# Work, retirement, and post-retirement employment among older adults in India

Charmaine Savia Siqueira Lobo [1, *], Savio P. Falleiro [2]

[1]Department of Economics, Fr. Agnel College of Arts and Commerce, Pilar-Goa, India
[2]Department of Economics, Rosary College of Commerce and Arts, Navelim-Goa, India

## ARTICLE INFO

## ABSTRACT

Older adults in India, particularly those in Goa, where there is a high elderly population, have been insufficiently researched. Some older adults are financially vulnerable in their old age and must continue working, while others choose to work to stay active. Although some studies have examined the health and social issues faced by the elderly, this study contributes to a previously unexplored area in Goa. 400 Goan seniors were surveyed using multistage sampling to investigate their occupations before and after retirement, determine reasons for voluntary retirement and associated factors, and assess variables predisposing them to work. Binary Logistic Regression, Chi-square, and Fisher's Exact Tests were used. The findings showed that many were former government and private sector employees, farmers, and educators. 73 participants retired voluntarily due to factors such as health issues, family commitments, stress, and leisure. Among them, 20.5% are currently employed after retirement. Significant correlations were observed between post-retirement work and age groups such as the young-old and old-old. Factors that attracted the participants to engage in post-retirement work include insufficient income, education, experience, good physical health, and mental alertness. The study found that individuals categorized as young-old, with low household income, financially dependent, and having fewer comorbidities, were more likely to continue working after retirement. These findings highlight the need to end age discrimination and provide equal opportunity for older adults to contribute to society. Policymakers must focus on improving the wellbeing of vulnerable older adults who have inadequate resources and poor health. There is potential for further research in various states of India to understand the labor market decisions of older adults and implement necessary improvements where they are lacking.

## 1. Introduction

The global population of individuals aged 60 years and older is growing rapidly and at a faster rate than younger age groups. According to United Nations projections, with the exception of Africa, every region of the world is anticipated to have at least 25% of its population aged 60 years and older by 2050. According to Donner et al. (2015), one in four people aged 65 are predicted to survive to 90.

Retirement was considered a reasonably anticipated, long-term transition from full-time employment towards full-time recreation. However, this perception has since shifted. For instance, estimates indicate that approximately 9 million Americans work after retirement (Maestas, 2010). In a similar vein, 47% of older male Canadians aged 60 to 64 who had resigned rejoined the workforce in less than ten years. Many people now see retirement as an integration of engaging in financially rewarding employment alongside pursuing recreational endeavors rather than an irreversible departure from the workforce (Moen and Flood, 2013).

Intellectual attention concerning post-retirement work has surged over recent years, evolving into a progressively prominent topic of discourse (Fasbender et al., 2016). Increasing longevity, prospective constraints on social welfare resources, pension overhauls, and job sector shifts are all

sparking curiosity about the likelihood of employability of retired older adults. Labor theorists investigate the nature and dynamics of job prospects among older persons, offering invaluable insight regarding older employees' aspirations for staying employed post retiring (Hess et al., 2021). Increased longevity emphasizes the importance of ensuring that older individuals maintain a sufficient quality of life following their formal workplace resignation. Often, retirement is followed by a significant decline in the living standards of those who retire, including that of their entire household. In addition, a desire arises among older adults to keep themselves occupied during their free time (Tur-Sinai and Spivak, 2022). A few fortunate older individuals can rely upon monetary assets amassed over time to safeguard a satisfactory quality of life during this juncture. Alternatively, older persons facing a dearth of these assets are inclined to endure a significant decrease in their resources and quality of life compared to their pre-retirement condition.

India's aging population is experiencing significant growth, with projections indicating this trend will continue in the future. According to Chandramouli and General (2011), Goa is aging at a faster pace than the rest of India. The census indicates that there is a larger proportion of people aged 60 and above in Goa (11.2%) compared to the national average (8.6%), making Goa the state with the second-highest elderly population in India, after Kerala. Despite this, older adults remain under-researched in India, particularly in Goa. In old age, some individuals face financial vulnerabilities that necessitate them to work post-retirement, while others do so to remain active. In this context, only a few studies have been conducted that exclusively examine the elderly population in Goa, analyzing their wellbeing (Cohen et al., 2018), health-related quality of life (Siqueira Lobo and Falleiro, 2022), and sociological issues they encounter (Moraes, 2015). This study presents new insights into the labor market decisions of older adults in Goa, which have not yet been explored by researchers. This will help close a significant gap in the literature. To best understand retirement patterns and post-retirement employment, it is necessary to analyze the pre-retirement job histories of older adults. The present study aims to answer the following Research Questions (RQs):

1) What was the nature of older adults' occupation before retirement? (RQ1)
2) What are the major reasons for taking voluntary retirement? (RQ2)
3) What is the nature of post-retirement work? (RQ3)
4) Which critical 'Pull Factors' have drawn older adults back to the labor market? (RQ4)
5) Based on socio-demographic, economic, and health variables, which categories of older adults are more inclined to engage in post-retirement work? (RQ5)

To further assess the heterogeneity in this population category, the older adults have been classified as the Young-Old (Y-O), i.e., those 60-74 years old, and the Old-Old (O-O), i.e., those 75 years and above, according to recommendations by the United Nations. We turn now to the corpus of literature available that will stimulate the development of hypotheses to give direction to answering the above-mentioned research questions.

## 2. Literature review and development of hypothesis

As articulately noted by Worthy et al. (2011), "Elderly people must make several crucial choices about their retirement, how to use their life assets, and how to optimize and enjoy their remaining years. Making decisions is inevitable in life. Seldom do these decisions operate in solitude. The benefits of every choice are frequently contingent on past decisions. The possibilities for future employment opportunities or retirement savings hinge on one's past decisions and where one has presently reached." This highlights that if we want to analyze the nature of post-retirement employment among older adults, their choices regarding their pre-retirement job patterns need to be pondered upon (RQ1). We also hypothesize that 'There exists a significant association among the Y-O and O-O concerning their nature of pre-retirement occupation' [Hypothesis 1 (H1)].

Voluntary retirement entails the resignation of employees from their jobs earlier than their retirement date. Researchers have investigated several reasons that induce individuals to retire voluntarily. For instance, individuals specifying fair or poor health ratings are less inclined to continue in the labor force (Congdon-Hohman, 2018). Besides, obligations to the family, recreational pursuits, and sufficient resources also drive individuals to favor early retirement (Winkelmann-Gleed, 2011). Before retirement, persons who were engaged in lower-paying occupations characterized by lesser autonomy, stressful work environments, and low reputation are inclined to withdraw from the labor market (Virtanen et al., 2014; Sundstrup et al., 2021). This prompts us to investigate the answer to our second research question in the context of older adults in Goa, 'What are the major reasons for taking voluntary retirement?' (RQ2).

Bridge employment, along with the term 'Unretirement,' continues to be widely utilized in academic research to categorize post-retirement workforce engagement. Technical term abbreviations will be explained when first used. Biased language, filler words, informal expressions, and unnecessary jargon will be avoided. Grammatical correctness will be ensured. Any work pursued by a retired individual after leaving their previous occupation is considered bridge employment. This type of post-retirement work has become increasingly common and well-studied, defined as the act of continuing to work with a different employer following retirement. Consistent citation and formatting styles will be maintained

(Cahill et al., 2006). Nevertheless, most researchers incorporate the term in reference to any job subsequent to retiring, but the critical point is that it occurs before complete discontinuation from the workforce. Modifications of the term could encompass working within the equivalent sector or area, working in another industry, and contractual employment, including working independently. On the other hand, unretirement, frequently referred to as re-entry, entails a comeback to the workforce following an interval of complete retirement. The pathways might range from a year or fewer, even up to an extended duration, between resignation to starting another job (Maestas, 2010). A point to remember is that an older adult is considered employed post-retirement even when working only a couple of hours per week. This directs us to seek answers to 'What is the nature of post-retirement work among older adults in Goa? (RQ3). We also hypothesize that 'A higher number of Y-Os are currently engaged in post-retirement work in comparison to their O-O counterparts' (H2).

Though the strategy to promote prolonged employment has concentrated chiefly on financial demands and rewards, employees frequently have difficulty dealing with the 'push' as well as 'pull' facets whilst deciding their time of retirement (Le Blanc et al., 2019). Having already analyzed the factors that pushed older adults out of the labor market prematurely in the previous section, here we focus on studies that pulled the elderly to continue in the workforce post-retirement. Older adults requiring an additional source of funds, who have rental or insurance payments, or who need to repay a loan are prone to re-join work post-retirement (Congdon-Hohman, 2018). It has also been found that greater levels of educational achievement reflect a greater possibility of post-retirement work (Pettersson, 2014). Higher academic achievement amalgamated with fairly profitable professions such as professionals, managerial positions, advanced supervisory duties, distinguished job titles, etc., project a greater probability of continuing to work past retirement age. In contrast, unprofessional blue-collar careers, including basic job positions, indicate a reduced probability of staying employed after retirement (Hokema and Scherger, 2016; Sundstrup et al., 2021). Greater physical activity and mental stimulation, as well as incorporating daily wellness practices, may reduce the physiological impacts of aging and promote the health of older individuals for work, daily life, and the future. The urge to maintain mental engagement and productivity after retirement encourages people to remain in the workforce (Winkelmann-Gleed, 2011). This brings us to analyze, 'What are the key pull factors that have drawn older adults back to the labor market?' (RQ4). We also hypothesize that significant associations exist between the Y-Os and O-Os concerning each of the factors that have pulled them into the workforce (H3). The socioeconomic level contributes significantly to the justification of people's propensity to work beyond the legal retirement age.

Concerning gender and marital status, marriage enhances the chance of complete retirement, especially among older females (Hokema and Scherger, 2016; Virtanen et al., 2014). Older married females have a lower probability of working post-retirement than single females (Pettersson, 2014). It has also been found that greater levels of educational achievement reflect a greater possibility of unretirement or post-retirement work (Congdon-Hohman, 2018; Pettersson, 2014). Economic considerations also constitute one of the essential explanations for individuals working after retirement (Hokema and Scherger, 2016). Those requiring an additional source of funds, who have rental or insurance payments, or who need to repay a loan are prone to unretired (Congdon-Hohman, 2018). Another consideration in post-retirement work is health. Congdon-Hohman (2018) demonstrates that chronic disease, including impairment, is an inducer of disengagement from the workforce. Thus, we hypothesize that socio-demographic, economic, and health variables significantly predict post-retirement work among older adults (H4). Based on these findings, we identify which categories of older adults are more inclined to engage in post-retirement work (RQ5).

## 3. Methods

The study utilized a sample from Goa, India, obtained through multistage sampling. Three talukas from each of Goa's two districts, North and South Goa, were randomly selected by the researchers, specifically Bardez, Pernem, and Tiswadi in North Goa, and Quepem, Salcete, and Mormugao in South Goa. As per the most recent Population Census report on Goa, the population of older adults aged 60 years or more stands at 163,357 (Chandramouli and General, 2011). With a confidence interval of 95% and a 5% margin of error, a sample of 400 respondents is considered adequate to represent the population of older adults. From each taluka mentioned above, 20% of the towns and villages were randomly chosen for the study to ensure an unbiased sampling process. A sample of 400 older adults residing in their private houses was selected. Informed consent was taken from each respondent before administering the questionnaire. The questionnaires were administered through personal home visits from August 2021 to January 2022. Data was analyzed using the Statistical Package for the Social Sciences (SPSS). The Chi-square test has been used to decide whether there is any significant difference between the expected and observed frequencies of the Y-O and O-O. The chi-square ($\chi2$) test is unsuitable if there are 'less than 5' cases in any of the cells. In such cases, we use the Fisher's Exact Test (FET). These two tests have been adopted to test H1, H2, and H3. In the case of H4, Binary Logistic Regression (LR) is used. It is a regression model where the target variable is dichotomous. Logistic regression coefficients estimate the odds ratios for each independent variable in the model.

Table 1 presents the demographic profile of the sample. Most older adults are females (51.5%), aged between 60 and 69. While 41.3% have studied up to high school, 39% have pursued a college education and beyond. A large majority are married (73.8%), live in urban areas (59.3%), and reside with their family (48%), comprising of either their spouse, children, or both.

**Table 1:** Demographic profile of respondents

| Variables | Total (%) |
|---|---|
| **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 & 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) |

## 4. Results and discussion

### 4.1. Occupation prior to retirement

Law (2002) asserted that the body and mind are shaped by the work we do, and this impacts our quality of life. In consonance with the opinion of Law (2002), our first research question attempted to examine the nature of older adults' work patterns prior to retirement. Table 2 adds a novel dimension to this analysis by presenting a comparative perspective of the Y-O and O-O. Many of the respondents reported to be government employees (43 respondents among the Y-O and 33 among the O-O) and private sector employees (32 respondents: Y-O and 31 respondents: O-O), while 69 of them were homemakers (28 respondents: Y-O and 41 respondents: O-O). Furthermore, the following occupational categories were frequently reported: individuals who run a business (39 respondents), those in agriculture (37 respondents), educators (36 respondents), and professionals (26 respondents). In contrast to the findings of Kollmann et al. (2020) which revealed that senior workers are more contented with their job-related efforts than relatively younger workers, who are more satisfied by financial incentives, the present study's test results revealed no significant association between the Y-O and O-O in terms of the nature of the occupational category prior to retirement

($\chi^2$=13.114; df=10; p=.217; FET: p=.218). Thus, H1 stands rejected.

**Table 2:** Occupation of older adults prior to retirement (frequency)

| Occupation | Y-O | O-O | Total |
|---|---|---|---|
| Agriculturist | 16 | 21 | 37 |
| Business | 18 | 21 | 39 |
| Professional | 18 | 8 | 26 |
| Educationist | 22 | 14 | 36 |
| Government Employee | 43 | 33 | 76 |
| Private sector | 32 | 31 | 63 |
| Skilled Worker | 9 | 8 | 17 |
| Domestic helper | 4 | 8 | 12 |
| Rentier | 4 | 8 | 12 |
| Homemaker | 28 | 41 | 69 |
| Unemployed | 6 | 7 | 13 |
| Total | 200 | 200 | 400 |

### 4.2. Voluntary retirement

The second research question aimed at determining the major reasons for voluntary retirement among older adults in Goa. Out of the entire sample of the elderly engaged in the labor market for remuneration, 73 respondents reported taking Voluntary Retirement. The most commonly cited reason (by 27 respondents) was their own 'Health problems' and 'Redundancy.' Out of the many cases, to mention just a few, 2 respondents reported that they went into depression, while 1 started turning blind. Hence, they had to resign from their jobs voluntarily. Another 5 respondents reported feeling incapacitated to continue their job as their age limited them; therefore, they resigned voluntarily. These findings resonate with those of Cahill et al. (2006), Congdon-Hohman (2018), Hokema and Scherger (2016), and Virtanen et al. (2014), who also demonstrated that ill health is a crucial factor contributing to premature retirement. The second primary reason many (21 respondents) reported was 'Due to Family Reasons.' For instance, the transfer of the husband of an elderly respondent to Kolkata compelled her to leave her job prematurely. This corresponds to the observations of Winkelmann-Gleed (2011), who noted that one's obligations to the family predispose individuals to early retirement. Another 5 respondents reported that they decided to retire prematurely because their organization offered a good retirement package and the Voluntary Retirement Scheme (VRS) presented attractive benefits. 4 respondents experienced many problems at work, creating much stress for them. For example, a respondent narrated a case of being compelled to engage in corrupt practices. All this prompted them to resign prematurely from their job. This result coincides with a similar finding by Virtanen et al. (2014), who noted that a stressful work environment is closely connected to leaving the workforce untimely. 3 respondents gave up their jobs early to relax and enjoy their free time, pursue their hobbies, and travel, in other words, for leisure purposes, as contented by Winkelmann-Gleed (2011). A few others stated that they resigned

voluntarily as they felt obliged to take up community service.

## 4.3. Post-retirement work status

The third research question endeavored to discover the nature of post-retirement work among older adults in Goa. Our study traces similarities to the findings of Beehr and Bennett (2014), who noted that retirement has grown into a protracted phenomenon wherein older persons pass through a number of changes rather than constituting a sudden exit from the workforce. Focusing exclusively on the Y-Os, results demonstrated that a total of 52 Y-O respondents engaged in post-retirement remunerative work in Goa (Table 3). 11 Y-O respondents were engaged in their own business related to food catering orders that kept them occupied for about 4 to 6 hours a day. Another 4 were involved in agriculture and the sale of its products, while yet another 4 reported taking tuition for school students for around 4 hours a day. While 2 Y-O senior citizens are engaged in the real estate business, yet another 2 have their tailoring businesses. Besides, a few are Human Resource (HR) Consultants, Consulting Engineers, and Legal Advisors and are engaged for about 4 hours a day. Some of the other areas of post-retirement work among the Y-O respondents are as follows: 1 respondent was an owner of a tavern (liquor shop), another had a saloon of their own, a third was a driver, yet another a musician while another senior citizen had a business of selling pickles, syrups, knitted booties, etc. Among the rest was also a trade union representative; besides, there was a member of a Non-Governmental Organization (NGO) called Goa Heritage Group and a respondent who worked as a domestic helper.

Considering the O-O, 30 are engaged in post-retirement work (Table 3). Out of these, 7 respondents were engaged in their businesses. For instance, 1 of them had a business of landscaping plants and would be occupied with that for around 7 hours daily. 3 respondents had their retail shops, while 1 had their own petroleum company. 2 senior citizens reported being engaged in the cultivation and sale of spices and fruits, while yet another went to sell fish daily. 2 respondents were rentiers, 1 was an insurance agent, yet another was a tailor, while another senior citizen practiced his legal profession for around 5 hours, thrice a week. Besides, some were engaged in the catering business, supervision of construction work, and the sale of creative work skillfully made by them.

These results reveal that post-retirement employment is gaining popularity, similar to the findings of Maestas (2010) who found that approximately 9 million Americans work after retirement. In a similar vein, 47% of older male Canadians aged 60 to 64 who had resigned rejoined the workforce in less than ten years. Many people now see retirement as an integration of engaging in financially rewarding employment alongside pursuing recreational endeavors rather than an irreversible departure from the workforce (Moen and Flood, 2013). As observed in Table 3, taking together the Y-O and O-O though most of the older adults are permanently out of the labor force (79.5%), 20.5% are currently engaged in post-retirement work for which they receive a monetary remuneration. Out of this, a higher number of the Y-O (52 respondents) are engaged in post-retirement work than the O-O (30 respondents). The chi-square test reveals the existence of a significant association between the post-retirement work status among the Y-Os and O-Os ($\chi^2$=7.424, df=1, p=.006), indicating a higher number of Y-Os being currently engaged in post-retirement work. Thus, H2 stands accepted.

**Table 3:** Post-retirement work status

| Post-retirement work status | Y-O | O-O | Total (%) |
|---|---|---|---|
| Yes | 52 | 30 | 82 (20.5) |
| No | 148 | 170 | 318 (79.5) |
| Total | 200 | 200 | 400 (100) |

## 4.4. The pull factors drawing older adults into post-retirement work

The fourth research question studied the critical pull factors that have drawn older adults back to the labor market. As highlighted in the previous section, though most of the elderly were pushed out of the workforce due to the statutory retirement age cut-off, health problems, family issues, workplace stress, etc., we found that 20.5% are still engaged in post-retirement work. Table 4 lists the factors that pulled the elderly back into the labor force.

Out of the total number of senior citizens currently working for remuneration (82 respondents), 51 reported being pulled back into the labor force to supplement their economic resources due to insufficient income. This is in tune with the findings of Congdon-Hohman (2018) and Hokema and Scherger (2016), who specified that those requiring an additional source of funds, who have rental or insurance payments, or who need to pay back a loan are prone to unretired. The chi-square test reveals there is a significant association between the Y-O and O-O and inadequacy of income as a factor pulling them to continue in the labor force ($\chi^2$ = 20.855, df=1, p=.000), thus compelling many of the Y-Os to do so, compared to the O-Os. A total of 34 respondents affirmed that their educational qualifications/skills (statement 2) and experience (statement 3) gave them the opportunity to continue in the labor force. This is consistent with the findings of Hokema and Scherger (2016), who showcased that higher academic achievement amalgamated with fairly profitable professions projects a greater probability of continuing to work past retirement age. The chi-square tests also revealed the existence of significant associations between the Y-O and O-Os with both the pull factors: education/skills ($\chi^2$=4.505, df=1, p=.034) and experience ($\chi^2$=6.697, df=1, p=.010) respectively, driving more O-Os into the labor force. Finally, we observe that while 43

respondents continue to work as they are healthy and able to do so, 35 continue to work to keep themselves occupied, indicating that good health and the need to stay mentally fit act as essential pull factors. These findings are consistent with those of Winkelmann-Gleed (2011), who contends that the need to keep oneself mentally active and engaged post-retirement predisposes older adults to continue in the workforce. Greater physical and mental activity, as well as incorporating daily wellness-enhancing habits, can help reduce the negative physiological effects of aging, promoting long-term health and vitality for older individuals in the workplace and beyond. Once again, significant associations were found between Y-Os and O-Os, the results being: χ2=8.281, df=1, p=.004 in the case of good health as a pull factor, and χ2=22.332, df=1, p=.000 in the case of the need to stay occupied or mentally fit as a pull factor. Given that all the five pull factors bear significant associations between the Y-Os and O-Os testifies to accepting H3.

**Table 4:** The Pull factors that drew the elderly into the labor force

| Statement | Response | Y-O (n=52) | O-O (n=30) | Total |
|---|---|---|---|---|
| Lack of sufficient income pulled me back into the labor force | Yes | 42 | 9 | 51 |
|  | No | 10 | 21 | 31 |
| My educational qualifications/skills enabled me to continue working | Yes | 15 | 19 | 34 |
|  | No | 37 | 11 | 48 |
| My experience in this field gave me a chance to continue in the workforce | Yes | 16 | 18 | 34 |
|  | No | 36 | 12 | 48 |
| I am continuing to work to keep myself occupied/busy | Yes | 12 | 23 | 35 |
|  | No | 40 | 7 | 47 |
| I am continuing to work as I am healthy and able to do so | Yes | 21 | 22 | 43 |
|  | No | 31 | 8 | 39 |

### 4.5. Socio-demographic, economic, and health factors pre-disposing older adults to continue working

The fifth research question aimed to identify which categories of older adults are more likely to participate in post-retirement work. The study uses the binary logistic regression method to evaluate the significance of socio-demographic, economic, and health-related determinants in deciding to engage in post-retirement work. The dependent variable is the choice of post-retirement work, considering either 'Employed post-retirement' or 'Not employed post-retirement' as options. The independent variables are classified into the categories of sociodemographic, economic, and health. Sociodemographic variables consist of gender, age, marital status, educational attainment, and locality. Economic variables encompass the natural logarithm of the participant's monthly per capita household income (in Indian Rupees) and the level of financial dependence of older adults on others. Financial dependency was assessed using a question asking, "Are you financially dependent on others to meet your expenses?," answered on a five-point Likert scale ranging from strongly agree to strongly disagree. Health status was evaluated by asking the older adult to rate their general health compared to one year ago using a five-point Likert scale ranging from much better now than one year ago to much worse now than one year ago. The number of comorbidities self-reported by each older adult was analyzed as the second health variable. The operationalization method for the variables is provided in Table 5.

The following logistic regression model is tested:

$$PRW_i = log \left( \frac{employed}{not\ employed} \right)_i = \alpha + \beta_1.SEX_i + \beta_2.AGE_i + \beta_3.MARRIED_i + \beta_4.EDU_i + \beta_5.LOC_i + \beta_6.lnMPCI(HH)_i + \beta_7.FINDEP_i + \beta_8.HEALTH_i + \beta_9.COMORBID + \epsilon_i$$

Goodness-of-fit statistics help determine whether the model adequately describes the data. The Omnibus Tests of Model Coefficients are used to test the model fit. The model is significant (χ2 = 121.559, df = 9, p = .000), which shows a significant improvement in fit compared to the baseline null model without any independent variables, thus offering a good fit. The Hosmer and Lemeshow test is also a test of model fit. The Hosmer-Lemeshow statistic indicates a poor fit if the significance value is less than 0.05. Here, the model adequately fits the data (since p=0.823). Hence, there is no difference between the observed and predicted model. The Pseudo R-Square presented by Nagelkerke's $R^2$ (0.41 in this case), i.e., an adjusted version of the Cox & Snell R-square (0.26) that adjusts the scale of the statistic to cover the full range from 0 to 1 is used as an approximate variation in the criterion variable. Thus, the predictor variables in the model can account for a 41% change in the criterion variable. The model correctly classified 83.8% of cases (Percentage Accuracy in Classification [PAC]). Specifically, it presents information on the degree to which the model predicts the observed outcomes, indicating a very good accuracy of the model.

The results in Table 6 reveal that among the socio-demographic factors influencing the choice of post-retirement work of older adults, taking a look at gender, we find that the log odds of being employed in post-retirement work is significantly higher by 3.46 times among elderly males in comparison to their female counterparts (reference category),

similar to the findings of Virtanen et al. (2014) who also found that relatively more older males are engaged in the workforce. Our study also finds that for every one-unit increase in age, the log odds of engaging in post-retirement work significantly decreased by 0.44 times. Though the tendency to be employed post-retirement reduces in the case of married, educated, and urban-area-based older adults, the results are not statistically significant.

Concerning economic variables, we find that for every one-unit increase in the older adults' monthly per capita household income, the log odds of engaging in post-retirement work significantly decreased by 0.51 times. Similarly, the log odds of being employed post-retirement is higher by 1.44 times with a unit increase in financial dependency among older adults.

**Table 5:** Mode of operationalization for binary logistic regression

| Variable considered | Mode of operationalization | Variable type |
|---|---|---|
| Choice of post-retirement work (PRW) | PRW = 1: employed post-retirement, 0: otherwise | Categorical |
| Gender | SEX = 1: male, 0: otherwise | Categorical |
| Age | AGE | Continuous |
| Current marital status | MARRIED = 1: Currently married, 0: otherwise | Categorical |
| Educational qualification | EDU=1: Has formal education, 0: otherwise | Categorical |
| Locality | LOC = 1: Urban, 0: otherwise | Categorical |
| Natural log of monthly per capita household income | MPCI(HH) | Continuous |
| The extent of financial dependence on others | FINDEP | Likert scale |
| Health status perception compared to last year | HEALTH | Likert scale |
| Number of co-morbidities | COMORBID | Ordinal |

These findings resemble those of Congdon-Hohman (2018), who also specifies the importance of economic factors. Regarding the health variables, we find that health status perception is not statistically significant. However, results indicate that as the number of comorbidities increases among older adults, the log odds of continuing in employment post-retirement significantly decrease by 0.26 times, similar to the findings of Congdon-Hohman (2018). Thus, we find that socio-demographic variables (gender and age), economic variables (monthly household income of the elderly and financial dependency), and health variables (number of comorbidities) are significant predictors of post-retirement work among older adults in Goa. Thus, H4 stands proven. In response to the fifth research question, we identify the categories of older individuals more inclined to work post-retirement. These include males, the young-old, those with lower monthly per capita household income, primarily those who are financially dependent and trying to lower the burden on their families by earning, and finally, older adults having better health with fewer comorbidities.

**Table 6:** Socio-demographic, economic, and health factors pre-disposing older adults to work post-retirement

| Factors | B | S.E. | Wald | df | Sig. | Exp(β) | 95% C.I. for Exp(β) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| SEX | 1.240 | .329 | 14.226 | 1 | .000*** | 3.455 | 1.814 | 6.579 |
| AGE | -.817 | .266 | 9.442 | 1 | .002** | .442 | .262 | .744 |
| MARRIED | -.117 | .346 | .114 | 1 | .736 | .890 | .452 | 1.753 |
| EDU | -.092 | .595 | .024 | 1 | .878 | .913 | .284 | 2.927 |
| LOC | -.291 | .322 | .815 | 1 | .367 | .748 | .397 | 1.406 |
| MPCI(HH) | -.823 | .270 | 9.449 | 1 | .003** | .508 | .267 | .750 |
| FINDEP | .363 | .133 | 7.448 | 1 | .006** | 1.438 | 1.108 | 1.867 |
| HEALTH | -.047 | .216 | .047 | 1 | .828 | .954 | .625 | 1.456 |
| COMORBID | -1.365 | .232 | 34.681 | 1 | .000*** | .255 | .162 | .402 |
| Constant | -6.653 | 1.890 | 12.390 | 1 | .000*** | .001 | | |

***: $p<0.001$; **: $p<0.01$

## 5. Conclusion

After a long period of work, older individuals achieve retirement status and are met with critical decisions that affect their daily routines, financial stability, and emotional and familial responsibilities. The purpose of this study is to comprehend the labor market dynamics that older adults in Goa experience. The study found that prior to retirement, older adults held various occupations including government and private sector employment, agriculture, education, and business. However, there was no significant correlation found between years of occupation and the nature of the occupational category prior to retirement. Additionally, 73 respondents elected voluntary retirement due to reasons such as health problems, family obligations,

attractive retirement packages, stressful work environments, and leisure pursuits. According to the research, 20.5% of individuals are employed after retirement. The study found significant connections between post-retirement work status among Y-Os and O-Os. The reasons motivating older adults to work after retirement included insufficient income, education, experience, good health, and mental engagement. These factors were significantly associated among Y-Os and O-Os. Finally, objective findings show that certain socio-demographic, economic, and health factors strongly influence older adults' inclination to continue working post-retirement. The categories of older individuals who are more likely to continue working post-retirement include males, those in the young-old age group, individuals with lower monthly household income

per capita, particularly those who are financially dependent, and older adults with fewer comorbidities. This study highlights the necessity of ending age discrimination and providing capable and willing older adults the opportunity to contribute to society productively. Additionally, policymakers should focus on improving the welfare of vulnerable older adults, including those with poor health and comorbidities, as well as those facing economic hardships. Furthermore, there is potential for additional research to be conducted in other states of India to comprehend the labor market decisions of older adults and enhance inadequate mechanisms. Rather than the conventional understanding of retirement as an instance in which an individual permanently exits the workforce, it should be regarded as a progressive milestone.

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## Compliance with ethical standards

## Informed consent

Informed consent was taken from all older adults prior to administering the questionnaire to maintain confidentiality and anonymity.

## Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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