

A Cross-Sectional Study on Factors Associated with the Functional Status of Older Elderly Living in Kerala, South India

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Abstract

Introduction: Ageing of the population is a universal phenomenon. India with 8% of its total population being elderly, is slowly coming to the list of countries that are on the stage of a greying population. The state of Kerala houses more than 12% of the elderly population in the country.

Methodology: Systematic random sampling method was study used for data collection. A Cross-sectional study was carried out in the five selective districts in the state of Kerala.

Objectives: The main objective of the present study is to analyze the perceived general health, perceived subjective wellbeing, instrumental activities of daily living, Scales and falls in daily activities in older adults.

Results: The survey found that 78% of men were in poor health, while 66.2% of women were elderly. More than 80% of adults report that they are independent in performing their daily activities. Less than 5% of adults require help and full support. More male seniors reported that they felt happier with their current lives than female seniors.

Keywords- phenomenon, Cross-sectional study, health

Introduction

In many places of the world, the population's aging is a cause for concern. The WHO divided the elderly into three groups: the young elderly (60–75), the middle-aged (75–85), and the old elderly (85+). The share of the senior population that is growing is mostly attributable to the increased longevity that has been made possible by economic prosperity, improved medical care, and lower fertility rates. Slowly, but not as dramatically as in affluent nations, the developing world is beginning to age due to improvements in medical technology and economic standing.

India has 104 million senior people as of the 2011 census, 53 million of whom were female. 8.9% of the population overall is above the age of 65. 11 million of India's senior people are over the age of 80, while 29 million are older than 70. With 12% of its population made up of the elderly in 2011, Kerala, a low fertility state, holds the top spot in terms of the proportion of older people in the population. (GoI, 2011).

In Kerala, there are 4.2 million persons who are 60 years of age or older, according to government statistics from 2017. Of them, 13% are 80 years of age or older, which is the senior population's fastest-growing age group. At 60, women outnumber men, and the majority of them are widows. By 2025, it's predicted that 20% of the population would be over 60, necessitating the development of well-thought-out regulations, social security systems, etc. According to the 2015 National Sample Survey, 65% of Kerala's senior people said they were ill in some way. In Kerala, the practise of placing the elderly in nursing homes is expanding, largely as a result of the younger generation's migration (GOK, 2017).

The WHO defines "Health as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 1948). Though this definition cannot be applied to the actual setting, as they do not measure well-being as such. Globally recognized health measurements often consider an individual's level of disease and, for the elderly, the degree to which they require assistance. To track the shifts throughout the health continuum from the active elderly's good state to states of disability, measurements of their functional status are required.

There are two different kinds of physical function scales: self-reported and performance tests. The limits of the self-reported tests vary depending on whether they compare senior citizens who are active with elderly people who require care. Different measures of physical functions include looking into the Activities of Daily Living (ADL) (the original or adaptation of the Katz Activities of Daily Living—ADL—Index) (Katz, 1983), Instrumental Activities of daily living (IADL) (Lawton & Brody, 1969), etc. However, the performance test measures the actual physical ability of the elderly in performing various activities in both standing and sitting positions, also measuring their pulmonary capacity during these exercises (Gilford M, 1988).

Life satisfaction is usually measured by looking into different domains including money and standards of life, employment, family and marriage, friendships, housing and community, leisure, and health itself, however only satisfaction with health declines with age. Age is not considered a strong predictor of subjective well-being.

People's "cognitive and emotional judgement of their lives" is what the subjective well-being index (SWBI) measures (Diener, 2000). The aetiology and measurement of SWBI have been the subject of several significant research. Studies have shown that a person's subjective well-being is influenced by a variety of variables, such as subjective satisfaction, sociodemographic factors, health indicators, psychological factors, cultural factors, social factors, how needs and goals are met in daily life, etc. However, the SWBI in older persons is associated with their socioeconomic level, physical activity, living arrangements, physical environment, etc (Pinkvart, M., Sorensen, S., 2000). Optimism "has been found to be a predictor of subjective and psychological well-being by certain social scientists" (Ferguson & Goodwin, 2010). Adults must therefore evaluate their subjective well-being as a supplementary indicator.

Objectives

The main objective of this study is to assess the perceptions of middle-aged and older adults living in five districts of the southern Indian state of Kerala.:

- (a) Perceived general health status
 - (b) Physical functions
 - (c) subjective wellbeing status
- Understand the relationship between perceived physical health, subjective well-being

Materials and methods

Sampling methodology

A community-based cross-sectional survey on old age was conducted in Thiruvananthapuram, Pathanamthitta, Kottayam, Ernakulam and Kannur districts of Kerala state. A stratified random sampling method was used to collect data from the five districts. The primary author and research team from the Centre for development studies, Thiruvanthapuram collected the primary data from the selected households. A nonresponse rate of 10% was added to give a final sample size of 519. Data was collected through structured questionnaires conducted from selected districts from April to May 2019.

Data collection

Structured questionnaires were used to collect information about the elderly's socio-economic, demographics, activities of daily living, disease, chronic disease, health-seeking behaviour, etc.

Subjective well-being index

The perceived SWBI of adults was examined using a total of nine variables. Nine variables were compiled, and the means and standard deviations were computed to produce an overall well-being index. Three grades—Low, Medium, and High—were assigned to the final index. The index was created using a standard deviation of 4.4 and an average of 18.1. Given that the variable's dependability coefficient is 0.89, it is deemed statistically significant. scales for evaluating both routine and irregular daily activities.

The ability of elderly people to live independently was evaluated using the Lawton Instrumental Activities of Daily Living (IADL) tool. In eight fields, Lawton IADL rates the skills of both men and women. Laundry, housekeeping, and cooking are examples of domains. A score is given to each domain. Scores above eight indicate low working and dependency, while scores below eight indicate highly functional and independence (Lawton & Brody, 1969).

The Katz Index of Independence in Activities of Daily Living, also referred to as the Katz ADL, is used to evaluate functional status as a proxy for a client's independence in carrying out activities of daily living. The Katz Index rates adults' independence in doing tasks like feeding, dressing, toileting, bathing, and transfer. For autonomous performance, each activity is given a yes score. With a score of 6, complete function is indicated, followed by moderate impairment (12) and severe functional impairment (18). (Katz, 1983). SPSS version 21 was used to compile the data and analyse it.

Results

The idea that the elderly are a homogeneous group of fragile people who are quickly moving toward the need for long-term care is a common misperception in the health care industry. The elderly make up a very diverse population. It has been observed that as people age, they diverge from one another.

Older adults are more at risk of old-age diseases and disabilities, which affect their perception of happiness and fulfillment in life, etc. As they get older, people become more pessimistic because of their physical condition, loneliness in life, mental health problems, disabilities, etc. From a physiological point of view, it is well recognized that individuals differ in different ways, and as people get older, these variations tend to get larger and experience different aging changes.

Basic Profile of the Elderly

The average age of the adults surveyed was 81, and the average age was 80 with a standard deviation of 4.8. Usually, the sex ratio in Kerala is for women, similarly the number of women among the elderly is higher than that of men. Background information of the elderly is given in Table 1.

Table 1: Background information on elderly

	Frequency	%
Age		
Middle-old (75-84)	383	73.8
Old-old (85 and above)	136	26.2
Gender		
Male	198	38.2
Female	321	61.8
Place of residence		
Rural	390	75.1
Urban	129	24.9
Religion		
Hindu	292	56.3
Muslim	31	6.0
Christian	196	37.8
Marital Status		

Unmarried	15	2.7
Married	241	46.4
Widowed	263	50.7
Living arrangement		
Living Alone	34	6.6
Living with spouse	89	17.1
Living with spouse/family	396	76.3

A total of 519 adults were studied as part of the survey. Of the elderly, 61.8% are women and the rest are men. Among the elderly, 56.3% are Hindus, 37.8% are Christians. The number of widowed adults is 50.7% and are currently married (46.4%). Of the 519 elders, only 6.6 per cent live alone, while the rest live with their wives or family.

Given the educational status of the elderly, the study population, regardless of age and gender, has at least completed its primary level of education. About 14 percent of male elderly completed high school education, while 8.8 percent of female elderly completed education for it. During the old days, men were more likely to receive an education than women.

Health condition and health-seeking behaviour

a distinct method of pursuing good health. The elderly's health-related behaviour is influenced by a variety of factors, including access to care, affordability, the availability of carers, etc. Access to healthcare facilities is a significant barrier for persons with impairments, according to numerous research. The utilisation of mental health services by the community and patients is low, according to a cross-sectional study on the mental health status of the elderly in only three districts of Kerala. The stigma surrounding mental disease in the community, the dearth of geriatric care facilities, and the lack of partners are the main causes of underutilization. The survey also discovered that, despite being extremely underdeveloped, palliative care and home nurse services are unavailable in rural areas. This also holds true for general health issues and health-seeking practises. (Pankjakhana, Sivaraman, Sairu, & Thomas, 2018;

According to current research, the main symptoms of this disease in the elderly are joint pain, amnesia or memory loss, lack of energy, leg problems, sleep problems, headache, fever, poor concentration, difficulty chewing food, chest pain and dizziness, about half of adults have three or more. There were more age-related diseases. Only 10% of adults had no age-related diseases. About 90% of older and female adults had one or more age-related diseases. About 35% of adults reported joint problems and 15% reported sleep problems.

Chronic diseases such as heart disease, diabetes and asthma were common in the study sample. About 60% of adults report a chronic problem. About 38% had diabetes, 19% had heart disease, 43% reported high blood pressure. About 10% reported having multiple chronic problems, mainly high blood pressure, heart problems, and diabetes. About 12% reported that they mainly had two problems, high blood pressure and cholesterol. About 26% of the population have no out-of-pocket costs for their treatment. But those who spent this amount spent between Rs.250 and Rs.50,00.

Perceived general health status

The overall picture of the general health of the elderly is better than examining it separately. For the 12 GHQ items, the reliability coefficient, alpha, is 0.92. The average value of the index was 27.3 and the standard deviation was 8.3. Higher index values are associated with good health. (Table 2).

Table 2: **General health condition of elderly by sex and Age**

	Male	Female	χ^2 value	pvalue	75-84	85+	χ^2 value	pvalue
High	2.5	2.5	9.82	0.007	2.6	2.2	6.39	0.042

Medium	78.8	66.4			73.9	63.2		
Low	18.7	31.2			23.5	34.6		

The proportion of low and medium levels of health index was high among male and female elderly. The majority of the elderly come with a medium level of health index. However, considering the low level of index, the oldest-old had a significant proportion.

Activities of Daily Living Index and Instrumentation Activity living index

Most of the elders were doing their daily work independently. However, some of them require full or partial support to carry out their activities. Most of them adults, regardless of gender, require some assistance with bathing and moving from place to place. Female adults require more support than older males. About 75% of adults reported that they were able to perform their daily activities independently (Table 3).

Table 3: Activity living index Age and sex-wise

	75-84	85+	χ^2 value	pvalue	Male	Female	χ^2 value	pvalue
Fully independent	75.7	55.1	20.73	0.001	75.3	67.3	5.821	0.054
Partially dependent	20.1	37.5			22.2	26.2		
Fully dependent	4.2	7.4			2.5	6.5		

The chi-square test of association shows that age and activity index are having a positive relation, with increasing age the dependence rate is increasing. 37.5% of the age group 85 and above are partially dependent compared to 20% in the 75-84 category. The test is statistically significant at $pvalue < 0.005$. In Association with gender, it's observed that there exists a marginal difference between male and female elderly. The test of significance value is 0.054 which could be considered statistically significant at $pvalue \approx 0.05$.

The effectiveness of an instrument in everyday life plays an important role for analyzing the functional disability of the elderly. An overall assessment of the IADL index revealed that about 28% of adults were able to fully perform the supportive activities of their daily lives. Among the oldest classes, 10% of adults were less able to perform activities (Table 4).

Table 4: Age Sex-wise instrumental activities of Daily Living

	75-84	85+	χ^2 value	pvalue	Male	Female	χ^2 value	pvalue
Fully able	12.0	5.1	43.76	0.001	16.2	6.5	15.30	0.000
Partially able	66.3	43.4			60.6	60.1		
Not able	21.7	51.5			23.2	33.3		

More than 66% of adults aged 75-84 were partially able to perform their daily instrumental activities, but it is worth noting that 43.4% of those aged 85+ were partially able to perform their activities. Gender-based comparisons show that female adults are less able to perform instrumental activities, which may be because they are not accustomed to shopping alone, or cannot travel alone, because they are not confident in managing money. The chi-square test of association shows that with the increase in age, the proportion of performance ability decreases, and the statistical test of significance proves it correct with a $pvalue < 0.005$. Gender-wise differentials show female elderly are less able compared to the males, which is statistically significant at a $pvalue < 0.005$.

Subjective Wellbeing

Subjective Well-Being (SWB), a tool used to assess mental health. It assesses the overall quality of life and the experience of both positive and negative feelings in older people. It is a combination of their perceptions of their daily lives, how they interact with society and family members, their views on utility, etc. (Table 5).

Table 5: Age sex-wise association between subjective well being

	75-84	85+	χ^2 value	pvalue	Male	Female	χ^2 value	pvalue
Positive	48.3	37.5	8.792a	.012	56.1	38.9	17.013a	.000
Neutral	29.0	27.2			26.3	29.9		
Negative	22.7	35.3			17.7	31.2		

The majority of the male elderly reported that they are feeling happy with their current life, compared to the female elderly. The possible reason for satisfaction among male elderly could be they are staying with their spouse and family and their needs are taken care of, which may not be the case with the female elderly.

Chi-square test was performed to understand the association between age, gender and subjective well-being. The results are highly significant with a Pearson Chi-square value of 17.01 p-value <0.000, showing a high correlation between gender and subjective well-being among the elderly. Chi-square values are significant, showing the relationship between age group and SWB.

Association between General health and subjective wellbeing

Perceived health status can be considered as one of the important factors in subjective well-being among older adults, though this assumption is not tested vigorously. A cross-tabulation between these two indicators shows that those who feel neutral in their life, are those who feel their perceived health condition is medium (Table 6).

Table 6: Association between subjective well-being and Perceived health status

SWB	General health status			χ^2 value	p-value
	High	Medium	Low		
Positive	5.5	94.5	0	416.224	0.001
Neutral	0	91.2	8.8		
Negative	0	8.1	91.9		

The chi-square value of association is very high at 416, however, the value is <0.005, showing there exists high relation between subjective wellbeing and perceived general health.

Discussion

Subjective well-being varies as one grew old, and the degree of SWB differs from person to person. The reasons for change are many, which include social, psychological, and health factors. SWB among senior persons includes adaptation, emotional control, and accommodating methods including downscaling hopes and goals to fit the current circumstances. This study attempted to examine the relationship between subjective well-being, perceived physical health problems, and a few demographic factors. SWB has been described as a coordinated assessment of personal feelings about life's various concerns, as well as overall feelings toward life in both positive and negative terms, e.g., general well-being and disease. Interestingly, overall well-being, its positive effects and, to a lesser extent, its negative effects, seem to be consistent with the times where it is a personality disorder.

A population-based study conducted in Brazil states that "having children can increase the perceived social support of older people, and the literature shows that low social support is associated with poorer self-rated health" (Catano, Silva, & Vetter, 2013). A study conducted at two old age homes in Kolkata found that subjective well-being was not predicted by any other variables such as education, gender, age, source of income, duration of stay in an old age home (Jharna, Debashish, Liza Thankam, & Ashima, 2014). However, this finding was inconsistent with another study conducted in India where the subjective well-being of institutionalized adults was predicted by age, education, and financial support (Ayransi & Ozdag, 2005).

The results of the current study indicate that having a child, along with other socioeconomic, health, and economic variables, can be considered as one of the predictors of subjective well-being. However, the study population is staying in their home which can make a difference in their mental health compared to the institution. The physical health status of both populations can be considered the same. Based on the results of the study, significant perceived physical health problems were reported by 35% of very elderly people, and these problems appear to be a sensitive predictor of less subjective well-being (Table 2). This finding is comparable to another study that found that a person's subjective well-being is negatively affected by poor perceived health status, as opposed to the existence of chronic disease (Bokerman, Johansson, & Sarney, 2012)..

Significant subjective physical health problems were reported by older people, and these appear to be emotional predictors of lower subjective well-being (Table 2). This finding is comparable to another study that found that a person's subjective well-being is adversely affected by poor perceived health status as opposed to the existence of chronic disease.

Findings from the present study indicate that older age and female gender are considered to be important predictors of dependency (Table 3). Results show that 58% of female elderly are fully independent, however, looking at dependency status male elderly are comparatively independent. Similar findings are observed from a community-based cross-sectional study conducted among geriatric people in a rural area in West Bengal showed that female elderly and old age is considered to be important predictor of dependency among older adults (Burman, Sembiah, Dasgupta, Paul, & Pawar, 2019).

The IADL results also show the trend that very old and female elderly are significant predictors of dependency (Table 4). The results show that 33% of female elderly are fully dependent on others for their IADL, similarly 52% of very old. Similar results are found in studies conducted by Chen on the Chinese elderly and by Nugegoda (Chen, Yu, & al, 1995), Sharma in Northern India (Sharma, Parashar, & S, 2014) and Balasuriya on Sri Lankan elderly have recorded nearly similar prevalence (Nugegoda & Balasuriya, 1995).

Conclusion

It is clear from the survey that chronic disease studies are one of the key challenges faced by the elderly in the district. Older classes and female adults of all ages are at risk for health risk factors. Longevity makes the lives of female elder's sensitive which leads to widowhood.

Age-related physical and social decline makes people more prone to chronic diseases, which in turn makes them more dependent. Therefore, early treatment is needed to promote healthy aging. Older classes and female adults of all ages are at risk for health risk factors. Longevity makes the lives of female elder's sensitive which leads to widowhood.

It has been reported that the incidence of disease among the elderly population is relatively higher in Kerala as compared to India as the state has the highest proportion of the elderly population. In addition to the existing government support system, older people should be given additional concerns about health problems.

It can be concluded that education and learning chances in general both offer crucial elements for engaging in activities that foster knowledge acquisition and social connections, which are related to SWB but not predictors of SWB.

Due to its impact on a person's quality of life, their family's quality of life, and the availability of health services, functional disability has emerged as a significant public health problem among the elderly. More attention should be paid to the integration of geriatric care at the primary care level. Community-based comprehensive geriatric health assessments should be made available as they help older people avoid early-stage diseases, delay the emergence of disabling diseases and conditions, and get domiciliary care, rehabilitation, and specialized services in facilities.

Limitations of the study

Limitations of the current study include a generalization of study findings. The study has been conducted only in five districts in the state, hence it cannot be considered a generalized picture for the whole state. Predictors identified in the study need to be modified if the study needs to be conducted in other parts of the country.

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References

- [1] Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist*.
- [2] Ferguson, S., & Goodwin, A. (2010). Aging and human development, Optimism and well-being in older adults: The mediating role of social support and perceived control. *Int J Aging Hum Dev*.
- [3] Gilford M, D. (1988). *The Aging Population in the Twenty-First Century: Statistics for Health Policy*. (D. Gilford M, Ed.) New York: National Academies Press.
- [4] GOK. (2017). *Economic Review, 2017*. Retrieved from State Planning Board, Thiruvanthapuram: The growth rate is high among the elderly aged 70 or 80 and above. Currently, 42 lakh people of Kerala are 60 and above; 13 percent of them are 80 years and over, the fastest-growing group among the old. Women outnumber men among the 60 plus and the
- [5] Katz, S. (1983). Assessing self-maintenance: Activities of daily living, mobility, and instrumental activities of daily living. *JAGS*, 721-726.
- [6] Lawton, M. P., & Brody, E. M. (1969). Assessment of older people: Self-maintaining and instrumental activities of daily living. *The Gerontologist*, 179-186.
- [7] Pankajakshan, I., Sivaraman, R., Sairu, & Thomas, M. (2018). A qualitative study on the mental health needs of elderly in Kerala, South India. *Journal of geriatric mental health*. Retrieved January 20, 2020, from <http://www.jgmh.org/article.asp?issn=2348-9995;year=2018>
- [8] Pinquart, M., Sörensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective well-being in later life: A meta-analysis. *Psychology and Aging*. Retrieved October 27, 2020, from https://www.researchgate.net/publication/12438552_Influences_of_Socioeconomic_Status_Social_Network_and_Compentence_on_Subjective_Well-Being_in_Later_Life_A_Meta-Analysis
- [9] WHO. (1948). Proceedings and Final Act of the International Health Conference New York 19 June–20 July 1946. *International Health Conference New York 19 June–20 July 1946*. Geneva: United Nations, WHO.
- [10] WHO. (2016, September 29). *Discrimination and negative attitudes about aging are bad for your health*. Retrieved from World Health Organization: <https://www.who.int/news/item/29-09-2016-discrimination-and-negative-attitudes-about-ageing-are-bad-for-your-health>