* Focus Group Discussion among elderly (for assessment of health needs in elderly), review of literature and opinion from experts in field of community medicine and community health nursing was used to develop home based self-care package. The package included health booklet and Flip book to educate participants. The booklet contains information regarding health literacy, self-awareness of physical and mental condition, physical activity, Healthy eating, risk avoidance good hygiene, and rational use of products, services and medicines. The booklet focusses exclusively on what can be done by elderly at home. The booklet focusses exclusively on what can be done by elderly himself.
2. *A standardized WHO tool:* World Health Organization Disability Assessment Schedule (WHODAS 2.0) was used to measure self-care and disability (WHODAS score provides degree of functional limitation and disability in individual). This tool is a standardized method for measuring health and disability. It captures the level of functioning in six domains of life cognition, mobility, self-care, getting along with people, life activity & participation in society. Two methods of scoring, i.e., Simple summary score and Item Response Theory (IRT based) score are used to compute scores by this tool. IRT scores allows for more

fine-grained analyses that make use of the full information of the response categories & is beneficial for comparative analysis. *Simple score describes functional limitation in client while the later describe disability, more is the score more is the functional limitation and disability* (WHO, 2014). In current study simple summary scores & IRT based complex scores were computed for each individual by using WHODAS 2.0. Total pre-test scores and post test scores and domain specific scores of elderly subjects were compared and t test was applied to see the significance.

3. *Brief Health Information Performa and mechanical instruments* (stethoscope, weighing scale, inch tape, BP apparatus, and glucometer) to do physical assessment & RBS estimation (using glucometer) were used to collect data. Brief health information Performa and WHODAS 2.0 were translated in Hindi and were validated by experts. Systemic random sampling technique was used to enroll 103 elderly residing in Dadu Majra who can at least read Hindi. Every second house was surveyed to identify study subjects. Ethical clearance was taken from institutional ethical committee.

Data Collection

Data was collected from July to December 2014. On the first Home visit, pre assessment of health status, existing self-care practices and health seeking behavior, physical assessment and Random Blood Sugar testing of subject was done. On the same day home based self-care package was administered which included teaching of elderly using flipbook and health booklet and schedule of follow-up visits was explained to them. In case of any doubt subjects were encouraged to call the researcher. In subsequent four follow up visits subject were reinforced for improved self-care practices For any improvement in self-care practices verbal appreciation was given. If there was non-adherence to self-care practices among study subject, reason for the same was investigated and reinforcement was done. After 12 weeks of administration of the self-care package along with RBS testing and Blood pressure measurement subjects were reassessed for self-care practices and health seeking behavior using WHODAS 2.0.

Statistical Analysis

Data collected using WHODAS 2.0 was analyzed using the WHO excel software Pre and post score was calculated using simple scoring template and complex scoring template (WHO, c2014) and entered into SPSS 16 for further analysis with socio-demographic data. Descriptive and inferential statistics was used to analyze the data. In descriptive statistics, percentage mean and standard deviation was used to describe data. Paired t test was used to compare the means of pre and post scores and to determine level of significance.

Result

Socio-demographic Profile

The total sample consisted of 103 older aged 60 and over ranging from 60 years to 84 years. The mean age of the sample was 64.19 years (SD + 1.27) and majority of the respondents were aged between 60–69 year old (61.2%). Among sample 72.8 per cent were male. The Majority of respondents was married (68.9%), followed Hinduism (69.9%) had completed their middle school (77.7%) and were living with their spouse and/or children (85.4%). Among the subject almost half was retired (54.5%) & partially financially dependent on their family (53.3%).

Health Problems among Elderly

After pre assessment of subjects it was found that out of the total number of subjects it was noticed that majority of them (89%) had health problems and out of the subjects who had health problem 78 per cent had at two or more health problems.

Table 1 outlines types of health problems among elderly. The health problems discussed were diagnosed health problems which were evident by health records of elderly. It was seen that among the 92 subjects 59.2 per cent had visual impairment and were using visual aids and 58.7 per cent had cardiovascular problems in which 47.8 per cent had hypertension, 5.4 per cent MI, 3.3 per cent heart-valve problem and 2.2 per cent congestive heart failure. Among the 92 subjects 33.6 per cent had respiratory problems which included 20.6 per cent of elderly with COPD and rest were having Asthma. Diabetes was present in 30.4 per cent elderly and in 25 per cent Arthritis and 6.5

per cent gastrointestinal problems were present. One case each of Stoke and Epilepsy was also seen. During the study period 3 more subjects were diagnosed with diabetes. Except for seasonal flu no other major health issues were noted during study period.

Table 1
Types of Health Problem among Elderly

	Health Problems	*n (%)*
1.	Visual impairment	61(59.2)
2.	Cardiovascular	
	• Hypertension	44(47.8)
	• Myocardial Infraction	5(5.4)
	• Heart Valve Problem	3(3.3)
	• Congestive Heart Failure	2(2.2)
3.	Respiratory	
	• Chronic Obstructive Pulmonary Disease	19(20.6)
	• Asthma	12(13.0)
4.	Endocrinology	
	• Diabetes	28(30.4)
	• Hypothyroidism	1(1.1)
5.	Arthritis	23(25.0)
6.	Gastrointestinal	6(6.5)
7.	Neurology	
	• Stroke	1(1.1)
	• Epilepsy	1(1.1)
8.	Genitourinary	2(2.2)

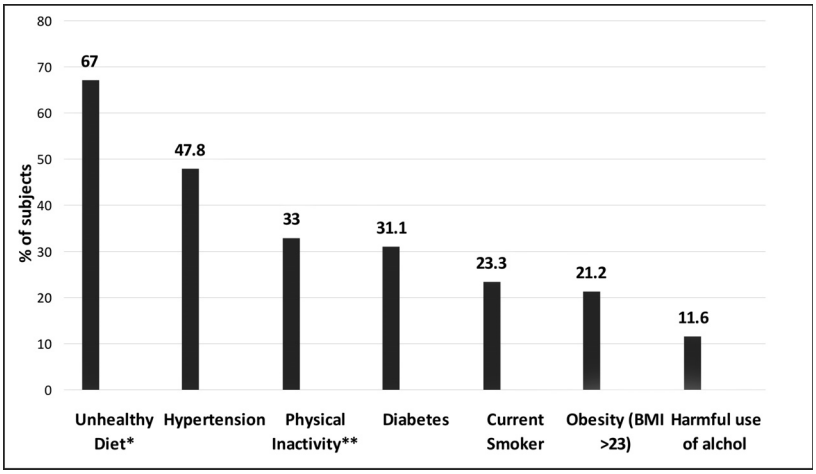
* Elderly have multiple health problems therefore total percentage is more than hundred per cent

Risk of NCD among Elderly

Figure 1 portrays the percentage of elderly with high risk for developing Non Communicable Disease. Out of the total elderly 70 per cent was eating unhealthy diet. Hypertension (known hypertensive) was seen in 47.8 per cent subject and physical inactivity in 33 per cent . Diabetes was seen in 30.4 per cent subject (28 subject were known cases and 5 were screened during opportunistic screening). Among subject 23.3 per cent was current smoker, 21 per cent had BMI more than 23 and harmful use of alcohol was seen in 11.6 per cent .

Table 2 describes mean pre and post-test degree of functional limitation & health disability as per WHODAS 2.0 scores (simple &

Figure 1
NCD Risk Factor among Elderly



IRT based). Decrease in simple mean score was seen from 41.58 pre-test to 39.77 in post-tests. Which signifies that degree of functional limitation was reduced after self-care package was introduced thus increasing the self-care practices in elderly. In IRT based scores mean decreased from 39.95 to 38.02 which signifies that health disability decreased in individual after package implementation thus helping the client in improving their self-care practices. Paired t test was applied and p value for both the scores was significant *(< 0.05)*.

Table 2
Mean Pre and Post-test WHODAS 2.0 Simple and IRT (item response theory) based Scores

S. No.	*Scores*	*Mean Score + SD*	*Range*	*t(df) p value*
		Before Implementing Package	*After Implementing Package*	
1.	Simple Summary WHODAS2.0 scores	41.58 +4.0 31.25–52.08	39.77+3.4 30.56–44.53	13.145(102) <0.001
2.	IRT (item response theory) based WHODAS 2.0 scores	39.95 +4.2 29.10–52.81	38.02+3.5 27.53–44.62	12.718(102) <0.001

Table 3 compares mean pre and post intervention domain specific WHODAS 2.0 (IRT based) scores. Domain specific score describe health disability in each domain. In *Domain 1* (cognition) mean score decreased from 39.48 to 38.96, in *Domain 2* (mobility) from 39.81 to 36.12. Domain 3(self-care) had maximum reduction in mean score as score decreased from 21.72 to 17.78. In *domain 5* (life activity) & *6* (participation in society) score decreased to 43.7 and 46.33 respectively after implementation of package was. Significant difference in mean score of WHODAS 2.0 was seen in all domains except *Domains 4* (getting along with people).

Table 3
Mean Pre and Post-intervention WHODAS 2.0 (IRT based) Domain Specific

Domain	*Mean Score + SD Range*		*t(df) P value*
	Before Implementing Package	*After Implementing Package*	
Cognition	39.48 +7.4	38.96 +6.9	3.539(102)
	16.67–54.17	16.67–50.00	< 0.01
Mobility	39.81 +13.7	36.12 +11.6	7.643(102)
Self-care	5.00–65.00	5.00–55.00	< 0.001
Getting along with people	21.72 +8.3	17.78+5.5	7.520(102)
	6.25–50.00	6.25–37.50	< 0.001
Life activity	45.24+7.0	45.24 +7.0	—
Participation in society	30.00–55.00	30.00–55.00	
	46.30 +7.0	43.70 +5.7	7.558(102)
	28.13–56.25	28.13–56.25	< 0.001
	47.18 +6.7	46.33 +6.6	6.171(102)
	28.13–56.25	28.13–56.25	< 0.001

Effect on Behavioural Practices among Elderly

Table 4 shows changes in behavioural practices in elderly before and after implementation of home based self-care package. Engaging in physical activity, household work, proper dietary habits & maintenance of personnel hygiene are basic behavioral practices which affects our health and well-being. Following above mentioned practices helps

the elderly to maintain functional capacity and helps in self-care. It was seen that there was significant change in the number. of elderly engaged in behavioural practices before and after implementation of package. Before the implementation 33 per cent were not doing any exercise which reduced to 7.77 per cent (P value < 0.001) at the end of 12 weeks. Before 62.1 per cent were engaged in household work which increased to 72.8 per cent (P value < 0.01) and 67 per cent started eating 5–6 serving of fruits of vegetable daily (P value < 0.001). There was also significant increase in the number of elderly maintaining personal hygiene (P value < 0.001).

Table 4

Changes in Behavioral Practices in Elderly After Implementation of Package N–103

Practices	*Before Implementation of Health Package n (%)*	*After Implementation of Health Package n(%)*	*x2(df) p value*
Exercise			
• Engage in at least 150 minutes/week of moderate intensity aerobic activity	23(22.3)	35(33.9)	10.08333(1) < 0.01
• Engage in less than 150 minutes/week of moderate intensity activity	46(44.7)	60(58.2)	12.07143(1) < 0.01
• Don't do any exercise	34(33)	8(7.8)	24.038(1) < 0.001
Engagement in household work	65(62.1)	75(72.8)	8.100(1) < 0.01
Dietary habits			
• Take 5–6 servings of fruits and vegetables	32(31.1)	69(67)	35.027(1) < 0.001
• Take oil and fats less than 15 gram daily	22(21.4)	41(39.8)	17.053(1) < 0.001
Personal hygiene			
• Well groomed	82(79.6)	94(91.2)	10.083(1) < 0.01
• Washes hands before/after meal, after going to toilet, etc.	75(72.8)	90(87.4)	13.067(1) < 0.01

* not taking 5–6 servings of fruits and vegetables; ** not doing any exercise.

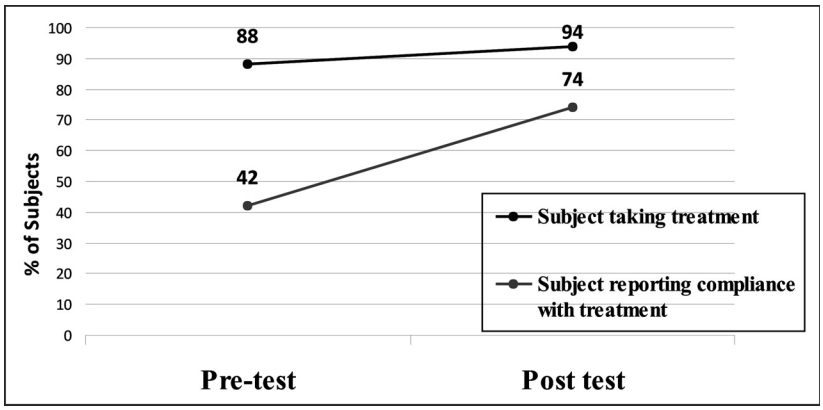
Effect of Home based Package on Health Seeking Behavior of Elderly

The effect was assessed by comparing the treatment seeking behaviour & self-reported compliance to treatment by elderly before and after implementation of package.

In Figure 2 treatment seeking behaviour and compliance among elderly with health problems before implementation of package is illustrated. It was seen that before implementation of package out of 92 subjects who had health problems 88 per cent were taking treatment which increased to 94 per cent out 95 subject after implementation of package. Similarly it was seen that number of subjects who verbalized they were compliant to treatment also increased from 42 per cent to 77 per cent after implementation of package.

Figure 2

Treatment Seeking Behavior and Compliance among Elderly before After Implementation of Package



Random Blood Sugar and Blood Pressure Findings in Subjects

Random Blood Sugar of the subjects having diabetes and blood pressure of the subjects having hypertension was checked before and after implementing the package. It was found that there was increase in number of the subjects who had there RBS and blood pressure in control after they adhered to the home based self – care package.

Figure 3 illustrates control in Random Blood Sugar post intervention among subjects having diabetes. Three elderly were diagnosed

with diabetes during opportunistic screening hence number. of subjects with diabetes have increased in post intervention. Out of 28 diabetic subject 39 per cent had RBS more than 200 mg/dl before intervention which reduced to 19 per cent in 31 subject post intervention. This reduction in subject post intervention implies that home based self-care package helped the subject in controlling their blood sugar level

Figure 3

Random Blood Sugar of Subjects Having Diabetes

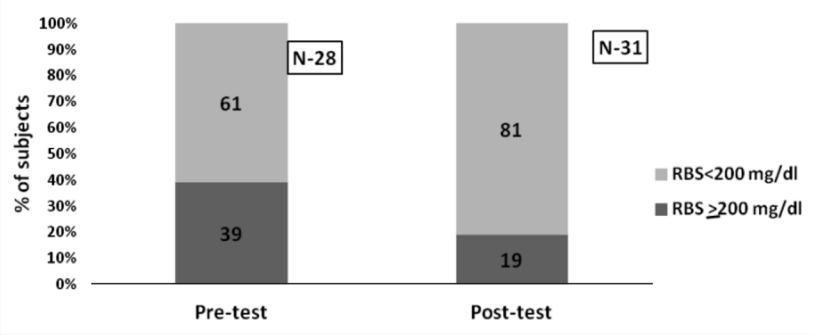
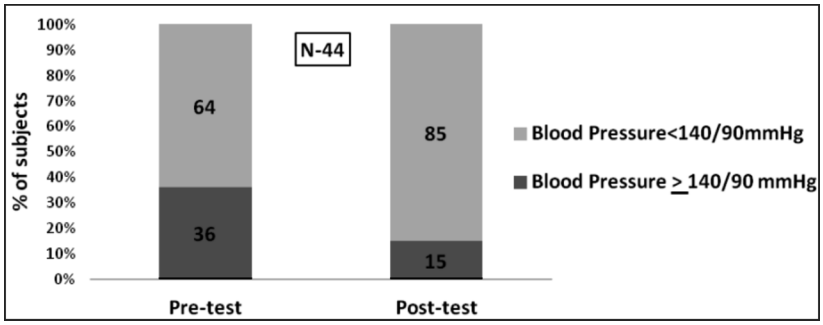


Figure 4 Depicts control in Blood pressure post intervention among subjects having hypertension. Among 44 hypertensive subject 36 per cent had BP more than 140/90 mmHg which reduced to 15 per cent post intervention. This reduction can be attributed to their adherence to package.

Figure 4

Blood Pressure of Subjects having Hypertension



Discussion

By the year 2050 the proportion of the elderly in population will increase to 3.5-folds and in developing country like ours where we already have shortage of resources, it's going to become major challenge for health care providers in providing care and meeting the health needs of growing elderly population in coming days (Ingle & Nath, 2008). Health promotion is not a new term, and with regard to people's longer life, it become even more important. Particularly in maintaining and improving the quality of life health promotion and other preventive measures can be used as a means of delaying the onset of illness and dependency that eventually lead older people to need long-term care (Guide to Health Promotion and Disease Prevention, 2008). Self-care is an integral part of health promotion in elderly. Promoting self-care practices helps the individual to limit health and functional disability and adjust in better way to the changes happening due to ageing. Assisting the elderly person to set attainable goals and making achievement of self-care a possibility is germane to nursing. By encouraging the elderly to use their own resourcefulness, nurses can maximize their untapped potential for self-care. The elderly must be motivated, gain appropriate knowledge, and have the skills to carry out self-care responsibilities whenever possible. So in present study an effort was made to increase self-care practices and health seeking behaviour in elderly by using home based self-care practice.

Present study was undertaken with an objective to compare effect of home based self-care package on self-care practices and health seeking behavior in elderly hence interventional study design was used in which before and after comparison without control group was done. No control group was chosen because self-care is essential in every elderly to maintain their health status and lack of self-care practices was already observed in study population. In previous researches some have used control group and others have not but at the end of intervention increase in self-care was seen in both (Tappenden *et al*., 2012 & Hosseini, *et al*., 2013)). In a study conducted in Falavarjan villages in Iran in 2010 to study the effect of home based intervention on self-efficacy no control group was used (Hosseini, *et al*., 2013)

Home setting was selected for present study to administer the developed self-care package as large number. of elderly usually suffer from age related functional limitation and disability and are often confined to their home and they are not able to access the health services. Thus home based setting gives us opportunity to provide services to elderly who are generally unreached. Behavioural modification is easy to do in environment in which individual is most comfortable rather than any health center where they may feel anxious and worried.

Self-care package was developed based on the findings FGD of the elderly population residing in Dadu Majra Colony so that needs and expectation of elderly can be incorporated in the package. Need based interventions are more effective in bringing a change in behavior rather than implementing literature based interventions. In a study conducted in Falavarjan villages in Iran in 2010, interventions were carried out to increase self-efficacy among elderly in home setting and result showed an increase in self-efficacy after implementation of intervention in home setting (Ibid.).

It was seen that Self-care improved in elderly after implementing home based self-care package. A significant difference was seen in the pre and post mean scores of WHODAS 2.0 and its 5 domains. Mean WHODAS 2.0 simple and Item Response Theory based pre-test score reduced from 41.6 to 39.8 and 39.9 to 38 respectively. The decrease in this scores signifies that after implementing the package functional limitation and health disability in client decreased as a result of increased self-care practices is there among elderly. It also shows that help is all that required to improve health in elderly. Similar findings were seen in studies conducted in past which assessed the impact of home based intervention on self-care of elderly. Most of the study findings shows that self-care practices in elderly increased in post interventional assessment (Folden, 1993 and Baraz *et al.,* 2012) . In study done in Taiwan the subject who received self-care self-efficacy enhancement programme showed improved in self-care activities, self-estimation and life satisfaction (Chao & Ying-Hua, 2011). In a study conducted on 33 older adults randomly selected from five villages in Falavarjan province in Iran to assess the effect of community health nurse home visit on self-care self-efficacy of the

elderly. It was seen that Intervention programme by nurse in the direction of self-care efficacy in four domains including nutrition, health practice, physical activity, and well-being and the mean elderly score in the four afore mentioned domains increased after the home visit programme (Hosseini, *et al.*, 2013). In another study conducted in Florida it was seen that supportive-educative nursing intervention on older adults significantly increases individuals' perceptions of their self-care ability after a stroke (Folden, 1993).

As per WHODAS (IRT based) domain specific score, decrease in disability in all domain was seen except for domain four getting along with people. No change was seen because package didn't include anything that improved elderly's relationship status with others and moreover, getting along with other requires efforts from others too and this package targeted only elderly population. Health seeking behaviour also improved which was evidenced by increase in number. of people taking treatment for their health problems. In subjects with diabetes and hypertension control in RBS and blood pressure was seen as result of adherence to the package. In meta-analysis of 82 studies found that self-management education improved knowledge, self-care behaviour and metabolic control in older adults with diabetes (Norris & Venkat narayan, 2001).

As seen by result home based self-care package can increases self-care practices in elderly thus improving their health. It is strongly recommended that policy maker can include home visit component for elderly in geriatric programmes so that home based services can be provided to them, it not only help the Government to reach the deserving but will decrease burden on health resources. Also Study provides with data and evidence to the nurses and health workers working in community which can be used to increase self-care practices and health seeking behaviour in elderly.

Conclusion

Study concludes that use of home based self-care package developed on the basis assessed elderly needs, review of literature and under the guidance of expert, resulted in improved the self-care practices among elderly residing in in Dadu Majra colony, Chandigarh. Decrease post test scores of WHODAS2.0 and its 5

domain signifies improvement in functional limitation and health disability. Null hypothesis framed for the present study was also rejected as there was significance difference in mean pre-test and post test WHODAS 2.0 score at the level of 0.05 significance. Study provides with data and evidence to the health workers working in community which can be used to increase self-care practices and health seeking behavior in elderly thus catering to ever growing needs of elderly population and reducing the burden on health resources.

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Abuse Against Elderly Widows in India and Selected States: An Exploration from BKPAI Survey

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ABSTRACT

With demographic transition and increasing life expectancy, the proportion of elderly has increased alarmingly worldwide. With the addition of 27 million in the last decade, the number of elderly in India is more than 100 million now. Among them, nearly one third of elderly have already lost their partner notably, higher for women (49%) than men (15%). Such ever increasing number of widows put in a precarious situation. Using BKPAI (Building a Knowledge Base on Population Ageing in India, 2011) data, this study analyzes the incidence of abuse against elderly widows, place of abuse and perpetrators and its related covariates. Bivariate and Trivariate analysis were carried out to examine the pattern of abuse against elderly widows. Further, Discriminant Analysis (DA) carried out to understand the factors that separates out the group of neglect and non-neglect elderly. More than 12 per cent of elderly widows experienced abuse noticeably is higher in Maharashtra (40%) and low in Tamil Nadu (2%). Family is the common place where abuse against elderly widows occurs the most, involving family members as the main perpetrators. The result of Discriminant Analysis (DA) provides strong static evidence of significant difference between mean of neglect and not neglect for all independents with currently married status

(14.2) and educational level (8.9) producing very high value of F's. In this context, the care of elderly widows may not be bestowed only on their family. The state or government has to realize its responsibility and need to bring the needful policies or programmes in the care of elderly widows.

Key words: Ageing, Widows, Elderly abuse, Neglect

Population ageing is an inevitable outcome of demographic transition. Due to increased life expectancy, the old age population in India and worldwide has increased, and it will continue to grow more alarmingly than before. While now, one out of every 10 persons are elderly, in 2050 this rate will grow to one out of five, and in 2150, one out of every three individual will be elderly (Mirkin and Weinberger, 2001). More so, since female do live longer than their male counterparts, there would be astonishingly high number of elderly widows in the world (Wang *et al.,* 2013; Dhillon and Ladusingh, 2013). In such scenario, it is imperative to take health, demographic and social aspects pertaining to elderly widows more seriously. In general, old age is associated with multiple physiological, psychological and social challenges (Schulz and Heckhausen, 1996; Jylha, 2004). A few of these aspects include reduction in regenerative abilities, proneness to diseases, economic disadvantage, health problems, loneliness and adjustment issues.

In a particular context of India where women, tend to marry older men, and biologically live longer than them (Kinsella and Velkoff, 2001), a substantial increase in the population of elderly women in near future would be inevitable and a mark of great concern. As per the recent concluded census (2011), nearly half (49%) of elderly women are widow considerably higher than the male counterpart (32%). In absolute number, it is more than 50 million (RGI, 2011). In India, the life of widows is never been easy. Number of social stigma, taboos and economic burden are often associated with widows which may not necessarily be faced by widowers (Trivedi, *et al.*, 2009

The conventional or rigid religious-cultural practices in India makes the lives of widows more difficult. For instance, among Hindus

– the dominant religious group in Indian subcontinent – widows are not allowed to wear adornments, colorful clothing, are served a limited amount of food, forgo of hot meal, and does not apply *Sindoor* (a mark of marriage). These practices exclude the widows from cultural practices of the everyday life, separating them from their fellow women of the same age and social group. The life of widow becomes more problematic if she is an illiterate, doesn't possess any wealth and presumably rely on others.

In Western world, the process of ageing took place when most of the physical infrastructure, economic development and other social security measures were proper in place. However, in developing countries like in India, population ageing is taking place or increasing alarmingly whereby most of the required measures to address ageing related issues either are missing or poorly managed (WHO, 2011). In India, family is identified as the primary care taker of the elderly, thereby the role of state has not been much realized (Prasad and Rani, 2007). Contrary to this, due to modernization and increasing migration of children to urban areas for better living, the traditional Indian family structure has undergone immense change. Evidences suggest that, in the modern nuclear families, elderly member are considered as burden rather treated respectfully (Prasad and Rani, 2007; Mahajan and Ray, 2013). The intergenerational communication gap has widened in the Indian families so the traditional admiration and care for elderly has eroded (Gupta, *et al.*, 2012). Studies from western world suggest that, elderly abuse is a reality and in most instances, the family members are the main perpetrators (Kurrle and Naughtin, 2008). Though, the abuse against elderly has been documented in few Indian studies, the purview of the analysis was limited to one or handful types of abuse. Further, the information about the perpetrators was not given much importance in these studies (Sebastian and Sekher, 2011; Kumar and Bhargava, 2014). Hence, this study is an effort to shed light on the incidence of abuse against elderly incorporating its various forms, perpetrators, place of abuse and its associated covariates in India and selected states. The specific objectives for the study were, to analyze the socioeconomic covariates of elderly widows in India and selected states and to examine the

incidence of abuse against elderly widows, involvement of perpetrators and its associated covariates.

Methodology

Data Source

Building Knowledge Base on Population Ageing in India (BKPAI), 2011 data was used to fulfill the objectives of this study. BKPAI is a cross-sectional survey of men and women over the age of 60 years and their spouses in 7 states in India. Information on socio-economic condition, living arrangements and overall health status of elderly gathered in this survey. The sample for each state was fixed at 1,280 elderly households. Households having at least one elderly member aged 60 years or above form the set of sample households and all the elderly in the selected households were interviewed. A total of 8,329 household interviews and 9,852 elderly interviews were conducted in rural and urban areas respectively. For more details about the sampling design and tools used for data collection, the survey report can be ascertained from BKPAI (*Building a Knowledge Base on Population Ageing in India*,) report, 2011. For this study, elderly widows (3,578) were only considered for the analysis.

Statistical Analysis

Descriptive and inferential statistics were used to understand the distribution of elderly widows and incidence of abuse against them in India and selected states. Bivariate and Trivariate analysis were carried out to check the pattern of abuse by selected covariates. Chi-Square test was used to verify the significance of the association. Further, Discriminant Analysis (DA) was carried out to understand factors which can separate out group of neglected and non-neglected elderly.

Variables

The variables used in this study can be divided into two categories: Predictor and Outcome variables.

Outcome Variable

Abuse: Information on abuse or violence or neglect in terms of Physical, Verbal, Economic, Disrespect and Neglect against elderly

aged 60 and above was collected in the BKPAI study. The present study used abuse as an outcome variable. The classification of abuse kept as same in the study.

Predictor Variables

In BKPAI (*Building a Knowledge Base on Population Ageing in India* 2011) study, information on number of socioeconomic and demographic characteristics were collected that could potentially affected the incidence of abuse against elderly. The variables which included as predictors in the study were, age, educational attainment, economic condition, asset holding, living arrangement and level of dependency.

Results

Table 1
Proportion of Widows among Population Aged 60+ in India and Selected States, Census–2011

India/States	*Total*	*Male*	*Female*
Himachal Pradesh	34.6	15.6	52.3
Punjab	29.2	18.5	39.8
West Bengal	35.0	11.1	58.5
Odisha	32.5	15.5	49.5
Maharashtra	30.3	12.2	46.5
Kerala	36.7	9.0	59.6
Tamil Nadu	35.6	13.8	56.4
India	32.3	15.0	48.8

Elderly females aged 60+ were more widows than their counterpart elderly males. This pattern was observed across selected states and at national level. Nearly one third (32%) of elderly aged 60+ were widows in India, however, the corresponding figures were higher for females (49%) than males (15%). The proportion of elderly widows was highest in Kerala (60%) and West Bengal (59%). Punjab (40%) recorded the low proportion of elderly widows in the country (Table 1).

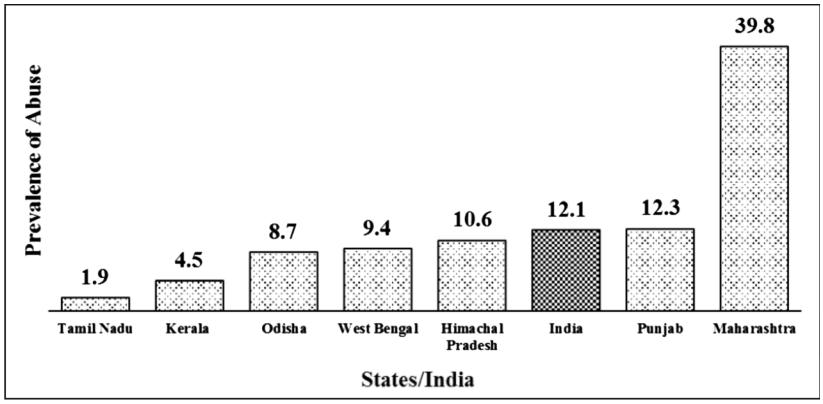
Table 2
Covariates of Widows in India and Selected States, 2011

Characteristics	*India*	*Himachal Pradesh*	*Punjab*	*West Bengal*	*Odisha*	*Maha-rashtra*	*Kerala*	*Tamil Nadu*
Age Group								
60–69	49.5	33.5	40.9	50.6	48.6	57.3	44.0	66.7
70–79	32.2	38.3	34.4	35.0	34.6	27.8	34.0	23.5
80+	18.3	28.3	24.7	14.4	16.9	14.9	22.1	9.9
Education								
No education	65.6	80.7	76.6	70.6	77.1	69.7	30.5	59.7
Primary	19.1	9.6	9.8	13.9	19.7	18.2	46.9	13.5
Secondary	13.5	8.3	10.1	14.4	2.2	10.8	20.0	25.4
High School and above	1.8	1.5	3.5	1.1	1.0	1.4	2.6	1.5
Wealth quintile								
Bottom two quintile	49.0	27.8	19.1	70.4	81.0	59.3	20.2	58.5
Middle	20.8	34.6	19.5	12.7	8.3	17.4	31.6	22.3
Top two quintile	30.2	37.6	61.4	16.9	10.7	23.3	48.2	19.3
Any asset holding								
No	29.0	14.5	34.4	50.8	15.0	11.4	40.2	32.9
Yes	71.0	85.5	65.7	49.2	85.0	88.6	59.8	67.1
Living Arrangement								
Alone	12.5	10.4	6.7	12.9	4.5	11.4	6.9	30.6
With Children	80.8	84.2	84.5	74.4	93.3	81.1	85.7	66.0
Dependency								
No	88.1	87.9	91.4	84.5	85.8	94.8	83.4	89.7
Yes	11.9	12.1	8.6	15.5	14.2	5.3	16.6	10.3

The onset of widowhood was observed in the early years of the old age. In most cases, elderly aged 60–69 became widow at national level and in all selected states. Maharashtra (57%) recorded the highest proportion of elderly aged 60–69 as widows whereas, the corresponding figure was lowest in Punjab (41%). Illiteracy among widows was presumably high in all the selected states and at national level.

Himachal Pradesh (81%) recorded the highest proportion of illiterate widows whereas Kerala (31%) registered the lowest percentage of illiterate widows in the study. At national level, nearly half of widows (49%) belonged to bottom two wealth quintile and only 30 per cent of widows were from top two wealth quintile. Poor economic condition among widows was highest in Odisha (81%), West Bengal (70%), Maharashtra (59%) and Tamil Nadu (59%). Contrary to this, widows had better economic condition in Himachal Pradesh Punjab (61%), Kerala (48%) and (38%). Asset holding and widowhood were positively correlated in the study. This pattern was observed both at national level and in all selected states. Living with children was the most common arrangement among widows at national level and in all selected states. Yet, significant of 13 per cent of widows were living alone at national level. Tamil Nadu (31%) recorded the highest percentage of widows living alone among all the selected states. Level of dependency and widowhood were inversely associated in the study (Table 2).

Figure 1
Prevalence of Abuse Against Elderly Widows in India and Selected States, 2011



It was evident in Figure 1 that, at national level, more than one tenth (12%) of elderly experienced abuse in their lifetime. The

corresponding figure was highest in Maharashtra (40%) whereas, it was lowest in Tamil Nadu (2%).

Table 3
Type of Abuse Against Elderly Widow in India and Selected States, 2011

India/States	*Physical*	*Verbal*	*Economic*	*Showing Disrespect*	*Neglect*
India	34.9	90.3	47.8	56.0	52.7
Himachal Pradesh	18.1	89.8	49.5	65.4	73.0
Punjab	13.5	90.9	22.3	19.3	28.9
West Bengal	31.1	88.1	22.0	35.7	23.3
Odisha	5.7	97.3	31.0	28.8	34.5
Maharashtra	52.7	91.9	67.0	75.2	64.1
Kerala	25.8	74.0	35.8	56.7	65.8
Tamil Nadu	39.8	76.5	28.0	47.8	54.4

At national level, more than 90 per cent of elderly widows reported verbal abuse in their lifetime. The incidence of verbal abuse was almost universal (97%) in Odisha and less in Kerala (74%). A significant of 53 per cent of elderly at national level were neglected, which was lowest in West Bengal (23%). More than one third (35%) of elderly were physically abused in India. The corresponding figure was highest in Maharashtra (53%) and low in Odisha (6%) (Table 3).

Incidence of abuse against elderly widows within family was considerably higher than the outside the family. This pattern was observed across the selected abuses and states in the study. At national level, more than one third (35%) of elderly widows experienced physical abuse within their family as compared to only 14 per cent of elderly widows reported such act outside the family. In Maharashtra, more than half (53%) of elderly widows experienced physical abuse within their family whereas, only 19 per cent of elderly widows reported such abuse outside the family in the state (Table 4).

Table 4

Place of Abuse Against Elderly Widows in India and Selected States, 2011

India/States	*Physical*		*Verbal*		*Economic*		*Showing Disrespect*		*Neglect*	
	Within Family	*Outside Family*	*Within Family*	*Outside Family*	*Within Family*	*Outside Family*	*Within Family*	*Outside Family*	*Within Family*	*Outside Family*
India	34.9	14.0	90.3	44.6	47.8	21.4	56.0	20.5	52.7	22.7
Himachal Pradesh	18.1	1.8	89.8	24.0	49.5	16.3	65.4	24.1	73.0	33.3
Punjab	13.5	6.2	90.9	59.1	22.3	16.5	19.3	14.8	28.9	23.9
West Bengal	31.1	13.9	88.1	38.1	22.0	14.1	35.7	14.1	23.3	11.7
Odisha	5.7	5.1	97.3	55.0	31.0	27.9	28.8	18.4	34.5	25.1
Maharashtra	52.7	18.5	91.9	41.7	67.0	23.8	75.2	18.7	64.1	16.8
Kerala	25.8	25.8	74.0	59.3	35.8	26.5	56.7	52.5	65.8	61.7
Tamil Nadu	39.8	34.7	76.5	76.5	28.0	22.8	47.8	35.8	54.4	37.3

Table 5
Perpetrators of Abuse Against Elderly Widows in India and Selected States, 2011

India/States	*Children*	*In-Laws*	*Others*
India	9.6	22.6	67.8
Tamil Nadu	58.6	30.3	11.1
Himachal Pradesh	55.9	2.4	41.8
Kerala	51.4	9.8	38.7
Odisha	29.2	38.7	32.2
West Bengal	5.4	51.8	42.9
Maharashtra	3.8	20.2	76.0
Punjab	0.0	0.0	100
Chi-square value			59.4, P < 0.001

It was observed in Table 5 that, in one tenth cases, children were involved in the abuse against elderly widows in India. Yet, other members like domestic helper and relatives (68%) in the family were the main perpetrators of abuse against elderly widow in India. In Tamil Nadu (59%), Himachal Pradesh (56%) and Kerala (51%) children were the main perpetrators of abuse against elderly widows. The result of chi-square test showed that, the relationship between perpetrators and abuse against elderly widows was statistically significant.

Table 6
Group Statistics

Neglected or Not		*Mean*	*Std. Deviation*	*Valid N (listwise)*	
				Unweighted	*Weighted*
No	Marital status	.6062	.48903	546	546.000
	Asset Holding	.7857	.41070	546	546.000
	Educational level	.4524	.49818	546	546.000
	Dependency for Activities of Daily Living	.0824	.27525	546	546.000
Yes	Marital status	.4837	.50036	399	399.000
	Asset Holding	.7193	.44991	399	399.000
	Educational level	.3559	.47938	399	399.000
	Dependency for Activities of Daily Living	.0977	.29734	399	399.000
Total	Marital status	.5545	.49728	945	945.000
	Asset Holding	.7577	.42872	945	945.000
	Educational level	.4116	.49239	945	945.000
	Dependency for Activities of Daily Living	.0889	.28473	945	945.000

In discriminant analysis, the significant difference between neglected and non-neglected elderly on each of the independent variables was examined using group mean and ANOVA. The mean difference between marital status and educational level of elderly suggest that there may be good discrimination as the separation is most among them. In case of widow the mean difference is (.6062) (Table 6).

Table 7
Tests of Equality of Group Means

Groups	*Wilks' Lambda*	*F*	*df1*	*df2*	*Sig.*
Marital status	.985	14.189	1	943	.000
Asset Holding	.994	5.559	1	943	.019
Educational level	.991	8.927	1	943	.003
Dependency for Activities of Daily Living	.999	.668	1	943	.414

The above Table 7 provides strong static evidence of significant difference between mean of neglect and not neglect for all independents with currently married status (14.2) and educational level (8.9) producing very high value of F's.

Table 8
Eigenvalues

Function	*Eigenvalue*	*% of Variance*	*Cumulative %*	*Canonical Correlation*
1	*.025a*	*100.0*	*100.0*	*.155*

a. First 1 canonical discriminant functions were used in the analysis.

The Eigenvalues provides information on each of the discriminant functions. The maximum number of discriminant function produced is the no of groups minus 1. In this table two groups are used which are 'neglect' and 'not neglect'. So here neglect is given. The canonical correlation is the multiple correlations between the predictors and the discriminant function. A canonical correlation of .155 suggests that, the model explains .02 of the variation in the groping variable, whether a respondent neglect or not (Table 8).

Table 9
Standardized Canonical Discriminant Function Coefficient

	Function
	1
Marital status	.668
Asset Holding	.398
Educational level	.432
Dependency for Activities of Daily Living	–.105

The Table 9 provides that an importance each predictors like the standardized regression coefficients (beta's). Current marital status is the strongest predictors while education is next in importance as a predictor. These two variables with large coefficients stand out as those that strongly predict allocation to the neglect and not neglect group. Assets and ADL dependency of oldies were less successful as predictors.

Discussion

This study is the first of its kind to document the incidence of abuse against elderly cutting across the physical, economic and other socio-cultural forms, place of abuse and perpetrators involved using a large sample size. Another novelty of the study is that, it has assessed the incidence of abuse against elderly in seven major states whereby the proportion of elderly is higher than the national average. By limiting the analysis only to the elderly widows, the study is inclined to highlight the issue of widows whose number is increasing alarmingly in recent years. As per the recent concluded census (2011), there are more than 50 million widows in the country (RGI, 2011). Poverty and illiteracy is profoundly higher among them. The only exception is in Himachal Pradesh (38%) and Punjab (61%) wherein elderly widow enjoys a better economic state (top two quintiles). Living with children found as the most favored living arrangement of the elderly widows.

In India, the lives of widows is never been easy due to its rigid sociocultural beliefs and practices (Kumari & Dhruvarajan, 2001). The suffering of widows in different sphere of life has been documented in

number of Indian studies (Chen & Dreze, 1995; Trivedi *et al.,* 2009). Alike other studies, this study equally opined that elderly widows suffer from abuse more than the currently married elderly women (Skirbekk & James, 2014). At national level, more than one tenth of elderly widows experienced abuse in their life time. The corresponding figure was highest in Maharashtra (40%) and lowest in Tamil Nadu (2%). Maharashtra and Tamil Nadu are the two better performing states on socioeconomic heads in India. Thus, the contrasting scenario in terms of abuse against elderly widows may be attributed to its unique sociocultural beliefs and practices in the states. In a study conducted by HelpAge India concludes that, nearly, three fourth (71%) of elderly replied in an affirmative way, when they were asked whether elderly abuse is prevalent in the society. Of those who agreed, 31 per cent of elderly think that the prevalence is high. In Maharashtra, quite a high percentage of elderly reported beating/slapping as a prevalent form of abuse. In more than seventy per cent cases, elderly do not report or approach anybody for help in order to maintain confidentiality of the family matter. Verbal abuse against elderly widows was almost universal at national level and in Himachal Pradesh, Punjab, West Bengal, Odisha and Maharashtra. Incidence of physical abuse was low among all the selected forms of abuse. Yet, in Maharashtra, more than half (53%) of elderly widows encountered physical abuse. The corresponding figure was lowest in Odisha (6%).

Astonishingly, in most cases, elderly widows were abused within their own family. This pattern was observed across the selected states and type of abuse. This corroborates the findings of many other studies which concluded that, elderly are abused more commonly by those whom they believe the most and in a familial set up (Lachs & Pillemer, 2004; Chokkanathan & Lee, 2006; Marmolejo, 2008; Cooper, *et al.,* 2008). As an attempt to analyze about the perpetrators of abuse against elderly widows, this study concluded that, other members such as relatives and housemaid were involved most in such act in India. A study conducted in United Kingdom found that, overall 49 per cent of relatives and 13 per cent of care taker were the main perpetrators of abuse against elderly widows (Madeleine, *et al.,* 2007). Only in one tenth cases, children abused their elderly mother. This

finding is contrary to many other studies from western countries where children were found as the main perpetrators (Bobic, 2002; Naughton *et al.*, 2010).

The result of discriminant analysis showed that, marital status of the elderly was the main discriminant for the elderly to be neglected or not neglected. In other words, elderly widows were more to be neglected than the currently married elderly. Along with the marital status, educational level of the elderly remained as the other important discriminant factor for the elderly to be neglected or not neglected.

Conclusion

Ageing is an inevitable phenomena in the process of demographic transition. In India, the process is taking place much faster and in the absence of or poor management of essential measures to address its related issues. The number of elderly widows already crossed 50 million mark. The number is expected to rise alarmingly due to the increasing life expectancy of woman and rigid marital customs. In this context, the care of elderly widows may not bestowed only on her children or relatives owing to the changing family structure. The state or government has to realize its responsibility and need to bring the needful policies or programmes in the care of elderly widows. A timely intervention may protect widows from abuse and help them to live in dignity.

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Comparison of the Foot Characteristics in Ageing Patients with Osteoarthritis of the Medial Compartment of the Knee and of the Lateral Compartment of the Knee

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ABSTRACT

The purpose of this study was to examine the differences in foot postures of the ageing patients affected with medial/lateral compartmental osteoarthritis of the knee, A group of 40 subjects of ages between 45 to 55 years participated in the study. The subjects were divided into 2 groups. Group A (n=20) included the subjects suffering from primary, bilateral medial compartmental knee osteoarthritis; and Group B (n=20) consisted of subjects suffering from primary, bilateral Lateral compartmental knee osteoarthritis; Diagnosed by an orthopedic surgeon, Grade 2 or higher Kellegren-Lawrence radiographic severity of tibiofemoral osteoarthritis in standing AP view. The investigators measured FPI, dorsiflexion, plantar flexion, and navicular height in both sitting and standing; bilaterally. The results of this study indicate that there is a significant difference between the foot characteristics of patients with medial compartment knee osteoarthritis, when compared patients with lateral compartment knee osteoarthritis.

Key Words: Osteoarthritis (OA), FPI, Navicular height, Dorsiflexion and Plantar flexion

Osteoarthritis is the commonest of all joint diseases. It is truly a universal disorder, affecting both sexes and all races; everyone who lives long enough will have it somewhere, in some degree (Louis Solomon, 2001). However there are significant differences in its rate of occurrence in different ethnic groups, in different sexes within any group and in different joints (Jordon JM, *et al.,* 1996). Osteoarthritis increases with is major public health problem. The World Health Organization estimates that osteoarthritis age and sex specific differences are evident (van Sasse, *et al.,* 1989). Knee osteoarthritis is a disease common in older adults that can result in significant disability because of pain, stiffness and loss of joint motion. Osteoarthritis is one of the major causes of impaired function which degrades health and functional capacity worldwide (Wluka A2006). The pathology of osteoarthritis involves the whole joint in a disease process that includes focal and progressive articular cartilage loss with concomitant changes in the bone underneath the cartilage, including development of marginal outgrowths, osteophytes and increased bony sclerosis. These structures include synovium, ligament, muscles and capsule, etc. (Lawrence JS, *et al.,* 1966). The etiology of osteoarthritis is complex embracing genetics, Biochemistry and Biomechanics (Felson D, *et al.,* 2000) . Biomechanics play a central role (Hunter D., and Felson, D. 2006). Several long term studies have shown that osteoarthritis is neither a condition of relentless progression, nor a disease. It is the result of imbalance between the mechanical stresses on the joint and the ability of the tissues (especially the articular cartilage) to withstand it. It has been suggested that investigating any underline biomechanical abnormality should be a priority for conservative management of osteoarthritis (Brandt P, *et al.,* 2006). Lower limb weight bearing joints are particularly susceptible to biomechanical stress. This may be specific to the joint site and even the joint compartment. In 90 per cent cases, the radiographic lesions are exclusively medial and rarely involve the lateral compartment, when followed over many years (David J. Magee, 2008).

A study done by (Michael D. *et al.,* 2005) demonstrated that individuals with medial knee osteoarthritis attempt to stabilize the knee with greater medial muscle co-contraction in response to laxity that appears on only the medial side of the joint. This strategy

presumably contributes to higher joint compression and could exacerbate joint destruction and needs to be altered to slow or stop the progression of the OA disease process.

In people with medial knee OA, medial tibiofemoral compressive loads are increased in the presence of varus knee alignment and may be seen as higher knee adduction moments during walking, both of which have become hallmarks of the disease (Prodromos CC, *et al.,* 1985). The observer should thus examine the affected joint, i.e., the knee, as well as the joints above and below, i.e., the hip and the ankle-and-foot complex, in order to plan proper rehabilitative protocol. We should examine patients in standing and walking, to record any Leg Length Discrepancy (LLD), valgus or varus alignment of knee, and gait patterns. Differences in foot types are more easily observed during standing and walking (weight bearing stance) (David J. Magee, 2008).

Sports Medicine has a long tradition of linking foot posture and ankle Range of Motion to lower limb musculoskeletal injuries (Fu F, and Feldman A, 1990). Much of this work focuses on younger people or active runners. Studies demonstrate a relationship between foot types and athletic problems such as patellar pain and lower extremity musculoskeletal injuries (Sterglou N, and Bates NT, 1997). Athletes with both pronated and supinated feet have been shown to have significantly more knee pain than a neutral group. The foot is now more often considered when the lower limb is being examined. Foot posture and lower limb osteoarthritis can also be linked (Reilly K, *et al.,* 2006) . Previous studies also show that patients with osteoarthritis of the knee had an increased incidence of Leg Length Discrepancy and a more inverted subtalar joint neutral position on the affected side (Brower D, *et al.,* 1997). Recently, it has been suggested that orthoses that alter hind foot characteristics might prove useful in conservative management of osteoarthritis of knee; and lateral wedged insoles have been proposed (Toda Y, *et al.,* 2004). It is doubtful whether these lateral wedged insoles have any long term benefits in altering structure/symptoms in patients with medial compartmental osteoarthritis of the knee. Therefore, a comprehensive assessment of the foot posture could be important to devise an effective protocol for conservative management of Knee osteoarthritis. At present, detailed

examination of foot posture and ankle-and-foot range of motion is not a routine part of assessment of patients with medial/lateral compartmental osteoarthritis of the knee (Reilly K, *et al.*, 2009). Hence the purpose of this study is to examine the differences in foot postures of the patients affected with medial/lateral compartmental osteoarthritis of the knee.

Methodology

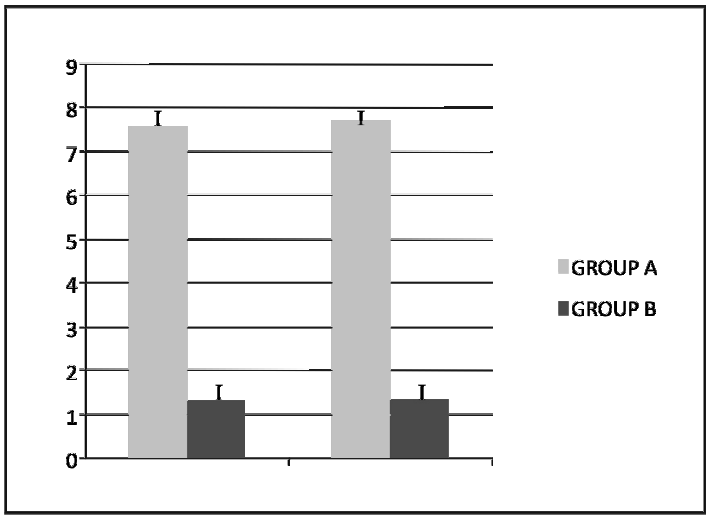
A group of 40 subjects of ages between 45 to 55 years participated in the study. The subjects were divided into 2 groups. Group A (n=20) included the subjects suffering from primary, bilateral medial compartmental knee osteoarthritis; and Group B (n=20) consisted of subjects suffering from primary, bilateral Lateral compartmental knee osteoarthritis; Diagnosed by an orthopedic surgeon, Grade 2 or higher Kellegren-Lawrence radiographic severity of tibiofemoral osteoarthritis in standing AP view,. The Exclusion Criteria for the study was Subjects with trauma of the lower limb, Subjects with surgery on the lower limb, Subjects having any implants in the lower limb, Subjects with neurological problems, Subjects with other form of arthritis, e.g., rheumatoid or gouty arthritis, Subjects with hip or spinal problems, referring pain to the knee, Subjects with any active illness that may interfere with participation in the study, Subjects with mental illness and disability disorders, Subjects unable to walk without mobility aid such as cane, Subjects with any musculoskeletal or cardiopulmonary condition that would hinder ambulation, Subjects under care of an orthotist or wearing some orthosis/prosthesis.we measured FPI, dorsiflexion, plantarflexion, and navicular height in both sitting and standing; bilaterally.

Results

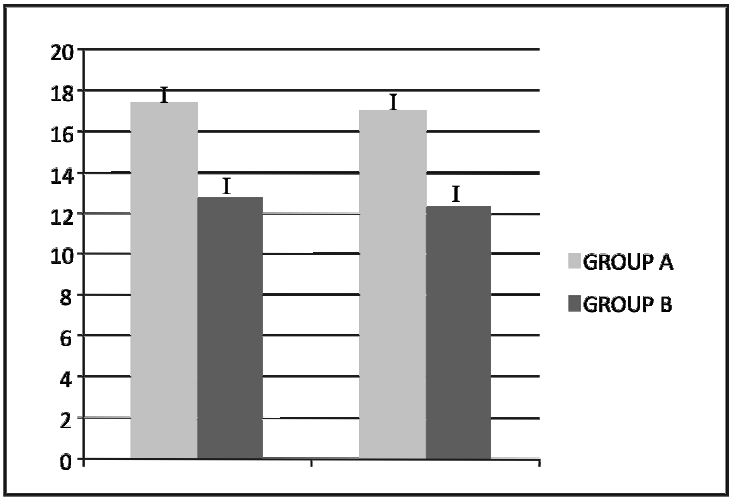
The data collected for the two groups was analyzed using Microsoft Excel 2007 for the following statistical functions

1. Mean of age, FPI, dorsiflexion, plantarflexion, and navicular height in both sitting and standing; bilaterally.
2. Standard Deviation of age, FPI, dorsiflexion, plantarflexion, and navicular height in both sitting and standing; bilaterally.

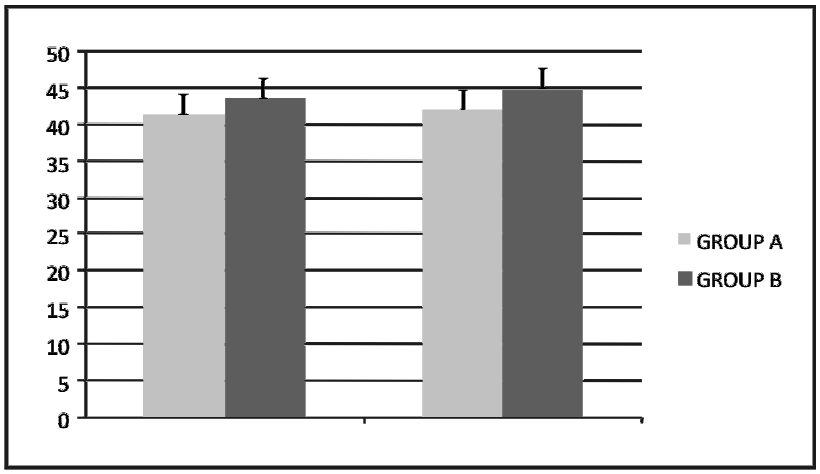
3. Unpaired (independent) t-test for testing the significance of mean-difference between the two groups, for all these variables.



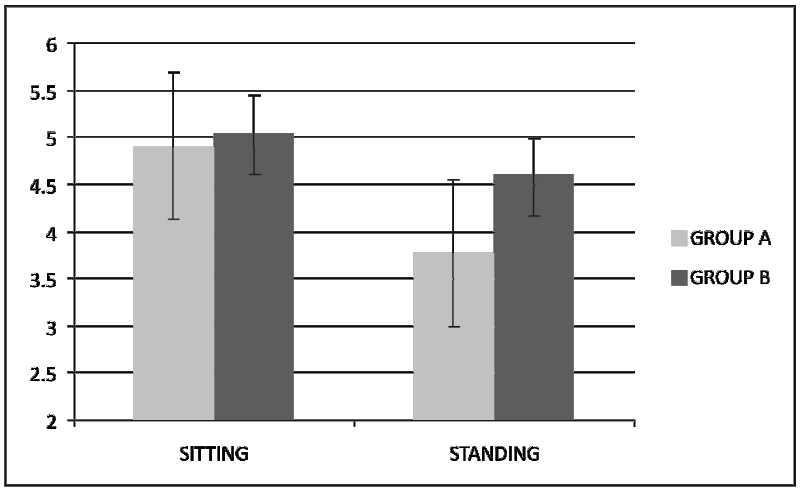
Bar graph comparing the FPI scores between the two groups.



Bar graph comparing the ankle dorsiflexion range of motion between the two groups.



Bar graph comparing the ankle plantarflexion range of motion between the two groups.



Bar graph comparing navicular height in sitting and standing of right lower extremity between the two groups

The results of this study indicate that there is a significant difference between the foot characteristics of patients with medial compartment knee osteoarthritis, when compared patients with lateral compartment knee osteoarthritis.

Individuals with medial compartment knee osteoarthritis were found to have more pronated feet (FPI= +7.5±1.838) when compared with lateral compartment knee OA (FPI= +1.2±0.633).

This increased foot pronation can be explained from the mechanical viewpoint. The varus deformity of knee, which is typical of medial compartment knee osteoarthritis, leads to medial tibial torsion, which, in turn, leads to subtalar joint pronation.

Moreover, pronated feet are more flexible and mobile. This could explain the reason for higher ranges of ankle dorsiflexion in patients with medial compartment knee osteoarthritis (dorsiflexion= 17±3.008 degrees) as compared to those of patients with lateral knee OA (dorsiflexion= 12.25±1.226 degrees).

Discussion

The results of this study indicate that there is a significant difference between the foot characteristics of patients with medial compartment knee osteoarthritis, than patients with lateral knee OA Individuals with medial compartment knee osteoarthritis were found to have more pronated feet (FPI= +7.5±1.9) when compared with the healthy elderly individuals (FPI= +1.3±0.633). This increased foot pronation can be explained from the mechanical viewpoint. The varus deformity of knee, which is typical of medial compartment knee osteoarthritis, leads to medial tibial torsion, which, in turn, leads to subtler joint pronation. Moreover, pronated feet are more flexible and mobile. This could explain the reason for higher ranges of ankle dorsiflexion in patients with medial compartment knee osteoarthritis

A study that examined the ankle dorsiflexion in different age groups noted that ankle dorsiflexion decreased with advancing age (Brower *et al.,* 1997), but such reduction in dorsiflexion range of motion is not consistent in patients with osteoarthritis of the medial compartment of the knee, because of their pronated foot posture.

The foot characteristics were observed using the Foot Posture Index (FPI). It is an easy tool and yields a numerical score for foot posture (Reilly *et al.,* 2009). The findings of present study show that it is sufficiently sensitive to demonstrate the differences between the patients with medial compartment knee osteoarthritis and lateral compartment knee OA. The pronated foot posture in medial

compartment knee osteoarthritis can also be established by measuring the height of navicular tuberosity, that is used to represent the height of medial longitudinal arch. There were no significant differences ($p=0.3503$) between navicular heights of the two groups when the subjects were in sitting position (partial weight bearing position). But as the subjects assumed the weight bearing stance, that is, the relaxed standing position, significant differences ($p<0.0001$) in the navicular heights could be noted. Patients with medial compartment knee osteoarthrtis had lower height of medial longitudinal arch (navicular height= 3.75 ± 0.772 cm) when compared other group (navicular height= 4.645 ± 0.439 cm); when measured in relaxed standing position. This result also shows that patients with medial compartment knee osteoarthritis have pronated foot postures in weight bearing stance. Pronated feet are more mobile and associated with collapse of arches of the foot. Hence, the navicular height drops in weight bearing stance, in medial compartment knee osteoarthritis patients. These findings coincide with the findings of FPI and both indicate that patients with medial compartment knee osteoarthritis have more pronated feetatched Similar findings were obtained in A study by Reilly *et al.,* (2006) who compared the ankle range of motion, height of medial longitudinal arch and calcaneal angle to achieve the foot characteristics of patients with medial compartment knee osteoarthritis. They found ample dorsiflexion ranges and lower arches in osteoarthritis group, contrasting with the lower dorsiflexion ranges and normal arches in the control group of healthy elderly subjects.

A study conducted by Aeilly *et al.,* (2006) Compared the foot postures of patients with mdial compartment knee osteoarthritis with the control group of asymptomatic elderly persons, using the foot posture index (FPI). They also found that patients with medial compartment knee osteoarthritis have more pronated foot posture and higher ranges of ankle dorsiflexion as compared to the control group.

Guidelines for managing knee osteoarthritis issued by National Centre for Clinical Excellence London (Reilly K, *et al.,* 2006) recommends orthotics and footwear advice along with physiotherapy. Currently only one intervention has been suggested, that is, the use of lateral wedged insoles. But there is little evidence regarding efficacy of this intervention (Pham T, *et al.,* 2004). Moreover, if patient already has a pronated foot, lateral wedge might further increase pronation

and lead to further deviation. In sports medicine, pronated foot is treated using medial wedge or anti-pronation taping (Inman V, and Mann R, 1978). Hence, it is recommended that physiotherapist should examine the feet of the patients before advising any orthotic intervention for the foot in patients with medial compartment knee osteoarthritis.

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Urban Lifestyles and Psychological Health of the Elderly in Kolkata

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ABSTRACT

The objective of the present study was to evaluate the possible effect of lifestyle related factors on psychological health among the urban elderly. 269 elderly (male: 148; female: 121) of the middle class urban Bengalee population of Saltlake city, Kolkata participated in this study. Data regarding socio economic profile, health status, and physical activity were collected through pre-tested questionnaires. Nutritional status was assessed by Mini Nutritional Assessment (MNA) questionnaire and Cohen's perceived stress questionnaire was used for collecting data on perceived stress. The mean GHQ–28 score for male was 7.40 and for female was 8.79 and the difference was statistically significant. Those who reside in extended families had significantly high mean GHQ score than those who live in nuclear families. Significant difference was found between the mean values of GHQ–28 score among the "well nourished" and "not well nourished" female elderly subjects of this study. Significant difference was found in mean values of GHQ–28 score between the elderly with "low stress score" and "high stress score" irrespective of sex.

Key Words: Lifestyle, Psychological Health, Perceived stress, Nutritional status, Living arrangement, Physical activity, Urban Elderly

Population ageing is a triumph of modern society. It reflects improving elderly health, but also raises special challenges for the 21st century in both developing and developed countries. It is often claimed that ageing is accompanied by multiple illnesses and physical ailments. Thus health problems are supposed to be the major concern of a society as older people are prone to suffer from ill health. Besides, physical illnesses, the aged are more likely to be victims of poor mental health, which arises from senility, neurosis and lack of life satisfaction. Thus, the health status of the aged occupies a central place in any study of the elderly population.

Dietary habits and choices play a significant role in the quality of life, health and longevity. Among the elderly drug-nutrient interaction affects their food intake (appetite, taste, smell, etc.) and again alters the nutrient absorption, excretion and nutrient metabolism (Roe, 1984).

WHO, in 1996, issued "Heidelberg guidelines" for promoting physical activity among older persons. Physically active lifestyle not only enhances the chance of disease free life in later years, but also increases the sense of psychological well-being (Prakash, 2004). Transitional changes in the lifestyle from active to relatively sedentary are considered as one of the most important causes of adverse effect on health among the elderly.

Psychological stress has been defined as the extent to which persons perceive (appraise) that their demands exceed their ability to cope. Stress can increase the risk of several leading causes of death like cardiovascular disease, cancer, diabetes, and endocrine disorders among the elderly (Math *et al.,* 2006).

Sheela and Jayamala (2008), in their study on elderly women of Coimbatore district inferred that the elderly women have psychological problems like depression, isolation, loneliness and irritation. A field study conducted in Calcutta (now Kolkata), observed that common mental disorders in women are correlated with age, marital status, occupation, education and family roles. Women did have a much higher rate of poor mental health assessed through General Health Questionnaire–12 (Chakroborthy, 2001). Depression is the most prevalent mental health problem among women in India as it is found elsewhere, as well (Carstairs and Kapur, 1976; Kapur, and Singh, 1983; Kapur, and Shah, 1992; Daver, 1999). On the other hand anxiety

and insomnia were found in 3.4 per cent of the aged (males 2.4% and females 4.1%) followed by somatic symptoms (2.9%), social dysfunction (1.5%) and severe depression (1.1%) among the urban elderly of Mysore city (Boralingaiah *et al.,* 2012). These results show similarity with other studies (Goldberg, and Williams, 1988; Sanderman, and Stewart, 1990). General Health Questionnaire –28 was used in another study among the male adults of Kolkata to detect the psychiatric morbidities among them (Deb *et al.,* 2010). General Health Questionnaire –28 score is associated with age, sex, illiteracy, financial dependency on other family members, not living with spouse, and poor socio-economic status in a study on elderly of Tarakeswar, West Bengal (Datta *et al.,* 2013).

Fact remains that the effect of various lifestyle-related factors, viz. socio-economic status, physical activity pattern, dietary practices, substance use and perceived stress on psychological health have rarely been examined in a single study among the elderly. To present researchers information, such a study has never been conducted among the Bengali community of Kolkata. Thus, the present study evaluates the possible effect of abovementioned lifestyle related factors on psychological health among the Bengali elderly urban population of Salt Lake, Kolkata.

Method

The study population was Bengali speaking Hindus belonging to middle class, well educated social group. Salt Lake City of Kolkata was chosen purposively as an urban area for the following reasons: (1) predominantly Bengalee population (2) socio-culturally homogenous and (3) operational convenience. This group is exposed to lifestyle changes owing to the socio-cultural changes as influenced through forces of modernization. 269 elderly of both sexes (male–148 and female–121) aged between 65 and 79 years were randomly selected from 10 blocks of Salt Lake City.

Tools Used

Psychological Health Measure

Psychological health status was assessed using Goldberg's (Goldberg, 1978) General Health Questionnaire (GHQ–28). The

GHQ–28 consists of four subscales: somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. In this study, the bimodal method was applied (0–0–1–1). The scores were summed up by adding all the items on the scale ranging from 0–28. Due to various thresholds of the GHQ–28, the mean GHQ score for a population of respondents was suggested as a rough indicator for the best cut-off point (Goldberg *et al.*, 1998; Zulkefly, and Baharudin, 2010). Therefore, based on the mean GHQ score for the sample, the cut-off point 8/9 was used to determine the respondents' level of psychological well being. A score of 8 or below 8 indicates a positive mental health while a score of 8 or above indicates a poor mental health. It has become one of the most widely used screening tools internationally, including in India (Shamasundar *et al.*, 1986; Gautam *et al.*, 1987; Patel, 1999).

Socio-Demographic Characteristics

Socio-demographic data of the study participants were taken through an appropriate pre-tested questionnaire. Information on age, sex, marital status, monthly personal income and expenditure, occupational status, educational status, living arrangement were collected. Actual age ascertained through cross checking of age mentioned in the electoral roll or from voter's identity card .

Physical Activity Pattern

Data regarding their daily physical activities performed by the study participants, their recreational activities and duration of the activities were collected through a pre-tested questionnaire. Data on television watching, stairs climbing, whether performing any physical exercise, type of transportation used and the like were also collected. Actual activities done in one day (last day preceding the survey date) were recorded to assess their actual activity level. The collected data were broadly classified into three groups, namely: a) sedentary work which included television watching, worshipping, reading newspaper, magazine, books, etc. and kitchen work; b) moderately active work that included cleaning, gardening, using staircase; c) severely active work which included going to market, walking and performing physical exercise. Furthermore, daily calorie expenditure in terms of kilocalorie (Kcal) (CE) has been derived for each individual by

considering energy expenditure in a period of 24-hour multiplied by a factor for that activity and the weight of the given participant, as described in the report by FAO/WHO/UNU (1985).

Based on amount of CE two groups were categorized: more active (above and equal the median value of CE, i.e., 1350 Kcal) and less active (below the median value).

Mini Nutritional Assessment (MNA)

Nutritional status of the elderly study population was assessed by Mini Nutritional Assessment Questionnaire (MNA, 2006; English, full version). The full MNA questionnaire includes 18 items grouped into 4 rubrics: anthropometric assessment (BMI, weight loss, mid upper arm and calf circumferences); general assessment (lifestyle, medication, mobility and presence of depression or dementia); short dietary assessment (number of meals, food and fluid intake and autonomy of feeding) and subjective assessment (self perception of health and nutrition). Each answer has a score and contributes to the final score. Maximum score that can be obtained by an individual is 30.

The score has three threshold values: = 24 for well nourished; 17–23.9 for at risk of malnutrition; and < 17 for malnourished. For the analyses, the well nourished group is denoted as "well nourished" and the rest as "not well nourished".

Perceived Stress

The *Perceived Stress Scale* (PSS) is widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one's life are appraised as stressful. The PSS was utilized since 1983 and has become one of the most widely used psychological instruments for measuring nonspecific perceived stress (Cohen *et al.,* 1983). It is a 10 item self report questionnaire with a five point scale that ranges from 0 to 4. Items 4, 5, 7 and 8 are positively stated items. So, obtained scores on items 4, 5, 7 and 8 will have reverse score, viz. 0=4, 1=3, 2=2, 3=1 and 4=0. Summing up of all 10 items will provide the total score. Questionnaire on perceived stress was of likert type. Scoring is done after adding all the scores which range between 0 and 40. Higher score denotes higher stress level.

The cut-off value used in the present study was as follows:

"Low stress": below the median value, i.e., < 10 and "high stress": = 10

The study was approved by the institutional ethics committee of Indian statistical Institute. Persons with severe physical and mental disability were excluded.

Statistical Analysis

In the present study the internal consistency of the 28 items of GHQ was tested using the Cronbach's alpha. The Cronbach's alpha value for the whole sample was found to be 0.66. A co-efficient value between 0.50 and 0.70 is typically reliable (Guilford, 1965).

The mean, standard deviation, along with the maximum and minimum scores on the GHQ was computed. Student's t-test and ANOVA was used to compare the relation between the socio-demographic variables and GHQ score in the study population. To compare the mean between stress groups, physical activity groups and nutritional status groups Man-Whitney test was used. Furthermore, stepwise multilinear regression analyses were done to find out the significant predictors of GHQ–28 scores and socio-demographic variables, MNA score, physical activity pattern and perceived stress score among the study population as independent variables which allowed us to examine which variables affected the odds of having a high score on the GHQ 28. In the present analyses marital status is of multiple categories and it has therefore, been converted into dummy variables. All the other socio-demographic variables were introduced as binary variables and others as continuous variables. Only significant predictor variables of GHQ score were presented in the table. All statistical analyses are done using SPSS 16.0 Integrated Student version (Prentice Hall; 1 Cdr edition).

Results

Table 1 shows the sociodemographic characteristics of the study population. The total sample comprised 269 individuals of aged 65 to 79 years. Among them 148 (55%) were males and 121 (45%) were females. The mean age of respondents was 70.83 ± 4.64 years. As for family type among the male 44.6 per cent were living alone or with

their spouses and 55.4 per cent were living in an extended family. In case of females majority (57.9%) of them living with their families and 42.1 per cent lived alone or with spouse. Marital status of the elderly indicate that 70 per cent of the males were married, and 20 per cent were widower and in case of female the percentages of married & widowed were 53 per cent and 47 per cent respectively. Data related to educational status showed that as high as 95.3 per cent of males were highly educated (i.e., graduate and above) whereas among the female the percentage of the same category was also high 66.9 per cent. The majority of them (56.2%) were home makers and 43.8 per cent of them were in service before retirement. As for the aged men, only 7.4 per cent were businessmen whereas, 92.6 per cent were in service. Based on their monthly household income 64.9 per cent of males and 54.5 per cent of females, respectively fall in > Rs 25,000 group.

Table 1
The Socio-demographic Characteristics, by Sex

Variables	*Male (n = 148)*	*Female (n = 121)*
Marital Status		
Married	137 (92.5%)	88 (72.8%)
Unmarried	2 (1.4%)	2 (1.6%)
Widow/Widower	9 (6.1%)	31 (25.6%)
Family Types		
Nuclear	66(44.6%)	51(42.1%)
Extended	82(55.4%)	70(57.9%)
Educational Status		
Below graduate	7(4.7%)	40(33.1%)
Graduate or Above	141(95.3%)	81(66.9%)
Past occupation		
Service	137(92.6%)	53(43.8%)
Business	11(7.4%)	
Housewife	N.A	68(56.2%)
Monthly Household Income		
< Rs 25,000	52(35.1%)	55(45.5%)
= Rs 25,000	96(64.9%)	66(54.5%)

Table 2 presents the characteristics of GHQ–28 score among the study population. Employing the bimodal method, the mean GHQ score was found to be 8.03± 5.11. The descriptive statistics showed that a majority of both the males and females (64.9% & 52.9% respectively) exhibited positive mental health (score 8 and below) while 35.1 per cent of males and 47.1 per cent of females had some indications of mental health problems as identified by GHQ–28 (cut off score: 9 or above).

Table 2
Characteristics of GHQ–28 score, by sex

Total GHQ–28 Score	*Male (n=148)*	*Female (n=121)*
=8 (Low score)	96(64.9%)	64(52.9%)
>8 (High score)	52(35.1%)	57(47.1%)

Table 3 presents the result of t-test for differences in psychological health status based on total GHQ–28 score and their subscales between the sexes. The mean total GHQ score and their 4 subscales for the present study population were 8.03±5.11; 1.62±1.50; 2.38±1.85; 2.95±2.02 and 1.09±1.82 respectively when pooled for age and sex.

Table 3
The Differences in GHQ–28 Total Scale and Subscales by Sex Among the Study Population

GHQ–28 Subscales	*Male (n=148)* $\bar{x}$ ± *sd*	*Female (n=121)* $\bar{x}$ ± *sd*	*t-value*	*Total (n=269)* $\bar{x}$ ± *sd*
Somatic symptoms	1.49±1.53	1.79±1.45	1.63	1.62±1.50
Anxiety/insomnia	2.10±1.81	2.63±1.89	2.00*	2.38±1.85
Social dysfunction	2.84±2.13	3.09±1.88	1.02	2.95±2.02
Severe depression	0.93±1.64	1.29±2.00	1.60	1.09±1.82
GHQ_28 total scale	7.40±5.30	8.79±4.77	2.25*	8.03±5.11

* $p \leq 0.05$

Table 4 presents the test of significance between the mean GHQ–28 score and the socio-demographic variables among the study population. Females showed significantly higher mean GHQ score compared to males (8.93 vs. 7.46) which indicates that the females have

poor mental health than the males. Those who reside in extended families have significantly high mean GHQ score than those who live in nuclear families (8.86 vs. 7.18). Married individuals have marginally low score than the unmarried (7.86 vs. 8.43) and those who lost their spouse (9.00). Elderly with the education level 'below graduate' had high mean GHQ score than the 'graduate and above' group (9.78 vs. 7.79), but statistically not significant.

Table 4

Test of Significance of Differences between the Mean GHQ Score and Socio-demographic Variables among the Study Population

Variables	$\bar{x} \pm sd$	*t-value*	*p-value*	*Confidence Interval (CI)*
Sex				
Male (n=149)	7.46±4.99	2.49	0.01*	(–2.62) – (–0.30)
Female (n=121)	8.93±4.56			
Family Type				
Nuclear (n=116)	7.18±4.86	2.84	0.005*	(–2.85) – (0.52)
Extended (n=152)	8.86±4.76			
Educational Status				
Below graduate (n=46)	9.78±5.23	2.55	0.01*	(0.45) – (3.53)
Graduate and above (n=222)	7.79±4.73			
Monthly Household Income				
< Rs 25,000 (n=105)	8.01±4.98	0.31	0.76	(–1.39) – (1.01)
= Rs 25,000 (n=162)	8.20±4.81			
Marital Status#				
Married (n=216)	7.86±4.89	1.05	0.35	
Unmarried (n=7)	8.43±4.76			
Widow/Widower (n=44)	9.00±4.27			

#One-way ANOVA; ** $p \leq 0.01$

Table 4 presents the mean and standard deviation of GHQ–28 score according to physical activity level among the elderly. In case of males the mean values of GHQ–28 score are 7.2 and 7.7 among the "more active" and "less active" elderly respectively whereas, in case of females, the mean values are 8.7 and 9.3 respectively.

Table 5 presents mean and standard deviation of GHQ–28 score according to MNA score level among the elderly. In case of males the

mean values of GHQ–28 score are 8.2 and 15.0 among the "not well nourished" and "well nourished" elderly respectively whereas, in case of females, the mean values are 15.2 and 8.9 respectively.

Table 5
Mean and Standard Deviation of GHQ–28 Score According to Activity Level, by Sex

PA level	*Male (n=148)* $\bar{x} \pm sd$	*Female (n=121)* $\bar{x} \pm sd$	*Total (n=269)* $\bar{x} \pm sd$
More active	7.2±5.1	8.7±4.6	7.9±4.9
Less active	7.7±4.8	9.3±4.7	8.5±4.8
z value	0.6	0.7	1.0

Table 6 presents the mean and standard deviation of GHQ–28 score according to perceived stress score level among the elderly. In case of males the mean values of GHQ–28 score are 6.5 and 8.3 among the elderly with "low stress score" and "high stress score" respectively whereas, in case of females, the mean values are 8.1 and 10.1 respectively.

Table 6
Mean and Standard Deviation of GHQ–28 Score According to MNA Score Level, by Sex

MNA Score Level	*Male (n=148)* $\bar{x} \pm sd$	*Female (n=121)* $\bar{x} \pm sd$	*Total (n=269)* $\bar{x} \pm sd$
Not well nourished	8.2±5.2	15.2±6.5	15.2±5.8
Well nourished	15.0±0.1	8.9±4.2	8.6±4.7
z value	1.3	3.09**	3.3**

** p= 0.01

Table 7 shows results of multilinear stepwise regression analysis using socio-demographic variables, MNA score, calorie expenditure, stress score as independant variables and subscales and total GHQ–28 score as dependant variable, by sex. Among the male, PSS is the significant predictor for physical health, anxiety/insomnia subscales, while marital status is the significant predictor for severe depression. Widowers are likely to score high than the other two groups. On the other hand in females, PSS is the significant factor for physical health,

anxiety/insomnia and severe depression subscales, while marital status is the significant predictor for social dysfunction subscales and MNA score is the other significant predictors for physical health subscales. Well nourished individuals are less likely to have high score than the below well nourished group.

Table 7

Mean and Standard Deviation of GHQ–28 Score According to Perceived Stress Score Level, by Sex

PSS level	*Male (n=148)* $\bar{x} \pm sd$	*Female (n=121)* $\bar{x} \pm sd$	*Total (n=269)* $\bar{x} \pm sd$
Low stress	6.5±4.5	8.1±4.2	7.3±4.5
High stress	8.3±5.4	10.1±5.2	9.1±5.3
z value	2.2*	2.5*	3.1**

* p= 0.05; ** p= 0.01

Discussion

The present study was purported to evaluate the health, more particularly the mental health of the elderly population living in a middleclass urban setting. Another objective of this study was to investigate whether there was any difference existing between the genders, socio-demographic, economic variables as well as life style related variables like physical activity, nutritional status and perceived stress in respect of total GHQ–28 score and that in their four subscales.

The present study reveals that almost 60 per cent of elderly people of Salt Lake City remain mentally healthy. However, remaining 40 per cent showed signs of potential mental health problems. Many of them are experiencing anxiety and worries, loneliness, confronted with issues of social dysfunction, and depression in their daily life. Nevertheless, compared to elderly of a rural locale in West Bengal, the urban elderly of Salt Lake have significantly less mental health problems, as demonstrated in a recent study considering several mental health traits (Maity, 2013).

Furthermore, the proportion of elderly experiencing mental health problems in this study is relatively lower compared to the study done by Deb *et al.,* (2010) among the elderly male of Kolkata and

among the elderly of Tarakeswar, a small suburban town in the district of Hoogly (Datta *et al.*, 2013).

Table 8

Results of multi-linear stepwise regression analysis using socio-demographic variables, MNA score, calorie expenditure, stress score as predictor of GHQ–28 score, by sex

Sex	*Dependant Variable*	*Significant Predictors*	β	*CI*	*R2*
Male (n = 148)	Somatic symptoms	PSS	0.06	(0.02 to 0.11)	0.10
	Anxiety/insomnia	PSS	0.09	(0.04 to 0.14)	0.11
	Severe depression	Marital status	0.56	(0.12 to 1.01)	0.08
	Total GHQ–28	PSS	0.23	(0.09 to 0.37)	0.12
Female (n = 121)	Somatic	PSS	0.06	(0.01 to 0.11	0.08
	Symptoms	MNA score	–0.17	(–0.27 to –0.37)	
	Anxiety/insomnia	PSS	0.09	(0.02 to 0.15)	0.10
	Social dysfunction	Marital status	0.36	(0.02 to 0.70)	0.11
	Severe depression	PSS	0.12	(0.05 to 0.19)	0.08
	Total GHQ–28	PSS	0.24	(0.09 to 0.40)	0.16
		MNA score	–0.41	(–0.66 to –0.16)	0.16

The present study also found rather significant correlations between the subscales, indicating the inter-relatedness of the sub scales, which in line with the existing evidences through literatures on mental health assessment was using the GHQ 28 (Sanderman, and Stewart, 1990; Krol *et al.*, 1994; Goldberg, and Williams, 1988).

Further, the study found that women have higher score on the GHQ 28 scale than men which are also similar with the few other studies (Goldberg, and Williams, 1988; Nagyova *et al.*, 2000). Widowhood was also a significant cause for poor mental health. Tellez-Zenteno, and Cardiel (2002) also reported the same observation in Mexican elderly. In India, life expectancy of females is more and normally they marry with husband older to them. So in this age group the widowhood is more common among females than males which may lead to poor mental health. Widowed, divorced or unmarried state leads to the feeling of loneliness, lack of purpose and dissatisfaction in life in addition to loss of income. Ramchandran *et al.*, (1982)

also revealed that separated or divorced respondents were associated with late life depression among the sub urban area of Chennai city. Another study done by Boralingaiah *et al.,* (2012) among the urban elderly of Mysore city also found the similar trend.

This study reveals, furthermore that social dysfunction is the major contributing factor for poor mental health among the male but anxiety and insomnia for female. This result also supports the previous findings in other studies (Goldberg, and Hillier, 1979). Old age is associated with various physical disabilities which lead to dependency on others for daily activities. This dependency on others leads to often times depressive feeling (Berardi *et al.*, 2002). Negligence by family members, perceived or real could be the most important factor for depression among elderly persons. Post Felix (1983) and Zisook (1998) also showed that lack of affection and care were precipitating factors for depressive illness in elderly in their study.

The present study found that the mental health of the elderly was different in terms of family types and educational status. For both sexes those who have more educational qualifications had low GHQ score than those who had lesser education, which support the observations by Cohen *et al.,* (1995). As age moves ahead there is a possibility to change in one's life style and attitude. For educated persons it is relatively easier to accept this change as compared to those who remain less educated (Kamble *et al.*, 2012).

Sonar (2004) found significant association between geriatric depression and marital status, living arrangements, type of family, decision-making, and adjustment with old age, feeling of isolation, and feeling of insecurity. However, in the present study perceived stress score, MNA score and marital status remained significant predictors of GHQ–28 score. The difference in GHQ score in respect of family type shows interesting and possibly contrasting results in our study population. Those who lived in the extended family, have higher GHQ score irrespective of sexes. That loneliness affects psychological health is amply documented (Mima *et al.*, 2005). However, the present study provides a situation contrary to such observation. Many factors are seemingly contributing to the scenario existing in the study population. It appears that the socio-cultural factors leading to inter-generational conflict in respect to attitudes and world view could

be a major contributor to relatively adverse psychological health in the elderly living in extended families.

Concluding Remarks

To sum up, the present study revealed that while many elderly people of Saltlake city, Kolkata, were psychologically healthy in general, yet, a considerable proportion of them had been on the verge of facing psychological distress. It appears that while educational achievement influences positively to enhance psychological health of the elderly in one hand, extended family type, malnourishment and perceived stress on the other enhances psychological distress among them.

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Economic Variables and Ageing Experiences in India: Towards a Macro-View

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ABSTRACT

This paper uses relevant macro data to ascertain the impact of economic variables on the non economic aspects of well being of aged in India. The study first map the economic status of elderly in India using variables like labour force participation, nature of employment, asset holding and expenditure pattern. Then the impact of economic variables on living conditions of elderly in India was analyzed. This analysis proved that even though economic well being is only one among many components of over all well being, it has a significant bearing on overall well being of aged in India. The efficacy of pension schemes and other social security systems for aged were also analyzed in this context. The study concludes with a few suggestions to improve the state of elderly in India.

Keywords: Ageing, Elderly, Income, India, Kerala.

Economic problems are one of the major issues faced by aged population across the world. (Government of Kerala 2010). This paper using some relevant macro data, tries to argue that economic variables influence the non economic aspects of well being of aged in India. The study was organized as follows: First the economic status of elderly in India was mapped. This was done using variables like labour force participation, nature of employment, asset holding and expenditure

pattern. Then the impact of economic variables on ageing experiences was analyzed. The efficacy of pension schemes and other social security systems for aged were also analyzed in this context. The study concludes with a few suggestions to improve the state of elderly in India.

Part I: Economic Factors

Economic Activity of Elderly in India

Work participation: Many studies show that higher work participation by the aged in the third world countries (World Bank, 1994; Williams, 2000) is due to poverty. The case of India is not different. United Nations Population Fund (UNFPA) had published a Report on Status of Elderly in select states in India in 2012 (UNFPA, 2012). According to this report, 24.2 per cent of aged people in India are currently working. Work participation rate among elderly males is 39 per cent and among elderly women is 11 per cent. Work participation among women is low because they contribute to household work, enabling other members to go to work. The majority of elderly workers are in the 60 to 69 age group but the workforce participation among the oldest old (elderly who are 80 years of age and above) is also relatively high (13% among men and 3% among women). 80.5 per cent of the elderly workers are 'main workers', i.e., they work for more than 6 months per year. There is higher work participation among elderly who belong to weaker sections of the society. 24 per cent of SC/ST elderly are main workers where the corresponding figures for OBC and general category is around 18 per cent. A majority of the elderly (71%) work due to economic necessity and not by choice. 68 per cent of elderly men work out of economic compulsion and 82 per cent of elderly women work out of economic compulsion. Thus elderly women face more economic compulsions to work than elderly men. Living arrangement of elderly also influence their economic compulsions to work. 88 per cent of elderly who lives alone faces economic compulsion to work while the corresponding figure for elderly who live with spouse is only 75 per cent. Thus a large number of India's elderly faces economic compulsions to work at their old age. This phenomenon is more prominent among women, destitute and weaker sections of society.

Nature of employment: According to UNFPA (2012) about 51 per cent of India's elderly are employed in agriculture, out of which 28 per cent are agricultural laborers and the rest are cultivators. 36 per cent of them are self employed and 50 per cent are informally employed. Thus majority of India's elderly are employed in sectors with comparatively un attractive employment conditions.

Migration of elderly: Migration (after 60 years of age) is not very common among elderly in India. UNFPA (2012) say that only 3.6 per cent of elderly migrate after 60 years of age. But the corresponding figure in urban areas is 6.8 per cent and rural areas is 2.7 per cent.

Income and Assets

Having analyzed the economic activities of elderly it will be interesting to see how much elderly benefit from these economic activities. Going by UNFPA data, 43 per cent of India's elderly do not have any income. Of the elderly who earn, 21.5 per cent earn only up to Rs. 12,000 per year. Thus despite of a large number of aged being economically active, many of them are not getting remunerative employment. In the case of asset ownership, 77 per cent of elderly own some asset (list of assets include land, house, jewellery, financial savings, etc.). But a disaggregated look at asset holding does not give us a rosy picture. 63.7 per cent of elderly do not own any land, 74 per cent own no jewellery and 78 per cent have no savings. Thus despite fairly large work participation rate of elderly, their earning and asset position of is not very bright.

Transfers to Elderly

Given the bleak position of India's elderly with respect to income and assets, one of the possible sources of decent living of elders is transfers to elders. This can take two forms, either as transfers from their children/relatives or as transfers from government in the form of old age pensions and other social security schemes. UNFPA say that currently only 23.5 per cent of elderly in India receive transfers from their children. In the case of transfers from government, 83.5 per cent of elderly do not receive any types of transfers like retirement benefits and pension benefits. Also the percentage of SC/ST elderly who receive them (6%) is less than that of OBC (9.5%) and general category (14%) elderly. In the case of health insurance schemes, only 2.5 per

cent of elderly in India 'Ever hold' a health insurance policy. Rashtriya Swasthya Bima Yojana (RSBY) scheme provide health insurance to BPL households in India. Only 11 per cent of BPL elderly are aware of it and only 7 per cent of them use it. The scenario is more or less same in the case of awareness and utilization of social security schemes. UNFPA has data on awareness and utilization of three schemes – Indira Gandhi National Old Age Pension Scheme (IGNOAPS), Indira Gandhi National Widow Pension Scheme (IGNWPS) and 'Annapurna' Scheme. 75 per cent of elderly are aware of IGNOAPS, 68 per cent are aware of IGNWPS and 33 per cent are aware of 'Annapurna' Scheme. Fortunately these figures are almost the same for elderly belonging to different socio economic groups. But even though awareness of these schemes is fairly high, utilization of the same by India's elderly is low. Only 13.4 per cent of elderly use IGNOAPS, 19.8 per cent use IGNWPS and 'Annapurna' scheme is used by a mere 1.8 per cent of elderly. However the utilization of these schemes by BPL elderly is comparatively higher. 17.8 per cent of BPL elderly use IGNOAPS, 24.6 per cent use IGNWPS and 3.5 per cent use 'Annapurna' scheme.

Part II: Economic Variables and Experiences of Elderly

Till now, various economic aspects of ageing in India were discussed. Now we will see how these economic factors influence the various problems faced by elderly people. In India, the issue of ageing is much more prominent in state of Kerala than other states (Zachariah and Rajan 1997; Rajan 2008; Zachariah and Rajan 2009). So along with UNFPA data, Report on Survey of Aged in Kerala, published by Department of Economics & Statistics (DES), Kerala will be also used in this regard. Health problems of aged are ubiquitous. UNFPA (2012) has data on Self-rated Health status of aged in India. Only 43.6 per cent of 'general' category elderly report that their current health status is excellent. The corresponding figure for SC/ST and OBC is 42.8 per cent and 46.5 per cent respectively. So socio economic gradients persist in health status of elderly in India. 90 per cent of elderly sought treatment for the illness. 55 per cent of those who do not seek treatment do so due to financial insecurity. Thus UNFPA data clearly indicate the role of economic factors in morbidity of elderly and treatment of the same.

Good food is an important factor in attainment of good health and well being. Report on Survey of Aged in Kerala, published by Department of Economics & Statistics (DES), Kerala has some information in this regard. According to this survey, 88 per cent of elderly reported that the food they get is satisfactory. But the percentage of elderly who reported getting satisfactory food is higher among households with higher income. This becomes clear from Table 1 which show the percentage of elderly in different income groups who are getting satisfactory food.

Table 1

Percentage of Elderly Getting Satisfactory Food According to Monthly Household Income

Income	*Percentage*
Below 500	84.64
500–1,000	90.60
1,000–2,000	92.87
2,000–5,000	95.72
5,000–10,000	95.60
Above 10,000	96.75

Source: Computed by author using data from Report on Survey of Aged in Kerala, Department of Economics & Statistics, Government of Kerala.

The same trend holds in the case of nursing given to elders. According to Report on Survey of Aged in Kerala, the percentage of elderly who get good nursing facilities is more among elderly with more income. This is shown in Table 2.

Table 2

Percentage of Elderly Getting Good Nursing Care According to Monthly Income

Income	
Below 500	91.16
500–1,000	93.51
1,000–2,000	94.62
2,000–5,000	94.72
5,000–10,000	93.79
Above 10,000	94.20

Source: Computed by author using data from Report on Survey of Aged in Kerala, Department of Economics & Statistics, Government of Kerala.

From Table 1 and 2 it becomes clear that elderly with higher incomes receive better food and nursing. We will now move away from material dimension of well being into some psychological dimensions of well being of aged and see how the same are influenced by economic factors. Table 3 show the satisfaction level of elderly by their level of monthly income. It shows the percentage of elderly of different income groups who attain different levels of satisfaction. It also shows the percentage of elderly in different income groups who are feeling lonely.

Table 3
Satisfaction Level of Elderly by Monthly Income

Income	*Fully Satisfied*	*Desperate*	*Feeling Lonely*
Below 500	36.49	5.19	1.74
500–1,000	40.75	2.49	1.16
1,000–2,000	44.19	1.92	0.98
2,000–5,000	49.77	1.40	0.77
5,000–10,000	58.12	1.01	0.71
Above 10,000	62.15	0.76	0.31

Source: Computed by author using data from Report on Survey of Aged in Kerala, Department of Economics & Statistics, Government of Kerala.

Table 3 show that percentage of fully satisfied elderly is more among elderly who belong to higher income groups. The percentage of desperate and lonely elderly is less among elderly who belong to higher income groups. Thus income plays a very dominant role in determining satisfaction and loneliness of elderly.

Old age homes are meant to provide care to elderly. Table 4 shows the percentage of elderly in different income groups who are interested to live in old age homes.

Table 4
Elderly Interested in Living Old Age Homes by Income

	Income					
Interest in living old age homes	Below 500	500–1,000	1,000–2,000	2,000–5,000	5,000–10,000	Above 10,000
Not Interested	82.63	83.49	85.75	88.32	90.36	91.54
Interested	3.52	2.61	2.60	1.98	1.43	0.86

Source: Report on Survey of Aged in Kerala, Department of Economics & Statistics, Government of Kerala.

Table 4 shows that elderly with lower income are more interested to live in old age homes. They might be expecting better care for them at old age homes. But unless government schemes are highly effective, poor elderly cannot have access to old age homes.

Conclusion

Majority of elderly faces economic compulsions to work but are not gainfully employed, resulting in poor incomes and asset holding of elderly. These poor elderly generally do not make proper use of various schemes that are meant for their welfare. Socio economic and gender gradients persist in economic characteristics of aged in India. So economic conditions of India's elderly is not very bright. This dismal economic conditions influence their health status, availability of nursing care and psychological satisfaction/well being. Thus it is very important to strengthen the economic security systems for elderly in India. Government must introduce new schemes and increase the efficacy of existing schemes for welfare of elderly. But it needs to be emphasized that enhancing economic endowments of elderly is only the necessary condition and not the sufficient condition to ensure their overall well being. No amount of money/wealth can substitute the love, respect and care that India's elderly deserves.

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Factors Impacting on Elderly Women's Access to Healthcare in Rural Bangladesh

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ABSTRACT

Bangladesh is identified as one of the poorest countries with disparities in access to healthcare services, especially in rural areas. In this country, elderly women tend to be more acutely and chronically ill than other populations, and in more need of treatment, yet they have less access to healthcare services. This population group is experiencing socioeconomic and cultural discrimination at an individual level and institutional level within the rural context of Bangladesh. Selected primary and secondary sources of literature were explored to identify factors impacting on elderly women's access to healthcare. This overview identified complex interrelated access issues, emerging from the prevailing socio-economic and cultural conditions, across the lifespan. The following factors were identified: early childhood deprivation of adequate food and education; teenage pregnancy; social and economic dependency on males and family; inadequate and ineffectual institutional healthcare arrangements, and the misappropriation of funds. In combination these factors highlight the issue of access to healthcare by elderly women. These findings have implications for the planning and financing of healthcare services for this cohort at the individual and institutional levels in rural Bangladesh. The political, social and economic implications of these findings require significant

changes in the private and public domains to improve the health and wellbeing of elderly women in rural areas.

Key words: Bangladesh, Elderly women, Healthcare access, Rural Health

In Bangladesh, as in many other developing countries of the world, a number of complex and correlated factors and issues determine elderly women's healthcare access. Although public health policies and programmes have been intensified in recent times, the national healthcare system in this country is yet to facilitate universal healthcare access for elderly women. One reason for this is the subordinate position of females in the Bangladesh society resulting in gender inequalities (Abed, 2013). In particular, there are enormous socioeconomic and cultural challenges in ensuring equal access to healthcare services with large disparities in healthcare provision in rural Bangladesh for elderly women. According to the Constitution of the People's Republic of Bangladesh, equal healthcare access is a fundamental right (Government of Bangladesh, 2011a). This constitutional right to universal healthcare access favours childbearing women, and funding is directed to maternal and child healthcare programmes. Healthcare for elderly women is subsumed within this maternal and child healthcare focus (Abedin, 1999; Hossen, 2010; Abed, 2013). While advances in maternal care are encouraging, elderly women remain susceptible and their healthcare needs differ to those of mothers and babies.

Bangladesh has the third largest number of poor elderly people in the world (Help Age International, 2006; Tareque *et al.,* 2013). An increase in longevity and a decline in fertility rates over the last two decades have resulted in a rapid increase in the older population and a decrease in birth rates (Cockcroft, *et al.*, 2004; Bongaarts & Sinding, 2011). The population of Bangladesh aged 60 years or above has risen from 1.37 million in 1911 to 8.52 million in 2013 (Hossain, 2006; Erb, 2011; Central Intelligence Agency, 2013). Elderly women constitute 6.49 million (6.4% of the total population), with an estimated increase to 10 million in the next two decades (Hossen, 2010; Central Intelligence Agency, 2013; Economic and Social Commission for Asia and the Pacific, 2013). Most elderly women live in remote villages and semi-rural zones of Bangladesh and they experience a longer duration

of illness when compared with rural men and other demographic groups in Bangladesh (Rahman, 2006; Abed, 2013). The average duration of an ailment among rural elderly women is 76 months for all diseases, and this is longer than the average duration of illness at a national level of 39 months (Bangladesh Bureau of Statistics, 2010). These women do not seek treatment as they do not consider their illness to be serious enough to warrant this (Biswas *et al.,* 2006; Hossen, 2010). The overall utilisation rate of rural public healthcare services is as low as 30 per cent, with private and traditional healthcare sectors providing medical care for most people (Vaughan, Karim, & Buse, 2000; Andaleeb, Siddiqui, & Khandakar, 2007). This pattern and direction of healthcare access in rural areas for elderly women is determined by a multiplicity of socioeconomic and cultural circumstances at an individual and institutional level.

The representation and participation of elderly women in social and economic institutions in rural Bangladesh is almost non-existent. The circumstances of their lives are diverse in relation to their socio-economic status and cultural characteristics including social isolation, economic exclusion, parochial values and norms, exploitation, stressful living conditions, family relationships and dependency (Biswas *et al.,* 2006; Islam & Nath, 2012; Tareque, *et al.*, 2013). Research indicates that in general terms, elderly women have been traditionally and historically silenced in the socioeconomic context, and this could potentially result in less access to healthcare services (Kabir *et al.,* 2003; Biswas et al; 2006; Hossen, *et al.,* 2013; Kabir & Rana, 2013). In this context, an understanding of access to healthcare services is crucial to the link between elderly women's health and rural socio-economic and cultural characteristics.

In Bangladesh, another important constraint to healthcare access among elderly rural women is an ineffective healthcare structure and inadequate governance. Healthcare services are operated within a pluralistic healthcare structure in rural areas and comprise public, private, and traditional treatment options (Islam, 2009a; Government of Bangladesh, 2011b; Ahmed *et al.,* 2013). The public healthcare institutions include district hospitals, regional health complexes, welfare centres, and community clinics (Uddin & Hamiduzzaman, 2009). The public healthcare system is often characterised as underdeveloped at

the local level in terms of an inadequate number of centres and a lack of healthcare professionals (Ministry of Health and Family Welfare of Bangladesh, 2012; Ahmed *et al.,* 2013). Private healthcare providers consist of private practitioners, clinics, and dispensaries, as well as local non-governmental organisations. This private healthcare system is mushrooming in urban areas and elderly women from rural areas often have to travel to urban areas to receive better healthcare services (Ministry of Health and Family Welfare of Bangladesh, 2012). Furthermore, the private clinics and dispensaries are costly and the private health practitioners often lack the skills and education in healthcare. In this context, the unqualified and semi-qualified traditional healthcare professionals such as village doctors (*palli chikitshak*), traditional healers (*homeopathic, unanie, ayurvedic, kabiraji, ojha, imam,* k*abiraj, pir/fakir*) and drugstore salespersons are the preferred providers of healthcare services for elderly women in rural Bangladesh (Hosain, & Chatterjee, 1998; Cockcroft, *et al.,* 2004). Rural health statistics in Bangladesh indicate that self-treatment is often the usual choice to get relief from diseases. Furthermore, access to healthcare services and resources for elderly women is problematic because of the poor management of available services and the quality of a wider infrastructure. Further to the expense of healthcare, the logistics involved to access healthcare includes a lack of transportation with elderly women who are reliant on others, or having to walk long distances putting them at risk (Islam, 2009b; Bangladesh Bureau of Statistics, 2010; Hossen & Westhues, 2010; Ahmed *et al.,* 2013; El-Arifeen *et al.,* 2013).

To gain a greater depth of understanding regarding the issue of healthcare access for elderly women in rural Bangladesh, a review of the selected primary and secondary sources of literature were examined relevant to problems of accessing healthcare services. This overview addresses the socioeconomic and cultural factors that impact on elderly women's access to healthcare services in rural Bangladesh at the individual and institutional levels. The range of personal, socioeconomic, and cultural factors that influence elderly women's health and healthcare access are discussed as determinants of health at an individual level. These determinants of health and healthcare access reach beyond the boundaries of institutional healthcare sectors, and

include early life experiences, dietary intake, social and economic exclusion, poverty, social stratification, relationships, dependency, and gender discrimination (Ahmed *et al.,* 2005; BBS, 2010; Hossen & Westhues, 2010; Munsur, *et al.,* 2010; WHO, 2010). A discussion of each of these factors follows and identifies how an elderly women's early life impacts on her access to healthcare services.

Childhood Factors

Early childhood circumstances can have a lifelong impact on health and wellbeing and access to healthcare (Kabir, *et al.*, 2002; Munsur, *et al.,* 2010; Nesa *et al.,* 2013). In Bangladesh, rural women have had a scarcity of food throughout their life resulting in general weakness and a compromised immune system and an inadequate intake of food and a poor diet during childhood is a primary cause of malnutrition among rural women (UNICEF, 2009; Nilsson *et al.,* 2012.). Malnourished children are physically weak and lack resistance to diseases and such circumstances in childhood have lifelong implications for elderly women who experienced this (Ahmed *et al.,* 1998; UNICEF, 2009; Rah *et al.,* 2009; Alam *et al.,* 2010). Nilsson *et al.,* (2012) and Nesa *et al.,* (2013) relate early nutrition to living in a poor community which reduces functional capacity in adolescence and affects the long-term health of an individual. This problem of food intake is also associated with a lowered Body Mass Index (BMI) among elderly women in country areas where their BMI is lower than that of urban elderly women in Bangladesh (Shafique *et al.,* 2007). They have further difficulties in their access to clean safe drinking water and often have to walk long distances to reach water sources (Rahman *et al.,* 2014). This issue of an inadequate food intake has contributed to women's social and economic isolation since childhood (Kabir *et al.,* 1998; Hossen & Westhues, 2010). Consumption of food is largely dependent on the level and choice of food consumption by younger male members of the family. This gendered inequality also finds female children more malnourished than male children (Rah *et al.,* 2009; Alam *et al.,* 2010). Elderly female adults, because of an inadequate nutritional intake from early life, not only contribute to an increased need for healthcare but also reduced access to healthcare.

Female children and women also have low levels of knowledge about their health and healthcare needs as they have less access to education than males. Education influences health and healthcare access through a range of complex mechanisms such as income, acquiring information, developing knowledge about risky health behaviours, and the use of preventive services. In rural Bangladesh, formal education for a girl is dependent on the social and economic position of her family. Although primary education and text books are provided free in Bangladesh, there remains little opportunity for girls to receive an education due to the cost of education (Hossain & Zeitlyn, 2010). Most girls are allowed to enrol in primary schools but they leave earlier and at a higher rate than boys due to household poverty, and this is particularly the case in rural and remote areas (Mahmud & Amin, 2006). The early experiences of a low level of formal education results in lifelong healthcare related issues for rural elderly women and their access to health care services.

Household poverty is another determinant of health and healthcare access. It is estimated that around 44 per cent of the rural population in Bangladesh lives below the poverty line (Bangladesh Bureau of Statistics, 2010; Central Intelligence Agency, 2013). In this context, girls are often considered as financial burdens to their family in rural Bangladesh, and as such they receive less investment by the family in healthcare from their birth (UNICEF, 2009). The incidence of poor health outcomes and a lack of healthcare access among rural women are related to low household incomes and the expectation for girls and women to do the household work (Hossain & Zeitlyn, 2010). Approximately 58 per cent of female children are involved in unpaid domestic work and do not receive monetary wages (ILO, 2006). This issue of unpaid domestic work for women continues during their whole life and as such elderly women have little or no control over family income and possess no property or savings compared to men and also younger women (UN, 2011; Asadullah & Chaudhury, 2012; Economic and Social Commission for Asia and the Pacific, 2013). The consequence of poverty and how it impacts on rural elderly women's access to healthcare services is further exacerbated when the authority of using household resources is governed by male family members (Kabeer & Mahmud 2004; Ahmed *et al.,* 2005; Asadullah &

Chaudhury, 2012). Poverty at an individual level and poverty among rural families are factors that contribute to the undermining of the capacity of older women to access required healthcare services.

Early Adulthood Factors

In addition to the female childhood experiences of malnutrition, their status in the family and a lack of education, there is a common social acceptance of early marriage and adolescent pregnancy in rural areas of Bangladesh. Rural poor families consider early marriage of girls financially beneficial because these girls live with their husband or husband's family once married and, therefore, become less of a burden (UNICEF, 2009). Bangladesh has one of the world's highest rates of adolescent motherhood and, together with their early marriage; this has a negative effect on their health, safety, and education (UNICEF, 2009). Young motherhood is also associated with health risk factors such as higher rates of maternal mortality and pregnancy related complications, and almost all pregnant adolescents experience morbidities associated with this later in life (Rah *et al.*, 2008).

In rural life, a woman's early marriage and motherhood are linked with her low status in the family, and this in turn has a negative impact on her access to healthcare services because of restrictions in going outside alone. Women have no choice regarding healthcare access as their husbands or male guardians culturally make these decisions for them. In addition to this, rural women are more likely to experience early widowhood as they are often much younger than their husbands (UNICEF, 2009). To this end, social acceptance of early marriage and young motherhood has created difficulties for women and consequently elderly women who are in the greatest need of healthcare, but who have little access in rural areas. Elderly women's health is influenced by cultural factors and gendered differences that find them at a health disadvantage later in their life.

Later Adulthood Factors

Elderly women's health and healthcare access in rural areas of Bangladesh are also impacted upon by their socioeconomic status whereby women do not generally own property or have an income

(Ahmed *et al.,* 2006; Das & Horton, 2013; Kabir & Rana, 2013). There is an established relationship between elderly women and social isolation in rural life that contributes to poorer health and limited or no healthcare access (Kabir *et al.,* 1998; Prakash, 2001; Ahmed *et al.,* 2005). Isolation from family and society increases with advancing age and results in a gradual deterioration in elderly rural women's health outcomes and their healthcare access. The proportion of rural elderly women living on their own is higher than that of older women who live in urban areas and also higher than men in both urban and rural areas of Bangladesh (Kabir *et al.,* 1998, p. 369; Hossen, *et al.*, 2013). Upon becoming widowed and alone, most elderly rural women have an unwillingness to seek treatment for illnesses, and this elderly isolation in turn decreases their capacity to access healthcare services (Bangladesh Bureau of Statistics, 2010; Hossen & Westhues, 2011a). Additionally, rural elderly women are only involved with household activities with an inability to fully participate in social activities, and this can cause a prolongation of disabilities or disease that require access to healthcare (Ahmed *et al.,* 2005; Ahmed 2006; Bangladesh Bureau of Statistics, 2010). Under these circumstances, access to healthcare for rural elderly women is largely dependent on family members and neighbours that can result in difficulties in getting timely and appropriate treatment (Biswas *et al.,* 2006; Hossen, *et al.*, 2013). Women are socialised not to complain to their guardians about illnesses or pain, but instead to stoically continue to work for the wellbeing of their family and household (Hossen, 2010). This socialisation process leads many elderly women to isolate themselves as a security against an anticipated public insult or embarrassment (Ahmed, 2005; Kalam & Khan, 2006; Hossen, 2010). Together with this isolation, gender discrimination, and social exclusion, elderly women often decide to live with their ailments rather than seek healthcare or ask for permission to seek healthcare (Hossen, 2010; Hossen, *et al.*, 2013; Chowdhury *et al.,* 2013; El-Arifeen *et al.,* 2013). Isolation in the family and in society causes ongoing dependency on others that results in poor access to needed healthcare.

In an agricultural based community in developing countries like Bangladesh, male dominated economic structures are associated with elderly women's reduced access to power, income, and resources

(Coburn, 2000; Marmot & Wilkinson, 2005; WHO, 2010). While personal income and property ownership are two significant factors for determining a woman's social and economic position in Bangladesh, rural elderly women with less income and less property have poorer outcomes (Karim, 2013; Parveen, 2013). These women are subjected to numerous economic controls that impact on their access to healthcare since their birth and childhood. This economic situation is also linked to men having the power to make the decisions about a woman's access to money and property, as well as healthcare access. This is of particular concern in rural Bangladesh where most elderly women have no social welfare (i.e., pension, free medical care) to support them (Kabir *et al.,* 1998, p. 369; Hossen & Westhues, 2010). Religion also plays a role as most women are Muslim, and their rights to property ownership are not equal to men because a daughter inherits half the share of her brother, and a wife receives only one-eighth of the departed husband's property (Bangladesh Bureau of Statistics, 2010; Hassan, 2011; O'Neil & Toktas, 2014; Deere *et al.,* 2013; Karim, 2013). Though elderly women have low or no income and possess fewer properties, they can only access money and land through the permission of male guardians, their male children, or their spouses (Hosain & Chatterjee, 1998; Bongaarts & Zimmer, 2002; Khan, *et al.*, 2012; Hossen & Westhues, 2012; Nesa *et al.,* 2013; Alam & Barkat-e-Khuda, 2014). Rural economic institutions further impact on the economic isolation for elderly women in rural areas as these institutions are controlled by males (Ahmed *et al.,* 2005; Asadullah & Chaudhury, 2012). Through a lack education and knowledge, disempowerment and dominance by male family members, elderly women are prevented from participating in regular economic activities. Within the rural context of Bangladesh, a woman's economic deprivation and isolation has an effect on her access to available treatments and medicines, and thus she has less access to healthcare, and this causes poorer health outcomes (Karim *et al.,* 2006; Government of Bangladesh, 2011b; Parveen, 2013). In combination, these economic and cultural constraints for elderly women lead to suffering, silencing, and ignorance of health measures that can improve their wellbeing and health, such as improved access to healthcare services.

Thus, the social and economic class contributes to less access to healthcare for elderly women as the cost and quality of treatment is based on their overall low socioeconomic position in rural communities (Chowdhury *et al.,* 2013; Parveen, 2013). Elderly women in rural and semi-rural areas with the same health diseases are also treated differently by healthcare professionals based on the women's social and economic position in society (Tareque, *et al.*, 2013). This discrimination leads to the diminished use of healthcare services that result in poorer health outcomes. In this context, it is a general belief among women that their attitude, stoicism, and mental state are the most important factors for their health and access to services with the stigma of weakness being reinforced if they seek healthcare.

Family relationships have also had an impact on elderly women's access to healthcare. In Bangladesh, elderly rural women are largely responsible for taking care of younger and all other members of the family. While they may not able to take care of themselves during any illness, they still have responsibilities to care for the health of the other family members (Hossen & Westhues, 2010; Hossen, 2010; Islam & Nath, 2012). In addition, younger family members get priority over elderly women in relation to health and access to healthcare. Elderly rural women alone cannot make a decision to seek treatment from healthcare centres because of their secondary role as determined by the family and society and reinforced by religion (Hossen & Westhues, 2011b). The role and position of elderly women as a senior member does not improve their access to healthcare services in the rural family structure. Elderly women, although valued at some level in the family and their communities whilst able to undertake their household and family duties, are discriminated against in regard to access to healthcare services in Bangladesh (Uzma *et al.,* 1999; Kabir, *et al.*, 2002; Ahmed *et al.,* 2003; Kabir *et al.,* 2003). In this country, rural elderly women require permission from their husband or their children to seek medical treatment (Hossen, 2010). This tradition is persistent due to the prevailing parochial norms deeply rooted in the rural communities of Bangladesh (Ahmed *et al.,* 2006).

The parochial attitude toward females in regard to health, education, and employment also substantially decreases knowledge about healthcare services, and this situation places the women in the

domain of discrimination. Due to inadequate health literacy, elderly women do not have information about the location or availability of healthcare services and this often results in self-care and self-treatment (Chakraborty *et al.,* 2003; Ahmed *et al.,* 2005; Rahman, 2009; Rahman *et al.,* 2014). This trend toward self-care leads to higher risk factors and poorer health outcomes including incorrect self-diagnoses, an unwillingness to use medical treatments, incorrect use of medicines, and ignoring side effects (Rahman, 2009; Bangladesh Bureau of Statistics, 2010; Tareque, *et al.*, 2013; Fatema *et al.,* 2013). This trend of discrimination, ignorance, and self-treatment all impact on healthcare access for elderly rural women, but other individual factors also play a role and this includes exploitation.

Health declines as a person ages and their access to healthcare services can also decline because of increasing stressful living circumstances in the family and society. A number of studies in Bangladesh support these negative stressors (Kabir *et al.,* 2006; Rahman, 2009; Hossen & Westhues, 2011b). Traditionally, rural elderly women in Bangladesh are unpaid workers in the family, but at the same time they are also considered to be a burden on the family and society as they are not involved in any means of production or gainful employment (Rahman, 2001; Islam, 2002; Rahman & Barsky, 2003; Parveen, 2013). Elderly women are exploited and more likely to experience violence which are the two most common consequences of stressful circumstances in rural families in Bangladesh (Karim, 2009). Studies find women who live in rural Bangladesh experience more domestic violence than any other group of women worldwide with about 47 per cent having suffered from different types of family and social violence (Bates *et al.,* 2004; Mahmud, 2004; Parveen, 2013). This is an increasing phenomenon that causes stressful living conditions for women of all ages with an increase in risk to their safety, but it is especially the case for elderly women (Koenig *et al.,* 2003; Silverman *et al.,* 2007). Living in stressful circumstance places elderly women at a higher risk of having poorer health and also limited or no access to healthcare services.

The individual circumstances in which elderly women live are significant determinants of elderly women's access to healthcare in rural areas of Bangladesh and relate to early childhood nutrition,

education, socioeconomic status, gender discrimination, exploitation, stress, poor family relationships, and increasing dependency. Rural socioeconomic conditions powerfully influence both the health and healthcare access for elderly women. Elderly women do not have freedom of choice, decision-making powers and have limited access to healthcare resources due to substantial socioeconomic conditions specific to Bangladesh. Furthermore, although the cultural conditions are significant in determining healthcare access for rural elderly women, these issues are not recognised at a policy level. The prevailing parochial culture of the rural society is related to determining the degree of support obtained from the family and society by elderly women when needing and accessing healthcare. As discussed above, socioeconomic factors and cultural issues are at the individual level and although crucial, it is also important to investigate the institutional support that has been established to increase healthcare access among elderly women in rural Bangladesh.

Institutional Factors

Institutional aspects of elderly rural women's access to healthcare need consideration as these are interrelated with individual factors. In Bangladesh, the current rural healthcare structure is similar to what was started with independence 40 years ago (Adams *et al.*, 2014). Discussion of the institutional determining factors of healthcare access for elderly rural women is associated with local geography, the role of rural healthcare institutions, and a misappropriation of funds.

Rural elderly women's access and utilisation of healthcare services is a complex phenomenon influenced by the availability and quality of healthcare services, as well as the structure of healthcare services. The underutilisation of public healthcare facilities among elderly women is the normal phenomenon in the rural villages of Bangladesh where there are only a small number of public and private healthcare institutions (Azad & Haque, 1999; Cockcroft, *et al.*, 2004; Mahmud, 2004; Islam, 2009b, Ministry of Health and Family Welfare of Bangladesh, 2012). With increasing longevity, the systemic healthcare structure is not developing at the same rate due to rigid healthcare arrangements (Uddin & Hamiduzzaman, 2009). Rural

elderly women report that they need access to free and local medical care; however, there are no hospital units and specialised teams for the elderly, let alone elderly women in healthcare centres (Kabir & Salam, 2001; Chakraborty *et al.,* 2003; Ministry of Health and Family Welfare of Bangladesh, 2012). Furthermore, the available healthcare institutions have shortages of drugs and medical equipment. Studies find that rural public health institutions have limited physical facilities, and a scarcity of supplies and vaccines (Cockcroft *et al.,* 2004; Bangladesh Bureau of Statistics 2010; Mansur, *et al.,* 2010). As there are limited healthcare options and resources in rural areas of Bangladesh, this scarcity in available public and private healthcare centres further restricts or impacts on elderly rural women's access to healthcare.

A shortage of health professionals in rural public healthcare institutions also impacts on elderly women's access to services. The shortage of doctors and nurses in rural areas has been attributed to a preference to reside in urban areas of Bangladesh (Ahmed *et al.,* 2011). Public healthcare institutions are suffering from a shortage as well as high rates of absenteeism in rural areas, with more than a quarter of posts for healthcare professionals being vacant (Chaudhury & Hammer, 2004). Even though female doctors are preferred by rural elderly women for discussing healthcare problems and seeking treatment, female healthcare professionals or workers are rarely available in rural public healthcare institutions (Hossen & Westhues, 2012). In the context of private healthcare clinics, employment of skilled and professional doctors and nurses is not generally undertaken for economic reasons (Herr, *et al.*, 2012). Additionally, rural elderly women's access to private healthcare services is restricted by the high cost of treatments and medications (Rahman, 2009; Ministry of Health and Family Welfare of Bangladesh, 2012). These rural healthcare institutions, whether public or private, have limited skilled healthcare professionals and this in turn impacts negatively on elderly women's access to needed healthcare services.

The public and private hospitals do not have credibility with elderly women because of a lack of access to healthcare, and this also impacts on their choice of treatments. In rural Bangladesh, the traditional providers or healers through shops that sell medicines are the

usual choice, and this leads to less use of public healthcare facilities (Karmakar *et al.,* 2012; Haque, 2014). These traditional services are easily accessible in terms of cost, convenient to reach, and socially acceptable (Biswas, *et al.*, 2006; Ahmed & Hossain, 2007; Rana *et al.,* 2008; Rana, 2009; Roy & Rahman, 2009). Nevertheless, an important risk factor to the health and wellbeing of elderly women is the maltreatment they receive through traditional healers or medicines provided being exposed to potential physical, psychological, emotional, financial, and material abuse (Ahmed, 2005; Hossen & Westhues, 2012). Traditional healers have limited knowledge about elderly women's needs and medical treatment, and these traditional providers do not follow doctor's prescriptions, and the incorrect use of drugs and an ignorance of side effects are common consequences for people when these services are used or inappropriate advice is taken (Ahmed *et al.,* 2006; Hossen & Westhues, 2012). The use of these traditional healers is consistent with the underlying tenet of the type of healthcare being accessed by rural elderly women, and their choice is one of convenience, low cost, or a free service. As traditional healers and services are acceptable, easily accessible, and at low cost, elderly rural women choose these traditional practices without consideration of the risks or their access to modern healthcare services.

In rural Bangladesh, the prevailing pluralistic healthcare context is a consequence of inadequate governance. Rural public health administration is inefficient and ineffective in the provision of healthcare services to elderly women due to complex bureaucratic structures and a rigid hierarchical structure in the institutions (Mahmud, 2004; Hossen & Westhues, 2011a). Elderly rural women fail to have regular visits due to a lack of of healthcare professionals, and these women also have to pay more than others for outpatient treatments in both the public and private healthcare institutions due to cultural norms (Gopalan, 2003; Ahmed *et al.,* 2011). Most healthcare staff practice privately due to a low remuneration in public healthcare institutions and this can create a conflict of interest when they also work as private practitioners or in private institutions (Gruen *et al.,* 2002; Ahmed *et al.,* 2011). As healthcare staff are engaged in private clinics as fulltime employees this clashes with duties in the public healthcare centres and

contributes to their absenteeism that in turn affects access to public healthcare (Gruen *et al.,* 2002; Ahmed *et al.,* 2011).

The provision of private healthcare has failed as an alternative in rural Bangladesh due to a profit motivation being set up and a conflict of interest for the practitioners who also practice in the public system. Healthcare professionals can charge additional fees in rural public and private hospitals, and they can also charge extra for any tests and medicines (Ministry of Health and Family Welfare of Bangladesh, 2012). Both public and private healthcare institutions have been accused of misappropriation of funds in the management of healthcare services in rural Bangladesh. For example, some staff sell medicines and vaccines to local pharmacies or traditional healers that further impacts on the scarcity of supplies and resources in rural public hospitals (Haque, 2014). In addition, there is no section or department for the monitoring or supervision to ensure that private and public rural healthcare institutions are accountable and transparent (Cockcroft, *et al.*, 2004; Bangladesh Bureau of Statistics, 2010). This link between poor governance at the institutional level together with the corruption on the part of healthcare professionals and staff further contributes to elderly women's reduced access to healthcare services and the challenges they experience, making them more vulnerable with poorer health outcomes. Whilst public healthcare institutions are blamed for inadequate services, staff, and facilities, the private healthcare sector's motivation is profit. As a result, rural elderly women are largely dependent on traditional healers and services, and the poor governance of public healthcare institutions contributes to inequity in accessing a modern healthcare system in rural Bangladesh.

Conclusion

There are a number of barriers that impact on the use and access to medical and healthcare services among rural elderly women in Bangladesh. A pluralistic, non-supportive healthcare structure exists for rural elderly women who are in the greatest need of healthcare. Despite this need, elderly rural women are disadvantaged by individual, cultural, social, and institutional factors that have an impact on their healthcare access. Individual factors, such as early life

experiences, gender discrimination and socioeconomic exclusion are related to a reduced access to modern healthcare services by rural elderly women. Gender based discrimination and stressful circumstances across the life span have resulted in poor health and at the same time less access to healthcare. Other risk factors such as poverty, a lack of education, no income or property rights, an increasing dependency, and social and economic stratification are prominent influences on elderly rural women's health.

The discussion described a poor utilisation of healthcare services with major inequities among rural elderly women in Bangladesh who are discriminated against because of cultural, traditional, religious, genderised, and socioeconomic constraints. This inequality includes institutional components such as an inadequate provision of rural healthcare services, as well as inadequate governance in these institutions. In these circumstances at the individual and institutional levels, the rural healthcare structure as part of a national healthcare arrangement, has led to practices of stigmatisation, disparities, and neglect among elderly women in terms of rights, equity, and social justice including a lack of access to modern healthcare services. The prevailing healthcare access by elderly rural women is an indication of their socioeconomic position and the level of efficacy and execution of the government's healthcare policy. This overview has furthered the specification of the determinants in relation to access and utilisation of healthcare resources and services for rural elderly women in Bangladesh. Healthcare access for these women has been influenced by the inequalities and constraints, and these identified factors will have implications for the formulation of government policy in the future.

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Gender Differentials in Health Status among Elderly: A Case Study of Guwahati city

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ABSTRACT

Ageing brings about a progressive degeneration in the structure and functional capacity different organ systems in the body. This leads to a deterioration of physical condition and is manifested in the form of diseases. From this cross sectional study of 280 (Male = 130 and Female = 150) Assamese elderly in the age group of sixty years and above, it was found that though the elderly essentially suffer from the same diseases, there is variation in the prevalence of diseases between men and women. Elderly women also tend to assess their health condition to be 'not so good'. Moreover, diseases in elderly are multiple, chronic in nature and thereby affect their functional ability. Due to the culturally defined roles in Assamese society, women continue to remain active within the household but lose ability in outdoor instrumental activities of daily living. This in turn limits their social interaction. The data for the study was collected using a structured schedule and standard statistical tools were used for analyzing the data.

Key words: Ageing, Health, Gender differentials

Study of contemporary human variations reveal that biology and culture continue to shape all areas of human experience including health and disease (Haviland *et al.*, 2007). Health is a primary concern for all population and may be defined in various ways. The most

commonly used definition is the one put forward by WHO. It defines health as the state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. In recent years, this statement has been amplified to include the ability to lead a 'socially and economically productive life'.

For both an individual and a community, health depends on not only the medical care but also factors like individual behaviour, genetic make-up and their social and economic conditions. The socio-economic conditions determine variation in the resources available to individuals to cope with disease and illness. This in turn has an effect on the health status of the people. Moreover, chronological age bears a fairly strong, linear relationship with health and morbidity level of individuals. Ageing as is generally known, is associated with progressive deterioration of physical health. There is, of course, a large amount of individual variability in this. Age related decline in health is modified by social and environmental factors concomitant with ageing. In addition to age, gender of the individual also leads to different health experiences. Age and gender are two biological variables but they become highly social in terms of roles and expectations of a society and culture. Becoming a child, a youth and then an adult is a social process woven through biological age. Overtly or covertly, sex and age are involved in role training and rewards, the formation and maintenance of close social ties, productive activities at home and society and encounters with health risks and their physical and mental outcomes. They are never separable in social life (Verbrugge, 1989). Keeping these aspects in mind, this study was an attempt to understand the gender differentials in health status among elderly people living in Guwahati.

Methodology

The study was a cross-sectional one and purposive sampling using the snow-balling technique was used in the selection of respondents from Municipal limit of Guwahati City. The sample consisted of 280 male (N = 130) and female (N=150) respondents age varying from 60 years and above. The sample was further classified into three age groups, i.e., the 60–69 years old known as the young old, 70–79 year or middle old and the 80 years and above as old old. The sample

consisted of respondents from three income groups, i.e., the high, middle and low income group. The model designed by the National Council of Applied Economic Research was used in classifying the income groups (1994–95). From the total respondents, (N = 280) 100 elderly belonged to the each category of high and middle income group and 80 elderly belonged to the low income group. Only 80 respondents from the low income group belonging to the specified age group could be identified. Structured schedules were used for the collection of data. Standard statistical techniques were used for the analysis of the data.

Results and Discussion

The respondents of the study were living within the municipal limits of Guwahati. Most of the elderly were living in joint families (58.21%). Nuclear families (13.21%) consisting of elderly people were found predominantly among the young old with another 18.93 per cent elderly living only with spouse and 7.86 per cent were found to be living alone. 1.79 per cent elderly were living in institutions. Most of the women (62%) of the specified age group in the study, no longer had a surviving spouse as against 11.54 per cent men. Some of the elderly persons were also found to have remained unmarried (2.5%) and a very small percentage of elderly were separated from their spouse (0.71). Economic dependence was high among the women (56.67%) in relation to men (38.46%).

To understand the health status of the elderly people a look into the prevalent disease conditions as opposed to health will give a clear picture. Health conditions of individuals were affected by genetic and environmental conditions as well as age. Age from a biological point of view refers to the present position of an individual relative to his/her potential life span. It can be measured from the functional capability of the various life limiting organ systems like cardiovascular system, respiratory system, etc. The life span of an individual is again determined by the interaction of the genetic or intrinsic factors with that of the environmental or extrinsic factors. Thus, health has an association with both biological as well as chronological age. Physical conditions of an individual tend to progressively deteriorate with age. Prevalence

of chronic illnesses gradually increases from middle age onwards and become a common feature of late life. In addition to chronic illness, impairments of vision, hearing, mobility, etc. also occur. The impact of such deterioration could be limitation or restrictions on the performance of activities of daily living. Among elderly, particularly health is found to have a complex relationship between physical and psychological aspects of illness. Gender differentials in health status, in this study was looked into from three aspects. They were prevalence of disease, self-assessment of health condition and functional ability in activities of daily living.

Prevalence of Disease

Table 1

Distribution of Elderly by the Number of Prevalent Diseases

Age Group (Years)	No Disease		*One Disease*		*More than 1 Disease*		*Total*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
60–69	1 (2.13)	4 (4.54)	17 (36.17)	19 (21.59)	29 (61.70)	65 (73.86)	47	88
70–79	2 (3.57)	1 (2.13)	8 (14.29)	7 (14.89)	46 (82.14)	39 (82.99)	56	47
80+	1 (3.70)	1 (6.67)	2 (7.41)	3 (20)	24 (88.89)	11 (73.33)	27	15
Total	4 (3.08)	6 (4)	27 (20.77)	29 (19.33)	99 (76.15)	115 (76.67)	130	150

In assessing the prevalence of disease, morbid conditions which have been diagnosed by a medical practitioner was taken into account. The reason for this was that unless a sickness has been explained by a physician, the elderly person may not be able to identify the disorder. Most of the respondents were found to be having some ailment or the other. Moreover, diseases among elderly were found to be chronic as well as multiple in nature. An examination of the number of diseases prevalent among elderly shows that 76.15 per cent of males and 76.6 per cent females have multiple or more than one disease. The prevalence of multiple diseases in men and women show a positive relation with age.

The common ailments that were found to be prevalent among the elderly were: high blood pressure, arthritis, non-insulin dependent diabetes, asthma, bronchitis, heart ailments, weak digestion, gastritis and problems relating to prostrate among men, nerve problem and urinary problem in women. As has already been discussed most elderly people have multiple ailments. Therefore, to get a clear picture of the health problems and to examine the type of diseases that usually occur together in elderly, the diseases were grouped into six categories on the basis of the area of affect or the organ system from which the ailment originates. They were cardiovascular, glandular, digestive, respiratory and musculo-skeletal disorders. The other diseases which do not fall in the above mentioned categories are grouped as others. A variation was found between the sexes in the combination of diseases. Therefore, the distribution for males and females has been shown differently.

Prevalence of Diseases by Age and Sex

The most common combination in elderly men is found to be that of cardiovascular disorder, glandular disorder and digestive diseases. The prevalence of this combination also shows an increase in proportion with increase in age. This is followed by the prevalence of digestive disorder alone and the prevalence of which is high in the young old age group. However, with increase in age digestive disorder tends to occur along with other disorders. The third most prevalent diseases are cardiovascular and digestive disorders together. The occurrence of diseases in females is found to differ from that of males. Musculo-skeletal disorders are prevalent in much higher proportion in women than in men. The most prevalent diseases among women are cardiovascular disorder along with digestive and musculo-skeletal disorders. These diseases also show an association with age. Cardiovascular diseases along with glandular, digestive and musculo-skeletal diseases are the next most prevalent types of diseases. The combination of these diseases is prevalent more among the women of the young old age group.

Prevalence of Diseases by Income Group

When the prevalence of diseases was examined as per their income group, it was seen that in the high income group the most

Table 2

Distribution of Male Elderly by Prevalent Diseases According to Age and Income Group

Age Group (years)	*Prevailing disesases*										
	Cardio	*Diges*	*Ressp+ Diges*	*Cardio+ Gland*	*Cardio+ Diges*	*Gland+ Diges*	*Resp+ Cardio+Diges*	*Cardio+ Gland+Diges*	*Resp+Cardio+ Gland+Diges*	*Others*	*Total*
60–69	2 (4.35)	10 (21.74)	4 (8.70)	3 (6.52)	5 (10.87)	5 (10.87)	1 (2.17)	2 (4.35)		14 (30.43)	46
70–79	4 (7.41)	3 (5.56)	2 (3.70)	3 (5.56)	6 (11.11)	3 (5.56)	3 (5.56)	9 (16.67)	4 (7.41)	17 (31.48)	54
80+	1 (3.85)	1 (3.85)	1 (3.85)		1 (3.85)	1 (3.85)	1 (3.85)	8 (34.78)	1 (3.85)	11 (42,31)	26
Total	7 (5.56)	14 (11.11)	7 (5.56)	6 (4.76)	12 (9.52)	9 (7.14)	5 (3.97)	19 (15.08)	5 (3.97)	42 (33.33)	126
	Income group										
HIG	5 (10.42)	3 (6.25)	1 (2.08)	4 (8.33)	3 (6.25)	1 (2.08)	3 (6.25)	15 (31.25)	2 (4.17)	11 (22.92)	48
MIG	2 (4.08)	7 (14.29)		2 (4.08)	7 (14.29)	6 (12.24)		4 (8.16)	3 (6.12)	18 (36.73)	49
LIG		4 (13.79)	6 (20.69)		2 (6.90)	2 (6.90)	2 (6.90)			13 (44.83)	29
Total	7 (5.56)	14 (11.11)	7 (5.56)	6 (4.76)	12 (9.52)	9 (7.14)	5 (3.97)	19 (15.08)	5 (3.97)	42 (33.33)	126

Table 3

Distribution of Female Elderly by Prevalent Disease According to Age and Income Group

Age Group (years)	*Prevailing disease*											
	Cardio	*Diges*	*Resp + Diges*	*Cardio + Diges*	*Cardio + Musco*	*Diges + Musco*	*Cardio + Gland + Musco*	*Cardio + Diges + Musco*	*Gland + Diges + Musco*	*Cardio + Gland + Diges + Musco*	*Others*	*Total*
60–69	3 (3.57)	11 (13.10)	3 (3.57)	3 (3.57)	7 (8.33)	8 (9.52)	5 (5.95)	9 (10.71)	3 (3.57)	11 (12.10)	21 (25.0)	84
70–79	3 (6.52)	4 (8.70)	2 (4.35)	1 (2.17)	5 (10.87)	5 (10.87)	1 (2.17)	10 (21.74)	1 (2.17)	5 (10.87)	9 (19.57)	46
80+				3 (21.43)				2 (14.29)	1 (7.14)	1 (7.14)	5 (35.71)	10
Total	6 (4.17)	2 (14.29)	5 (3.47)	7 (4.86)	12 (8.33)	13 (9.03)	6 (4.17)	21 (14.58)	5 (3.47)	17 (11.81)	35 (24.31)	144
	Income group											
HIG	1 (2.04)	2 (4.08)		2 (4.08)	5 (10.20)	2 (4.08)	2 (4.08)	10 (20.41)	1 (2.04)	12 (24.49)	12 (24.49)	49
MIG	4 (8.16)	3 (6.12)	1 (2.04)	4 (8.16)	6 (12.24)	2 (4.08)	1 (2.04)	10 (20.41)	1 (2.04)	5 (10.20)	12 (24.49)	49
LIG	1 (2.17)	12 (26.09)	4 (8.70)	1 (2.17)	1 (2.17)	9 (19.57)	3 (6.52)	1 (2.17)	3 (6.52)		11 (23.91)	46
Total	6 (4.17)	2 (14.29)	5 (3.47)	7 (4.86)	12 (8.33)	13 (9.03)	6 (4.17)	21 (14.58)	5 (3.47)	17 (11.81)	35 (24.31)	144

common diseases were cardiovascular, glandular and digestive diseases. In the middle income group cardiovascular and digestive diseases are most common diseases. Among the low income group the most prevalent diseases are respiratory and digestive disorder. In case of elderly women from the high income group the most prevalent diseases are cardiovascular disease along with glandular, digestive and musculo-skeletal disorders. This is followed by the prevalence of cardiovascular, digestive and musculo-skeletal disorders. Among the elderly women from the middle income group, the most common combination is that of cardiovascular disease along with digestive and musculo-skeletal diseases. Among the women from the low income group digestive disorder is most common.

Prevalence of Leading Chronic Conditions

If we examine the incidence of diseases, taking one ailment at a time, then it was found that among men high blood pressure (60.77%) was most common followed by gastritis (50%) and respiratory diseases (26.92%). Diabetes is prevalent among 21.54 per cent of the elderly men. Musculo-skeletal disorders are present among 20 per cent, weak digestion among 18.46 per cent and problems relating to the prostrate gland among 17.69 per cent of men. Among elderly women, musculo-skeletal disorder is most prevalent (60%) followed by high blood pressure (58.67%) and gastritis (40.67%). Weakening of the digestive system (28%), diabetes (20%), respiratory disorder (9.33%) is less common. Other conditions like Alzheimer's disease (3%), nerve problems (3.85%), malina, gout and single case of malignancy was found among men. In case of women, urinary problems, vertigo, piles, dental problems, malignancy, etc. is found but in lesser frequency.

Gender Differentials in Disease Prevalence

The gender differentials in the prevalence of diseases are in the frequency of their occurrence. Men and women essentially suffer from the same diseases but the difference is in the rate of occurrence. If we look into the gender differentials taking the major ailments into account, then it is seen that high blood pressure and diabetes occur in more or less equal frequency among men and women. Respiratory

Table 4

Distribution of Elderly by Major Chronic Conditions According to Age and Income Group

Diseases	*High Blood Pressure*		*Respiratory Disease*		*Weak Digestion*		*Diabetes*		*Musculo –Skeletal Disorder*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
					Age group (years)					
60–69	18 (38.30)	48 (54.54)	11 (23.4)	9 (10.22)	5 (10.64)	15 (17.05)	7 (14.89)	19 (21.59)	10 (21.28)	55 (62.5)
70–79	40 (71.43)	32 (68.09)	16 (28.57)	5 (10.64)	12 (21.43)	16 (34.04)	12 (21.43)	10 (21.28)	11 (19.64)	30 (63.83)
80+	21 (77.78)	8 (72.73)	8 (29.63)		7 (25.93)	11 (100)	9 (33.33)	1 (9.09)	6 (22.22)	5 (45.45)
Total	79 (60.77)	88 (58.67)	35 (26.92)	14 (9.33)	24 (18.46)	42 (28.0)	28 (21.54)	30 (20.0)	27 (20.77)	90 (60.0)
					Income group					
HIG	40 (80.0)	40 (80.0)	9 (18.0)	4 (4.0)	3 (6.0)	11 (22.0)	18 (36.0)	13 (26.0)	6 (12.0)	38 (76.0)
MIG	30 (60.0)	39 (78.0)	10 (20.0)	3 (6.0)	10 (20.0)	9 (18.0)	10 (20.0)	8 (16.0)	13 (26.0)	30 (60.0)
LIG	9 (30.0)	9 (18.0)	16 (53.33)	7 (14.0)	11 (36.67)	22 (44.0)		9 (18.0)	8 (26.67)	27 (20.77)
Total	79 (60.77)	88 (58.67)	35 (26.92)	14 (9.33)	24 (18.46)	42 (28.0)	28 (21.54)	30 (20.0)	27 (20.77)	90 (60.0)

diseases are found to occur more among males and the finding is contrary for musculo-skeletal disorders. This group of disorders is much more frequent among females. Weak digestion is prevalent more among females and gastritis among males. The chi square test for gender differences in the incidence of leading diseases is significant in case of respiratory disorder (chi square 14.925, $p = .001 > p$) and musculo-skeletal disorder (chi square 49.977, $p = .001 > p$).

The social and economic condition of an individual has a relation to the incidence of different diseases. The leading chronic conditions prevalent among the elderly have also been looked into from the income group of the individual. The prevalence of high blood pressure among both men and women of high income group is much higher in relation to the low income group. This difference is also found to be statistically significant (chi square 59.2666, $p = .001 > p$). Among the high income group, there is no gender difference in the incidence of high blood pressure, but among the middle income group, the incidence is higher in females and in the low income group the incidence is higher in males. Respiratory disorder is highest among the men of the low income group. Respiratory disorders as has already been mentioned, is less prevalent among women. When its incidence is compared among the women of the three income groups the incidence is highest in the low income group. Weak digestion is highest among women of low income group, followed by high and middle income group. Among men too, weak digestion is highest in the low income group followed by middle and high income group. Diabetes prevalence is high among men and women of the high income group. The middle income group elderly show relatively lower frequency. In the low income group, no males were found to be having diabetes. Musculo-skeletal disorders are prevalent more among the high income group women followed by middle and low income group. Among men, musculo-skeletal disorders are more in low and middle income group relative to high income group. The difference between the income groups in the incidence of diseases may be due to their difference in visiting a medical personal. Among the low income group consultation with doctors is found to be very low.

Self-assessment of Health Conditions

Table 5
distribution of Elderly by Self-assessment of Health Condition According to their Age and Income Group

Self-assessment	*Not So Good*		*Quite Good*		*Very Good*		*Total*
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	
			Age group (years)				
60–69	14 (30.0)	51 (58.0)	29 (62.0)	37 (42.0)	4 (8.0)		135
70–79	24 (43.0)	37 (79.0)	30 (54.0)	10 (21.0)	2 (4.0)		103
80+	15 (55.56)	14 (93.33)	12 (44.44)	1 (6.67)			42
Total	53 (40.8)	102 (68.0)	71 (54.6)	48 (32.0)	6 (4.6)		280
			Income Group				
HIG	15 (30.0)	30 (60.0)	35 (70.0)	20 (40.0)			100
MIG	16 (32.0)	31 (62.0)	28 (56.0)	19 (38.0)	6 (12.0)		100
LIG	22 (73.3)	41 (82.0)	8 (26.7)	9 (18.0)			80
Total	53 (40.8)	102 (68.0)	71 (54.6)	48 (32.0)	6 (4.6)		280

Self-assessment of health condition is the respondents' subjective rating of their health condition. Health status in elderly is affected by a complex interaction of physical and psychosocial aspects of health and illness. Individual's perception and evaluation of his or her health condition is to a great extent a subjective health rating. This may not be an accurate measure of physical health but is an indicator of life satisfaction or quality of life. The respondents were asked to assess their health according to three options of 'not so good', quite good' and 'very good'. A small percentage of elderly (4.6%) and all of them male have assessed as 'very good'. Majority of the elderly females (68%) have given the response 'not so good' and men have mostly (54.6%) responded as 'quite good'. The feeling of 'not so good' has a direct relation with age for both men and women, while the feeling of

'not so good' has an inverse relation with age in both the sexes. This may be expected as increase in age is generally associated with deteriorating health conditions, which will have a negative effect on the psyche of elderly people.

When the responses are examined against their income group or their socio-economic condition, it is seen that the response 'not so good' is relatively higher among both the males and females of the low income group. The elderly from the middle and high income groups have responded in a similar manner with the exception that the 'quite good' response is high among the males from the high income group. The elderly who have given the response 'very good' incidentally all belong to the middle income group. Factors like contentment level in family life among elderly, access to medical facilities for management of disease conditions, cohort effect as well as functional ability in activities of daily living, etc. tend to influence subjective health ratings. However, for this paper these aspects could not be looked into. Only the functional ability or the ability to carry on activities of daily living has been examined.

If we look into the gender differentials in self-assessment of health conditions, we see that more women have assessed their health condition as not good and none has responded as very good. Even the women who do not have any diagnosed disease condition do not feel their health condition to be good. This is an indirect indicator of their quality of life or contentment level among the elderly women.

Functional Ability in Activities of Daily Living

Table 6

Distribution of Elderly Requiring Assistance in Activities of Daily Living

Activities of Daily Living	*ADL*		*IADL (outdoor)*		*IADL (indoor)*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*
			Age Group (years)			
60–69		2 (2.27)	11 (23.40)	59 (67.05)	13 (27.66)	40 (45.45)
70–79	6 (10.71)	3 (6.38)	19 (33.93)	43 (91.49)	23 (41.07)	40 (85.11)

Cont'd...

Cont'd...

80+	5 (18.52)	12 (80.0)	24 (88.89)	14 (93.33)	25 (92.59)	14 (93.33)
Total	11 (8.46)	17 (11.33)	54 (41.54)	116 (77.33)	61 (46.92)	94 (62.67)
			Income Group			
HIG	4 (8.0)	10 (20.0)	21 (42.0)	42 (84.0)	22 (44.0)	35 (70.0)
MIG	5 (10.0)	4 (8.0)	18 (36.0)	39 (78.0)	21 (42.0)	33 (66.0)
LIG	2 (6.67)	3 (6.0)	15 (30.0)	35 (70.0)	18 (60.0)	26 (52.0)
Total	11 (8.46)	17 (11.33)	54 (41.54)	116 (77.33)	61 (46.92)	94 (62.67)

Functional ability is influenced by health conditions. Disability refers to the limitations in the activities of daily and social life, such as personal care and household management tasks and the ability to perform job, family and social roles. It can include dysfunction in physical abilities, such as limited strength, endurance, etc. Personal care activities of daily living are also referred to as ADL and it includes activities like bathing, using toilet, moving in and out of chair/bed and eating. Household management tasks are called instrumental activities of daily living or IADL. Keeping in mind the general cultural setting and traditional gender roles within the family in an Assamese society, the household management tasks have been divided into two categories. The first category include activities which require moving out of the house like shopping groceries and clothes and using transportation independently when required. The second category includes activities that can be performed within the household like cooking and doing housework. People requiring assistance in any of the activities are said to be dependent or disabled.

As long as their physical conditions allow, elderly people like to remain independent and move around without assistance. But this ability is found to decrease with age. Women become unable to move out on their own from an earlier age than men. From around the seventh decade women gradually lose their ability for independent

mobility and in later decades, the disability becomes very striking. Men however, are able to continue independent mobility till sometime later. Elderly men generally go out on household errands like paying bills, shopping, work relating to banks, meeting peers, etc. being able to go out on their own gives them a feeling of independence and also serves as a way of keeping themselves occupied. On the other hand, elderly women rarely go out on such errands alone. At the most, in an Assamese society, they go out alone to community prayer halls ("naamghar") which are located close to their homes. However, deteriorating health conditions and loss of self confidence may eventually prevent them from going out alone. The restrictions may be self imposed or sometimes may be imposed by family as a precautionary measure. As a result, women may become confined to their homes or have to depend on someone to accompany them for such outings.

The study has revealed that more women (77.33%) need assistance in IADL which require moving out of the house. Even for indoor IADL more women need assistance, but the proportion is less when compared to outdoor IADL. Requiring assistance has an association with age for both men and women and in very advanced age the gender variation in needing assistance disappears. Almost all people become dependent to some extent. Assistance in personal care activities becomes necessary mostly in the old old age category. Those who need assistance earlier are due to their medical conditions. Personal care dependency is also found to be greater in women of highest age category. It is much higher than their male counterparts.

When we examine the functional ability in relation to income group, it is seen that dependency among low income group is relatively less. Need for assistance in personal care is found to highest among the high income group. The variation in the need for assistance in personal care by income group could be because of the difference in access to medical and other facilities for their day to day life. Among the low income group, some men and women continue to work for sustenance. They give up work only when their physical conditions do not permit them to work anymore. Thereafter, they become completely dependent or their viability may also be affected.

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Clinical Analysis of Geriatric Patients in the Light of Homoepathy

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ABSTRACT

Elderly people calling at a homoeopathic hospital between 2000–2010 were analysed in order to understand their reasons for hospital attendance. A total of 2308 geriatric patients (above 60 years) were studied. Maximum patients (1294) belonged in the age group 60 – 65 yrs. The data related health problems of the subjects was studied and classified on the basis of disease pattern and was analysed statistically. Major health problems for which treatment was sought were Musculo-Skeletal affections (39.08%) followed by Respiratory disorders (9.96%), GI Tract disorders (9.74%) and others.

Keywords: Geriatric, Elderly, Health Seeking Behaviour, Homoeopathy

Demographics analysis (Aras, *et al.*, 2012) show that approximately 70 per cent of elderly population of the country live in rural India. 10 per cent rural elderly live alone with out any care giver. More than 30 per cent of the elderly population is below the poverty line. On retirement due to old age or disability, they become dependent on their spouses or children, economically and or socially. Most of the

elderly above the age of 80 are bed ridden and need assistance for their daily activities. (Mahajan & Ray, 2013)

The 60th National Sample Survey (January–June 2004) collected data on the old age dependency ratio. It was higher in rural areas (125) than in urban (103). With regard to the state of economic development, a higher number of males in rural areas, 313 per 1,000, were fully dependent as compared to 297 per 1,000 males in urban areas. For the aged females, an opposite trend was observed (706 per 1,000 for females in rural areas compared to 757 for females in urban areas).

At present, the geriatric outpatient department (OPD) services are available at a few tertiary care hospitals. Also, most of the government facilities such as day care centres, old age residential homes, and counselling and recreational facilities are urban based.

In India, total number of registered AYUSH (Ayurveda, Yoga, Unani, Siddha & Homoeopathy) doctors in India as on 01.01.2011 was 7,12,121. Their role in assisting personnel in Modern Medicine in providing health care to the people of our country is a known fact. A study conducted by Samal, J. (2013) states that as on 01/01/2010 there were 61 per cent of Ayurveda, 31.40 per cent of Homoeopathy, 6.50 per cent of Unani, 0.90 per cent of Siddha and 0.20 per cent of Naturopathy doctors serving in India.

Homoeopathy is said to be one of the most widely accepted system of medicine in India as well as across the world. Homeopathic system of medicine is based on the ancient 'Law of Similars'. Highly diluted preparations of substances that cause symptoms in healthy individuals are used to stimulate healing reactions in patients who display similar symptoms when a person is ill. (Jonas & Jacobs, 1996)

In a multi-centre cohort study, totalling 3,981 patients treated by homoeopathic physicians in primary care practices in Germany and Switzerland, it was found that the severity of the complaints consistently demonstrated substantial improvements following homeopathic treatment. This was maintained through 24 months of follow up suggesting that homeopathic medical therapy may play a beneficial role in the long-term care of older adults with chronic

diseases. (Teut, *et a*l; 2010) This survey was the first of its kind where the role of Homoeopathy was explored in the long-term treatment of the elderly.

A study with sample size of 34 patients was conducted at the National Institute of Homoeopathy, Kolkata, by Yadav and Basu (2014) to assess the Geriatric Psychiatric Syndromes in elderly patients in a Homoeopathic Hospital. It highlighted the need of enquiring the Geriatric Psychiatric Syndromes in all patients coming to the hospital along with their Physical complaints.

Palghar is a new district in the state of Maharashtra. It was carved out of the erstwhile Thane district on 1st August 2014. At the 2011 Census, the talukas now comprising the district had a population of 29,90,116. There is a high incidence of mal-nutrition, anaemia, and scabies. There is extreme negligence towards maternal health. The District ranks second in Maharashtra in child mortality. Most of the residents are tribals. The farming tribals, salt-pan workers, brick-layers, labourers who have migrated from other states – all, are 'unskilled workers', working on very low wages.

There are no studies on the health seeking behaviour or the clinical syndromes of the elderly in Palghar district, Maharashtra. Therefore, the present study was undertaken to investigate health seeking behaviour and to findout the clinical status of the geriatric population.

Material and Methods

Case series method was chosen for undertaking this study and a Secondary Record Analysis from the period of 2000–2010 was conducted to study the symptoms and clinical state of Geriatric patients calling at *Dr M.L. Dhawale Memorial Trust's Rural Homoeopathic Hospital, Palghar for Homoeopathic treatment. A total sample of 2,308 geriatric patients was studied. The data was classified on the basis of systems affected and analysed statistically.

Results and Discussion

Table 1
Number and Per cent of Sample Size by Age Distribution

Age	*Total& % of Sample Size*
60–65	1,294 (56.06%)
66–70	519 (22.48%)
71–75	283 (12.26%)
76–80	147 (6.36%)
81–85	48 (2.07%)
86–90	14 (0.60%)
91–95	0
97–100	3 (0.12%)
Total	2,308

As seen in Table 1. 56.06 per cent patients were in the age group of 60 – 65yrs, 22.48 per cent in 66 – 70 yrs, 12.26 per cent in 71–75 years and 9.15 per cent were in age group from 75 – 100 years.

Table 2
Age and Sex Distribution

Age	*Male*	*Female*
60–65	624	670
66–70	247	272
71–75	150	133
76–80	71	76
81–85	19	29
86–90	7	7
91–95	0	0
96–100	2	1
Total	1,120	1,188

The above table shows that the ratio of male geriatric patients and female patients was almost equal across all ages except in 81–85 years.

The findings of this study show that maximum (39.08 %) of the elderly population of age 60–65 years were visiting Rural

Table 3

Health Problem Pattern of the Patients from 60–100 Years Visiting Rural Homoeopathic Hospital, Palghar

Age	*Musclo Skeletal System (MSS)*	*Respiratory System (RS)*	*Gastro Intestinal Tract Disorders (GIT)*	*General Medical Complaints*	*Endocrine System Disorders*	*Cardio Vascular System (CVS)*	*SKIN*	*Psychiatric Complaints*	*Central Nervous System (CNS)*	*Opthamology*	*Ear, Nose, Throat Disorders (ENT)*	*Excretory System Disorders*	*Male Genito-Urinary System (MGUS)*	*Female Genito-Urinary System (FGUS)*	*Haematology*	*Surgery*
60–65	493	117	108	188	102	70	62	60	21	19	13	19	10	10	2	0
66–70	228	50	60	2	46	34	31	15	15	11	5	0	9	7	3	3
71–75	93	34	40	19	24	20	17	12	8	7	6	1	1	0	1	0
76–80	61	21	21	4	15	7	12	7	2	4	0	2	2	0	0	0
81–85	21	7	6	1	3	2	1	4	1	1	0	1	0	0	0	0
86–90	6	1	1	2	0	1	1	2	0	0	0	0	0	0	0	0
91–95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97–100	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0
Total	902	230	225	216	190	135	124	102	47	42	24	23	22	17	6	3
Percentage	39.08	9.96	9.74	9.35	8.23	5.84	5.37	4.41	2.03	1.82	1.04	0.99	0.95	0.73	0.25	0.13

Homoeopathic Hospital, Palghar for Homoeopathic Treatment suffers from Musculo-Skeletal System (MSS) Disorders. This study corresponds to the findings of Lad and Kumbhar (2014) that stated that joint pains and Musculo skeletal disorders were the commonest problem for which the elderly seek treatment. The study of Lad and Kumbhar (2014) had in turn validated the study of Balan and Devi (2010) and Balamurugan and Ramathirtham (2012) which had reported similar results regarding chronic diseases among the elderly. The results of this study are in tune with the previous three studies.

As the age increases, in addition to Musculo Skeletal system, the Respiratory complaints and GI tract related complaints are also seen to be reported frequently.

Nearly 9.35 per cent of people sought homoeopathic treatment for General Medical complaints (Eg: Fever, malaise, Generalized weakness, General Systemic Illness, etc.)

The Psychiatric Complaints constitute (n=102) 4.41 per cent of total patient of the present study.

The age group of 60–65 years formed nearly 50 per cent of patients who sought health care service. Mobility and freedom to move appears to be the crucial concern of this age. Hence, maximum people sought help for joint related problems. This age group appears to be more independent, with ability to take care of themselves as compared to other age groups. Hence they may have contributed to 50 per cent of the total sample.

Conclusion

The preference towards Alternative Medicines and especially Homoeopathy is seen in the village studied because the District has a full-fledged Homoeopathic Hospital. The community has supported the Hospital through funds, thus helping it to create awareness among the community regarding the role of Homoeopathy for taking care of the healthcare needs of the elderly. The cost factor too is an issue for this age group; hence promotion of cost effective health care through homoeopathy can be an effective alternative to the mainstream allopathic treatment. This study also brings out the need to create hospitals which are geriatric friendly thus making it convenient for this age group to seek help for health related issues.

Note

* In year 2000, with the support from the community, a homoeopathic hospital was established by Dr M. L. Dhawale Memorial Trust at Palghar which has since become a multispecialty one. Since then, it is providing a variety of health-care services to the residents of the Palghar & Vikramgad region, through Homoeopathy. The hospital has recently set up a Geriatric department services by initiating active support from the local senior citizen groups.

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Geriatric Dentistry in India: Extracting the Available Resources

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ABSTRACT

The continuously expanding geriatric population, the increasing tendency to retain natural teeth, the disease susceptibility in older adults and the detrimental dental effects associated with ageing has led to the emergence of a new branch of dentistry known as Geriatric Dentistry. Since its emergence there has been a thorough literature advocating the need of Geriatric Dentistry as a special branch and need for inclusion of geriatric dental education. However it is even more important to extract the available resources and utilize them in fulfilling the oral needs of geriatrics. Viewing the socio-demographic profile and the stature of geriatric dentistry in India the review is based on the premise that utilizing the existing geriatric health services and implementing it in geriatric oral health care can serve as an effective tool in improving oral health of elderly.

Key words: Geriatric Dentistry, Geriatric curriculum, Indian situation.

Socio Demographic Characteristics among Geriatric Population

A phenomenon known as demographic transition in industrialized countries has led way in the immense interest in older population in recent years. The transition has been characterized by

increasing life expectancy and a fall in birth rate, which has led to a tremendous increase in elderly population and a shift in population structure of affected countries. The UN Population Division estimates that by 2050 the geriatric population will double in Africa and treble in Asia. It has been estimated that one-sixth of the total world population of the elderly now lives in the developing countries of Southeast Asia. (Ezeh, *et al.,* 2012) India too is in a state of demographic transition. The transition from 2001 to 2011 census suggests a marked increase in elderly population and a decline in birth rate. India's population is likely to increase by 60 per cent between 2000 and 2050 but the number of elderly population who have attained 60 years of age will shoot up by 360 per cent and the government should start framing policies now else its consequences are likely to take it by surprise The elderly population in India are unique of its kind as they comprise the fastest growing population group, women constituting the majority number, a large population residing in rural areas a three-fourth economic dependence and a low literacy rate (Dhankar *et al.,* 2013).

Oral Health Conditions in Geriatrics

The interrelationship between oral health and general health is particularly pronounced among older people. Globally, poor oral health among older people has particularly been associated with a high level of tooth loss, dental caries experience, high prevalence rates of periodontal disease, xerostomia, and oral pre cancer/cancer. The situation in India is no such different the institutionalized, the frail or even residing with the families are associated with poor oral hygiene and oral conditions like dental caries particularly root caries, periodontal conditions, edentulism, oral mucosal conditions and xerostomia. Edentulism has been shown to affect the oral health related quality of life among elderly.

Global Scenario: Where can We Look!

Geriatric Dentistry is not only weighted for improving the oral health of elderly but is also given importance and a number of programmes have been launched to improve the oral health of geriatric population. Even the WHO Oral Health Programme encourages national oral health planners to strengthen the

implementation of systematic oral health programmes oriented towards better oral health and quality of life for older people. National health authorities are also urged to formulate oral health goals, targets and standards of oral health for elderly people. Since 1995 WHO has been a keen initiator in promoting the oral health of Geriatrics with documents like 'Active Ageing – a Policy Framework' (2002), (WHO 2002) which outlines the essential approaches towards healthy ageing. New goals for the year 2020 have been suggested jointly by WHO, FDI and the International Association for Dental Research (IADR). (Hobdell, *et al.,* 2003) WHO in a policy document entitled "Towards Age-friendly Primary Health Care" (WHO, 2004) emphasized that Understanding the economic and psychosocial dimensions of poor oral health also in terms of function impairment and the negative impact on quality of life is fundamental to provision of adequate oral health care, communication and health education, and the organization of public health programmes for improved oral health of older people. Apart from the initiatives from WHO a number of programmes such as Ontario Works, Ontario Disability Support Program, The Halton Oral Health Outreach (HOHO) Program, The Life smile Project, The Fife Oral Care, The North Ayrshire Pilot. The "Open Wide" (Arlene King, 2012 and Scottish Government, 2012) has been running in various parts of the world to provide financial assistance, impart geriatric dental education and improve the oral health status of elderly.

Indian Situation! Incorporating the Existing

An insight to undergraduate and post graduate dental curriculum in India, we figure that apart from brief mention of age changes and treatment modalities geriatric dentistry does not find any place. Few universities in India, for example, the Indira Gandhi National Open University, offer a Post-graduate diploma in Geriatric Medicine. However apart from a long stated need and emergence of geriatric dentistry and continuously expanding researches in Geriatric Dentistry it still lies in articles and books in India. A number of measures can help to deal and utilize the present situation for betterment of oral health of elderly.

One of the most commonly sighted barrier in access to health services among elderly includes lack of transport facilities and dependency on others to avail the services. Thus, peripheral health workers and community health volunteers can be trained to identify and refer elderly patients for timely and proper treatment. An ICMR task force project, known as *Health Care of the Rural Aged*, conducted in the Primary Health Center area near Madurai found this strategy to be beneficial in implementing medical services; the same can be effectively utilized for dental services. An entirely distinct team of health providers known as Community Geriatric Oral Health Workers can also be trained to provide home care to the disabled elderly population. This strategy has been tried and demonstrated to be successful in a community based project in Cochin, known as Urban Community Dementia Services (WCGG, 2013). Opportunities for employment should be provided simultaneously

Another important barrier cited include accessibility especially in cases of remote and rural areas, screening camps and mobile dental vans could play a significant role in reaching out to the elderly population. Advocacy with non-governmental organizations (NGOs) like Help Age India who have been providing mobile medical units, charitable organizations, and faith-based organizations could play an important role in this aspect.

Since 75 per cent of the elderly reside in rural areas, it is mandatory that geriatric oral health care services be made a part of the primary health care services. It is also needed to set up specialized geriatric wards to fulfill the needs of geriatric population by providing distinct outpatient services. Ensuring good quality geriatric oral health care services at the primary level would greatly help in improving the utilization rates of the available health services.

Modern information and community technology could serve as an effective tool in benefitting dental schools and universities. Video conferencing with developed nations, exchange programmes and a problem-based learning (PBL) method would be effective at the undergraduate level. The PBL method has been pioneered and extensively used at McMaster University, Canada, where students solve problems and reflect on their experiences. (Ibid.) Dental schools in India could

organize short- and long-term geriatric programmes and monitor the value of these programmes for their students and recent graduates.

Health-care institutions could be utilized as a potential resource for geriatric dental training. In India, these institutions could be used as clinical centers for geriatric training as the magnitude of dental problems and treatment requirements are high among the institutionalized elderly. Outreach rotation postings in these clinical centers could grant exposure, skills and the ability to assess and treat a geriatric patient. Lastly utilizing the existing research in Geriatric dentistry and Gerontology and filling the lacunae in the field of research on geriatric dentistry such as enhancing research in rural areas, in the field of policy recommendations could serve magnificently in serving the elderly.

Conclusion

Geriatric Dentistry in India not only calls for utilization of available resources but also strong implementation and advocacy for its existence. Taking care of the one who once took care of you should be a prior commitment. As they say life is a vicious circle so if we have Pediatric Dentistry why we need ample efforts for implementation of Geriatric Dentistry?

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