The Economic Condition of Older Adults in Goa

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Abstract

Purpose : This study examined the household composition, income, spending, and financial dependency of older persons in Goa to determine their economic situation. The rapid aging population and its impact on older people's financial situation made this study necessary.

Methodology : A survey of 400 senior adults was conducted in six talukas in Goa using multistage sampling. Binary logistic regression, chi-square, and *t*-tests were used to examine the data. Using SPSS Software, the Young–Olds (60–74 years) and Old–Olds (75 and above) were compared.

Findings : We found that the dependents in Old–Old households exceeded those in Young–Old households, leading to significant differences in household income and expenditure. The main sources of revenue were interest on deposits and retirement pensions, but the biggest expenses were related to food and health. The older women living in cities, with their low health status and high medical costs, were more likely to become financially dependent.

Practical Implications : Age-friendly policies should be put in place, pensions should be reviewed on a regular basis, and Goa should create a special directorate for senior residents. Although this study is restricted to Goa, it offered a foundation for further extensive research in other states to address the financial difficulties older persons confront and improve existing procedures where they are deficient.

Originality : In Goa, older adults are an understudied demographic. Since Goa is aging more quickly than the rest of India, this study, which is the first to examine their economic situation, closes a big gap and has important ramifications.

Keywords : **income, expenditure, financial dependence, older adults, economic condition**

JEL Classification Codes : D14, D31, J14

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Population aging, which implies a growing proportion of older individuals, is an unprecedented demographic transition predicted to get more pronounced as the 21st century advances. The demographic trends in India show that the working-age population is predicted to rise from 57% in 1950 to 62% by 2050, while the share of children in the population is predicted to decrease from 37.5% in 1950 to 18.5% by 2050. Additionally, the older population, which made up 8.6% (103 million) of the total in 2011, is predicted to grow even more to approximately 20% (319 million) by 2050 (United Nations, 2022). The aging index is predicted to rise sharply from 8.4 elderly for every 100 children in 1950 to 74.5 in 2050, while the old-age dependency ratio is expected to follow a similar trajectory. All aging markers foretell that India will age quickly in the ensuing decades (National Statistical Office, 2021).

While longer lifespans and scientific advancements make this shift a victory, it has unanticipated effects on

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household income distribution (Schulz & Eden, 2016). For example, as people get older and enter retirement, their income tends to decline. This can have a negative impact on the household's total income, particularly if the older person is the main provider. Financial inadequacy in the household becomes apparent with transformations in the age pyramid, thus diminishing family welfare due to caring for older people (Kang & Hu, 2022). Due to low interest and lack of knowledge in this area, people in India still lack pension finance literacy (Mohanty, 2022). As a result, it is crucial to maintain consistency in savings behavior (Aggarwal & Khanna, 2021).

The smallest state in India, Goa, is graying significantly faster than the rest of the nation. The west coast is where Goa is situated. After Kerala, Goa has the second-highest percentage of senior persons (11.2%). This is higher than the average for all of India, which is 8.6%. For this reason, a limited amount of research has been done specifically on older persons in Goa, focusing solely on their psychological wellness (Cohen et al., 2018) and health-related quality of life (Lobo & Falleiro, 2022). This study fills a significant research gap in the scientific literature by examining a hitherto unexplored facet of older people's economic situation in Goa from a microeconomic perspective. According to Chakravorty et al. (2021), this study is crucial because of the significant changes Goan households are going through as a result of nuclearization, migration, size reduction, and individualistic perspectives. Elderly family members are usually valued in the household, although caring for them is made more difficult by these considerations. The current study makes a ground-breaking contribution by offering doable policy suggestions to enhance the well-being of senior citizens and their families.

Literature Review

The household economic circumstances have had ripple effects on the financial condition of older people. In their study, Kwan et al. (2018) highlighted that an overwhelming number of older individuals struggled to make ends meet and experienced poverty as they grew older since they were often part of impoverished families. Over the last several decades, India's typical household size has shrunk. The conventional joint family structure has eroded, especially in metropolitan areas, partly due to the younger generation's aspirations for other living arrangements. These changes have had a substantial financial impact on the elderly population (Chakravorty et al., 2021). Concerning household income, Kang and Hu (2022) noted that insufficient finances and assets within households in China became apparent as the age composition changed. They illustrated the reality of poverty and instability among older households. Many low-, moderate-, and middle-class households in America lived in costly homes and lacked assets to cover bills, even if many older adults were financially secure. In this context, Jasmin (2020) brought the income distribution inequality in India to the fore. Srivastava and Mohanty (2012) also contended that elderly families experienced greater poverty than non-elder dwellings. When it comes to household expenses, families with older members had greater out-of-pocket expenses than non-elderly families (Kastor & Mohanty, 2018). Mane (2016) observed that over 70% of health spending in India comprised out-of-pocket costs, putting older people at risk.

Focusing on research on older adults' income situations rather than household finances draws attention to a case study by Liu et al. (2021), which showed that older adults, regardless of their starting financial situation, became impoverished because of their decreased capacity to generate income and increased risk of serious illness. These results are further substantiated by statistical evidence from Norton and West (2014), which indicates that approximately 1.1 million older adults in the United Kingdom have earnings slightly above the poverty line. The main sources of income for older people are social assistance, pensions supported by interest from savings, and other income transfers (Strauss, 2014). On the other hand, because they had accumulated substantial retirement savings, 64.6% of elderly people reported having “no financial worries” or “relatively few financial worries,” according to the Japanese government's white paper on an aging society, which was published in June 2019 and was based on the Economic and Lifestyle Circumstances of the Elderly (Cabinet Office, Government of Japan, 2019). Contrary to this, a statistical analysis issued by the South African Department of

Statistics showed that nearly 19% of older individuals do not live below the food poverty level and that 44% of older persons are poor or food insecure (Stats SA, 2021).

Contradictory findings concerning the financial condition of older people have also been found in India. Rajan (2014) pointed out that several older people in India constantly suffer due to inadequate social security mechanisms. However, in a more recent study covering 15,000 older adults across India, the AgeWell Research and Advocacy Centre (2017) reported that almost one-third of the senior citizens had a respectable monthly income throughout their retirement period. Lobo and Falleiro (2023) demonstrated that several older people were pulled back into the labor force to work post-retirement, in some cases due to inadequate income, while in other instances, to age productively.

One important thing that has affected spending patterns is age. It is important to note that there is a gender difference in spending habits. For instance, comparing data from the 55th and the 64th rounds of the household consumer expenditure of the National Sample Survey Office (NSSO), Maharana and Ladusingh (2014) found wide gender disparity in food and health care expenditure among older people in India, with that of older males being higher than that of their female counterparts. Gupta and Kumar (2018) also demonstrated that being older significantly and positively influenced the demand for reverse mortgages. Collard and Hayes (2014) observed that as individuals age in the UK, there is a significant decrease in total expenditure, accompanied by an increased allocation of funds toward necessities. They noted that homes headed by people 80 years of age or older spent twice as much on housing, fuel, and electricity as those headed by people in their early 50s.

As a result of changing socio-demographic dynamics, older persons are increasingly experiencing poverty and deprivation. Chakraborty et al. (2019) contended that such studies played an essential role in tackling the issues of older individuals to bridge the gap between socioeconomic needs and the availability of resources. Bakshi and Pathak (2016) advocated that the socioeconomic situation of India's elderly is poor, as many are denied their most basic requirements. Among the socio-demographic groups, Vlachantoni (2012) observed that older women were increasingly inclined to reside alone, and being widowed, with ill health and economic instability, multiplied their susceptibility to being financially dependent. Thus, correctly identifying the socio-demographic groups of the vulnerable elderly who are facing financial distress would facilitate the provision of assistance to them.

The Formulation of Research Questions and Hypotheses

The United Nations classified older individuals into the Young–Old (Y–O), i.e., those 60–74 years, and the Old–Old (O–O), i.e., those 75 years and above, to better analyze the heterogeneity among older people. Their respective households are Young–Old households (Y–O HHs) and Old–Old households (O–O HHs). The following Research Questions (RQs) are addressed in order to go deeper into the topics brought up in the literature.

(1) What is the nature of the household economic profile of older adults? (RQ1)

(2) From which sources do senior citizens get monthly income? (RQ2)

(3) What do their monthly expenditure patterns encompass? (RQ3)

(4) Which categories of elderly are financially dependent for their daily requirements?

The study presents an in-depth understanding of each RQ by testing the following hypotheses: H0 denotes the null hypothesis, and Ha represents the alternate hypothesis.

- **H01 :** No difference exists in the household size and dependency ratio of elderly households.

- **Ha1 :** Household size and dependency ratio are smaller among Y–O HHs than among O–O HHs.
- **H02 :** No significant differences exist in the monthly household income of Y–O and O–O HHs.
- **Ha2 :** Significant differences exist in Y–O and O–O HH's total and per capita household income.
- **H03 :** No significant differences exist in the monthly household expenses of Y–O and O–O HHs.
- **Ha3 :** Significant differences exist in the total and per capita household expenses of older people.
- **H04 :** No significant differences exist in the monthly income of the Y–O and O–O senior citizen.
- **Ha4 :** Significant differences exist in monthly income exclusively of the Y–O and O–O individual.
- **H05 :** No significant gender differences exist in the monthly income of males and females.
- **Ha5 :** Significant gender differences exist in the monthly income of elderly males and females.
- **H06 :** No significant associations exist among the Y–O and O–O concerning sources of income.
- **Ha6 :** Significant associations exist among the Y–O and O–O concerning sources of income.
- **H07 :** No significant differences exist in the monthly expenditure of the Y–O and O–O seniors.
- **Ha7 :** Significant differences exist in the monthly expenditure of the Y–O and O–O senior citizen.
- **H08 :** No significant gender differences exist in the monthly expenses of males and females.
- **Ha8 :** Significant gender differences exist in the monthly expenses of elderly males and females.
- **H09 :** No significant associations exist among the Y–O and O–O concerning expenditure items.
- **Ha9 :** Significant associations exist among the Y–O and O–O concerning expenditure items.
- **H010 :** Socio-demographic and health variables do not significantly predict financial dependence.
- **Ha10 :** Socio-demographic and health variables are significant predictors of financial dependence.

Research Methodology

Design of the Study and Sampling Procedure

This study adopts a quantitative-based research approach. The data collection method primarily included personal surveys conducted between August 2021 and January 2022. The research included a sample from Goa that employed multistage sampling. Out of a total of 12 talukas, Tiswadi, Pernem, and Bardez from the North and Mormugao, Salcete, and Quepem from the South were the six talukas selected from Goa's two districts, North and South Goa to enable a diverse selection of older adults belonging to different socio-economic strata. There are 1,63,357 elderly individuals in Goa (National Statistical Office, 2021). A representative sample of 400 participants with a 95% confidence interval and a margin of error of 5% is deemed acceptable to represent the older adult population, based on the statistical power test by Krejcie and Morgan (1970). For the study, 20% of the talukas' rural and 20% of their urban regions were chosen at random in order to ensure a fair selection process. This method was used to choose 400 older people who lived in private residences. Consent was obtained from each participant in writing prior to the questionnaire being distributed.

Instrumentation

The questionnaire was divided into four sections. Section 1 pertained to the profiling of older adults in terms of their socio-demographic (age, gender, highest education level, marital status, living arrangement, and locality), socio-economic (employment status, savings for retirement, and financial dependence), and health-related (health status perception and health expenditure) characteristics. Section 2 assessed their household details comprising household size, number of dependents and non-dependents, total monthly household income, and total monthly household expenditure. Section 3 examined the monthly income patterns solely of the elderly respondent and the sources of obtaining the same. In contrast, Section 4 assessed the nature of the monthly expenditure of the senior citizen and its sources.

Methods Adopted

The Statistical Package for the Social Sciences (SPSS), version 20, Software was used for the analysis. The *t*-test, a parametric statistical tool, is used to determine if there is a significant difference between the means of two groups, i.e., based on age (the Y–O and O–O) and based on gender (males and females). Furthermore, to test if significant differences existed among the predicted and actual frequencies associated with the Y–O and O–O, the chi-square (χ^2) test was adopted. Finally, in the case of the last objective, Binary logistic regression (LR) was used. It is a method of regression utilizing a binomial outcome variable. For every independent variable, odds ratios are computed using logistic regression coefficients.

Analysis and Results

Socio-Demographic Profile

Table 1 displays the sample's sociodemographic profile. A total of 50.5% of participants are women between the ages of 60 and 69. While 41.3% of people finished high school, almost 39% pursued a college degree or above. Most are married (73.8%), live in cities (59.3%), and share a home with one or more family members (48%)—spouse, kids, or both.

Table 1. ***Demographic Profile of the Respondents***

Variables	Frequency	Percent
Gender		
Male	194	48.5
Female	206	51.5
Age		
60 – 69	200	50
70 – 79	121	30.25
80 – 89	73	18.25
90 and above	6	1.5
Education		
Uneducated	36	9
Up to High school	165	41.25
Up to Higher Secondary	43	10.75

College and above	156	39
Marital Status		
Unmarried	20	5
Married	295	73.75
Widowed	78	19.5
Divorced/separated	7	1.75
Living Arrangement		
Alone	80	20
With helper	102	25.5
Spouse/children/both	192	48
Other relatives	26	6.5
Locality		
Rural	163	40.75
Urban	237	59.25

Household Economic Profile of Older Adults

The household economic profile is studied using household size/dependency ratio, household income, and expenditure. Table 2 presents the first aspect, revealing that O–O HHs comparatively have 1.07 times a more significant number of total household members than their Y–O counterparts. It is interesting to note that although the Y–O HHs had a relatively higher number of working-age members between the ages of 15 and 59, the O–O HHs had a higher number of young members (below 15 years old) and elderly members (aged 60 and above), by 1.01 and 1.05 times, respectively.

The young-age dependency ratio (YADR), or the ratio of the population aged 0–14 years to the population aged 15–59 years, was 1.16 times larger in the case of O–O HHs than it was in the case of Y–O HHs in terms of age-dependency ratios. Similarly, among the O–O HHs, the old-age dependency ratio (OADR), which measures the population aged 60 and above relative to the population aged 15–59, was 1.18 times greater. This leads to a rise in the total age dependency ratio (TADR), i.e., [(population aged 0–14 years + population aged 60 years and above)/population aged 15–59 years], which is a summation of YADR and OADR, once again being higher by 1.18 times among the O–O HHs, owing to a relatively higher OADR. We can conclude that the household size and number of dependents are lesser in Y–O HHs than in O–O HHs. Thus, we reject H01, and Ha1 stands proven.

The second and third aspects of the economic profile include older adults' household income and household expenditure. Concerning Table 3, the size of the Y–O HH's total monthly household income is 1.12 times higher than that of the O–O HHs, with *t*-tests confirming the presence of highly significant differences in the means of

Table 2. ***Household Member Profile of Young–Old and Old–Old Households***

Household Member Classification	Young–Old households	Old–Old households
Total number of households	200	200
Total household members	676 (Mean: 3.38; *SD*: 1.34)	722 (Mean: 3.61; *SD*: 1.31)
Members aged 0 – 14 years	93 (Mean: 0.46; *SD*: 0.23)	105 (Mean: 0.53; *SD*: 0.18)
Members aged 15 – 59 years	295 (Mean: 1.48; *SD*: 0.88)	286 (Mean: 1.43; *SD*: 0.92)
Members aged 60 and over	288 (Mean: 1.44; *SD*: 0.72)	331 (Mean: 1.66; *SD*: 0.97)

Note. Standard deviation, abbreviated as *SD.*

Table 3. ***Monthly Household Income and Expenses of Young–Old and Old–Old Households***

	Young–Old households (*N* = 200)		Old–Old households (*N* = 200)	
	Mean	***SD***	**Mean**	***SD***
Household Income				
Total	₹ 64,987.21	5455.31	₹ 57,808.32	2604.82
Per capita	₹ 19,226.98	3220.76	₹ 16,013.39	1874.63
Household Expenditure				
Total	₹ 29,890.67	1874.63	₹ 32,999.91	*SD* : 3052.46
Per capita	₹ 8,843.39	1085.07	₹ 9,141.25	*SD* : 611.71

Note. Abbreviations ; *SD* : Standard deviation, *N* : Sample size.

the two samples at the 0.01 level [*t*- test statistic (*t*) = 3.827, degrees of freedom (*df*) = 398, *p*-value (*p*) = 0.000]. The average monthly income per O–O HH member (per capita income) is lower at ₹ 16,013.39 compared to ₹ 19,226.98 in the case of Y–O HH members, with an average difference of ₹ 3,213.43. Again, the *t*-test confirms significant differences in monthly per capita household incomes of the two samples at the 5% level (*t* = 2.556, *df* = 398, *p* = 0.011), with average monthly income per Y–O HH member being 1.20 times higher than that of the O–O HH member. Thus, H02 is rejected, and Ha2 is proven.

Moving to the analysis of household expenditure, the size of the O–O HH's total monthly household expenditure (₹ 32,999.91) is 1.11 times higher than that of the Y–O HHs (₹ 29,890.67). *T*-test confirms the existence of a very significant difference in the means of the two samples at the 0.01 level (*t* = 3.996, *df* = 398, *p* = 0.000), indicating the higher burden of O–O HHs. The average monthly expenditure per Y–O HH member (per capita expenditure) is lower at ₹ 8,843.39 compared to ₹ 9,141.25 in the case of O–O HH members, with an average difference of ₹ 297.86. Again, the *t*-test confirmed the significant differences in the monthly per capita household expenditure of the two samples at the 0.01 level (*t* = 5.038, *df* = 398, *p* = 0.000), with the same being significantly higher among O–O HH members. Thus, H03 is rejected, and Ha3 is proven.

Nature and Sources of Income of the Senior Citizens

Table 4 shows that the average monthly income, exclusively of the Y–O (₹ 21,662.33), differs from that of the O–O (₹ 16,443.27) senior citizen by about ₹ 5,219.06. The *t*-test confirms the highly significant difference in the average monthly income exclusively of the elderly respondents of the two samples based on age (Y–O and O–O) at the 0.01 level (*t* = 3.971, *df* = 398, *p* = 0.000) to the disadvantage of the O–O respondents. One significant observation was that 124 older individuals [71 O–O (35.5%) and 53 Y–O (26.5%)] reported not having a source of income of their own, not receiving government support, and being dependent on family members who frequently mistreated and abused them. Ha4 is therefore proven, while H04 is rejected.

Analyzing differences in monthly income exclusively of the Y–O and O–O respondents from a gender

Table 4. ***Monthly Income Exclusively of the Young–Old and Old–Old Respondents***

	Young–Old respondents (*N* = 200)		Old–Old respondents (*N* = 200)	
	Mean	***SD***	**Mean**	***SD***
Males	₹ 22,482.18	3970.02	₹ 17,595.12	2100.22
Females	₹ 18,743.21	2412.68	₹ 13,283.52	1999.46
Total	₹ 21,662.33	2856.34	₹ 16,443.27	2023.12

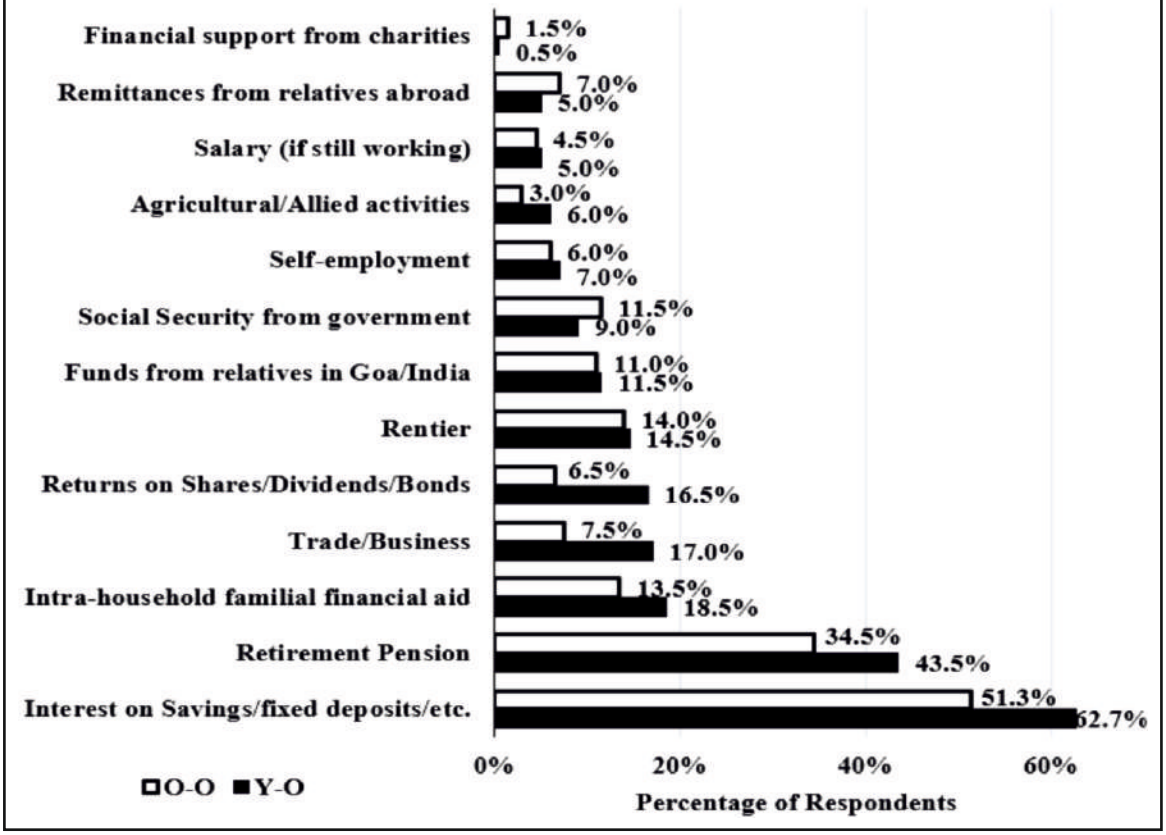
Note. Abbreviations : *SD* : Standard deviation, *N* : Sample size.

perspective, we find that while the mean monthly income solely of the Y–O males and females was ₹ 22,482.18 and ₹ 18,743.21, respectively, the corresponding figures were lower at ₹ 17,595.12 and ₹ 13,283.52, respectively in case of O–O males and females. The *t*-test confirmed the existence of a significant difference at the 0.05 level in average monthly income based on the gender of the senior citizens (t = 2.485, df = 398, p = 0.013) to the disadvantage of female senior citizens. Thus, H05 is rejected, and Ha5 is proven.

Figure 1 indicates that older adults receive monthly income from multiple sources. The primary source of income is interest on savings/fixed deposits for both the Y–O (62.7%) and the O–O (51.3%), followed by retirement pensions [87 Y–O respondents (43.5%) and 69 O–O respondents (34.5%), respectively]. Intra-household familial financial aid is a source of income for 18.5% of the Y–O and 13.5% of the O–O. While income from trade/business continues to be a source for around 17% of the Y–Os, only 7.5% of the O–Os reported to draw income from this source. Other sources include Returns on shares/dividends/bonds, income from rent, money from children/relatives living in Goa/India, social security benefits, and remittances from relatives living abroad. A few also reported income from salaries, self-employment, agriculture, allied activities, and charitable organizations.

To test Ha6 by proving whether significant associations exist between the sources of income of the Y–O and O–O, we adopted the chi-square test. Significant associations were found only in the case of five components. A highly effective association at the 1% significance level was found between the number of Y–Os and O–Os having trade/business as a source of income (χ^2 = 8.396, df = 1, p = 0.004) and getting returns on shares/dividends/bonds (χ^2 = 9.826, df = 1, p = 0.002) in favor of the Y–Os. Besides, a significant association at the 5% level of significance was found regarding availing income via social security benefits (χ^2 = 4.404, df = 1,

Figure 1. ***Sources of Income Exclusively of the Young–Old and Old–Old Respondents***



$p = 0.034$), but this time, to the advantage of the O–O. Finally, significant associations were found between the Y–O and O–O, in favor of Y–Os earning income from interest on savings/fixed deposits ($\chi^2 = 3.424$, $df = 1$, $p = 0.064$) and retirement pension ($\chi^2 = 3.405$, $df = 1$, $p = 0.065$) at the 1% level. Thus, H06 is rejected, and Ha6 is proved.

Expenditure Patterns of Older Adults

Table 5 shows the difference between the average monthly expenditures of the Y–O (₹ 10,978.43) and O–O (₹ 8,563.30) senior citizens, which is an amount of about ₹ 2,415, being higher in the case of the Y–O respondents. The *t*-test highlighted a significant difference in the average monthly expenditure of the two samples at the 0.01 level ($t = 3.602$, $df = 398$, $p = 0.000$), H07 stands rejected, and Ha7 is proved.

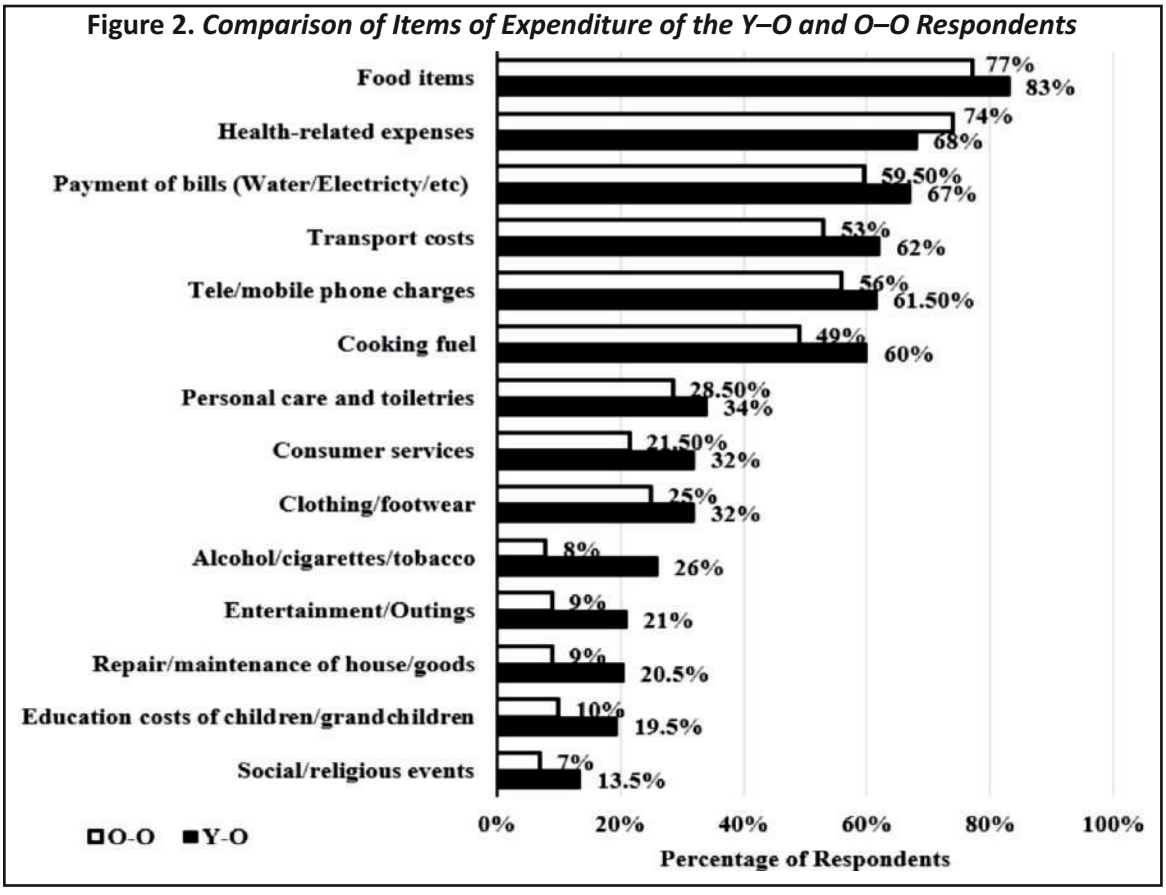
Analyzing differences in monthly expenditure exclusively of the Y–O and O–O from a gender perspective, the

Table 5. ***Monthly Expenditure Exclusively of the Young–Old and Old–Old Respondents***

	Young–Old respondents (*N* = 200)		Old–Old respondents (*N* = 200)	
	Mean	***SD***	**Mean**	***SD***
Males	₹ 11,642.31	1444.07	₹ 9,420.16	1162.22
Females	₹ 7,942.89	1279.83	₹ 5,196.32	977.64
Total	₹ 10,978.43	1563.98	₹ 8,563.30	1229.49

Note. Abbreviations : *SD* : Standard deviation, *N* : Sample size.

Figure 2. ***Comparison of Items of Expenditure of the Y–O and O–O Respondents***



mean monthly expenditure exclusively of Y–O males and females was ₹ 11,642.31 and ₹ 7,942.89, respectively. The corresponding figures were lower at ₹ 9,420.16 and ₹ 5,196.32, respectively, in the case of O–O males and females. *T*-test shows that differences in mean monthly expenditure are highly significant across genders ($t = 2.598$, $df = 398$, $p = 0.009$), pointing to the rejection of H08 and acceptance of Ha8.

Concerning monthly expenditures, Figure 2 reveals that older people spend money on multiple items. Food items are the primary expenditure category among the Y–O (83%) and O–O (77%). Medical expenses were the only expenditure item on which a slightly higher percentage of O–Os (74%) reported spending more than Y–Os (68%). Many older adults reported spending money on utilities, ranging from 60% to 67% Y–Os and 49% to 59.5% O–Os. These include expenditure on payment of water/electricity bills, on transport, be it on spending for fuel for their vehicle or paying the fare of buses/hired vehicles, telephone/mobile phone related charges, and cooking fuel. A lesser percentage of older respondents (around 32% to 34% Y–Os and between 25% to 28.5% O–Os) spent money on the purchase of clothing/footwear, consumer services such as payment of salary of the domestic servant, tailoring charges, laundry, as well as personal care items and toiletries. While 26% of Y–O respondents reported spending money on alcohol/cigarettes/tobacco products, only 8% of O–O respondents said the same. Finally, very few older adults, around 13.5% to 21% of the Y–O respondents and 7% to 9% of the O–O reported paying for the repair and maintenance of their house and household goods, spending on the education of children/grandchildren, entertainment/outings, and costs on social/religious events.

Based on the items of expenditure, we attempt to test Ha9 for the existence of significant associations between the Y–O and O–O respondents using chi-square tests. A significantly higher number of Y–Os spend money on specific components of expenditure as compared to their O–O counterparts. Highly significant associations were found between the number of Y–Os and O–Os spending money on food ($\chi^2 = 17.864$, $df = 1$, $p = 0.001$), cooking fuel ($\chi^2 = 13.149$, $df = 1$, $p = 0.000$), water/electricity bills ($\chi^2 = 15.930$, $df = 1$, $p = 0.000$), transportation ($\chi^2 = 17.160$, $df = 1$, $p = 0.000$), entertainment/outings ($\chi^2 = 11.294$, $df = 1$, $p = 0.001$), education of children/grandchildren ($\chi^2 = 7.177$, $df = 1$, $p = 0.007$) and alcohol/cigarettes/tobacco ($\chi^2 = 22.962$, $df = 1$, $p = 0.000$), all significant at the 1% level, highlighting the fact that a significantly more number of Y–Os were spending money on these items as compared to the O–Os. Finally, a substantially higher number of Y–Os spent money on consumer services ($\chi^2 = 5.627$, $df = 1$, $p = 0.018$), social/religious events ($\chi^2 = 4.593$, $df = 1$, $p = 0.032$), and donations/charity ($\chi^2 = 4.00$, $df = 1$, $p = 0.046$), significant at the 5% level. Thus, H09 is rejected, and Ha9 is accepted.

Identification of the Predictors of Financial Dependence among Older Adults

The fourth research question sought to identify the categories of older adults who are financially dependent on others to meet their daily needs. The binary logistic regression method is used to understand the significance of socio-demographic and health determinants. Financial dependence is the dependent variable wherein the options considered are "Financially dependent" and "Financially independent." Our independent variables include age, gender, marital status, educational qualification, and locality. Two health-related independent variables were also included, comprising older adults' perception of their health status based on the statement, "Compared to one year ago, how would you rate your health in general now?" which they rated on a 5-point Likert scale. The monthly health expenditure of older people was assessed as the second health variable. The method of operationalization is given in Table 6.

The following logistic regression model is tested:

$$FINDEP_i = \log \left(\frac{Financially\ Dependent}{Financially\ Independent} \right)_i = \alpha + \beta_1 . SEX_i + \beta_2 . AGE_i + \beta_3 . MARRIED_i + \beta_4 . EDU_i + \beta_5 . LOC_i + \beta_6 . HEALTH_i + \beta_7 . \ln HEXP + \epsilon_i \quad (1)$$

Table 6. ***Mode of Operationalization for Binary Logistic Regression***

Variable considered	Mode of Operationalization	Variable type
Financial Dependence	*FINDEP* : 1 = Financially dependent, 0 = otherwise	Categorical
Gender	*SEX* : 1 = Male, 0 = otherwise	Categorical
Age	*AGE* : 1 = Young–Old, 0 = otherwise	Categorical
Current Marital Status	*MARRIED* : 1 = Currently married, 0 = otherwise	Categorical
Educational Qualification	*EDU* : 1 = Formally educated, 0 = otherwise	Categorical
Locality	*LOC* : 1 = Urban, 0 = otherwise	Categorical
Health Status Perception	*HEALTH*	Likert scale
Log of Health Expenditure	ln*HEXP*	Continuous

Source : Author formulations based on Equation 1.

Table 7. ***Socio-Demographic and Health Factors Determining Financial Independence among Older Adults***

Factors	β	SE	Wald	*df*	Sig.	Exp(β)	95% C.I. for Exp(β)	
							Lower	Upper
Gender	–0.628	0.236	7.105	1	0.008***	0.534	0.336	0.847
Age	–0.725	0.281	6.632	1	0.010**	0.484	0.279	0.841
Marital status	–0.055	0.250	0.048	1	0.826	0.947	0.580	1.545
Education	–0.753	0.468	2.587	1	0.108	2.124	0.848	5.319
Locality	–0.944	0.241	15.320	1	0.000***	0.389	0.243	0.624
Health Status	–0.284	0.151	3.510	1	0.061*	1.328	0.987	1.787
Health expenditure	0.000	0.000	4.015	1	0.045**	1.000	1.000	1.000
Constant	1.839	0.987	3.472	1	0.062*	6.292		

Note. *** $p < .01$,** $p < .05$,* $p < .1$; *SE* : Standard Error ; *df* : degrees of freedom ; β : Beta ; Exp(β) : Odds Ratio ; *CI* : Confidence Interval ; Sig : Significance level.

The Omnibus tests of model coefficients used to assess the model fit indicate that the model is highly significant ($\chi^2 = 85.625, p = 0.000$). The Hosmer and Lemeshow statistic shows that the model adequately fits the data (since $p = 0.172$). Nagelkerke's R^2 specifies that the independent variables account for a 27% change in the outcome variable. The model correctly classified 70% of cases, indicating good model accuracy.

The results in Table 7 reveal that the log odds of being entirely financially dependent in old age is very significantly lower by 0.53 times among older males in comparison to their female counterparts (reference category) at the 1% level of significance, similar to the findings of Vlachantoni (2012). We also find that the log odds of being fully financially dependent are significantly lower at the 5% level by 0.48 times among the Y–O compared to the O–O. While married and educated older persons had a lesser probability of being entirely economically reliant, the results are not statistically significant. Nonetheless, for older people residing in rural areas, the log chances of being completely financially reliant are much lower by a factor of 0.39. At the 1% significance level, we find that, with regard to health characteristics, an enhanced impression of one's health significantly reduces the likelihood of being completely financially reliant by 1.33 times. We also find that for every one-unit increase in health expenditure, the log odds of being economically dependent significantly increased by one time, resembling the findings of Mane (2016). Older females, the O–O, those residing in urban areas, those with a poorer health status perception, and those with high health expenditures are more inclined to be fully financially dependent on others. Thus, H010 is rejected, and Ha10 is accepted.

Conclusion and Policy Implications

In this paper, 400 senior folks from six talukas in Goa participated in in-person surveys to gather data on their economic situation using multistage sampling. In terms of their financial profile, the O–O HHs relied more heavily on their working members for assistance, and their dependency rate was higher. In turn, O–O households faced significantly lower household income but relatively higher household expenditure, both total and per capita, compared to Y–O HHs. Analysis of the nature of income exclusively of senior citizens reveals that significant differences exist in their monthly income based on age and gender, to the disadvantage of the O–O and female elderly, with the considerable sources of income being retirement pensions and interest earned on deposits. Reports of lack of income sources and ill-treatment and abuse are also found.

Regarding expenditure patterns, significant differences exist in the monthly expenditure of older adults based on age and gender. The major expenditure components include food and health. Socio-demographic and health variables are found to predict that O–O significantly, females who resided in urban areas had poor health perceptions and high health expenditures and were predisposed to be financially dependent in old age. The ground reality reveals a heterogeneous economic situation among older people in Goa. It draws the attention of policymakers and academicians to several issues outlined below.

Implications

Theoretical Implications

Understanding the financial situation of older persons can help enhance theoretical knowledge in a number of economics disciplines, from savings behavior to labor markets and human capital. Such research can influence policy, direct future theoretical advancements, and advance multidisciplinary discussions in the field of economics by offering empirical data and insights into the economic effects of demographic aging.

Managerial and Policy Implications

- The findings could inform managers about the changing labor market dynamics, including the increased presence of older workers. Managers must implement age-friendly policies and practices to support senior employees and leverage their skills and experience.
- The study highlights opportunities for industries related to product and service innovation targeted at older adults. Industries such as healthcare, technology, finance, and leisure can benefit from developing products and services tailored to the needs of older consumers.
- There is a need to widen the social security umbrella of the government to support the vulnerable categories of older people (identified in the study) who need assistance.
- The government's old-age pension is frequently extremely small. It is required to make periodic adjustments to the rate in order to maintain the current level of inflation.
- A need arises to improve the health of older adults, as high out-of-pocket medical costs and poor health perception drain their resources, increasing their financial dependency.
- A significant requirement is the setting up of a separate Directorate or Commission for senior citizens in Goa devoted to awareness of schemes. Legal aid and safeguarding the rights of older individuals, particularly in instances of abuse, should also be ensured. Collaborations can also be forged with Panchayati Raj and community organizations to undertake various initiatives for the welfare of older people.

Limitations of the Study and Scope for Further Research

The study has been limited to the responses of older adults residing in Goa. However, many other demographically advanced Indian states, such as Kerala, Himachal Pradesh, Tamil Nadu, Maharashtra, Punjab, Karnataka, Andhra Pradesh, etc., are home to significant proportions of the older population. Older people constitute an under-researched category. Several recommendations for prospective research in this direction include:

- Intensive studies like the current one must be undertaken in other states, as unique state-specific economic/health policies or cultural factors often influence findings.
- A sound financial strategy throughout one's working years is necessary for financial security in later life. Research on measuring financial literacy in families with the goal of motivating them to favor a diverse investment portfolio and, consequently, take the necessary actions to prepare financially for retirement are required.
- Several cultural, social, political, environmental, technological, legal, and cohort factors influence the economic condition of older people. A rigorous investigation, yet unexplored, would demand the time and curious intellect of several researchers in the future.

Authors' Contribution

Charmaine S. Siqueira Lobo and Prof. Savio P. Falleiro conceived the idea and developed the quantitative research design for the empirical study. Under the guidance of Prof. Savio P. Falleiro, Ms. Charmaine S. Siqueira Lobo conducted a rigorous literature review, undertook a detailed primary survey, analyzed the data collected using SPSS, and prepared the preliminary draft for this study. Ms. Charmaine S. Siqueira Lobo wrote the manuscript, and Prof. Savio P. Falleiro supervised and finalized it.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this manuscript.

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