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Exploring Potential Linkages between Social Support, Retirement and Subjective Wellbeing among Older Indians: Does it a Challenge to Policy Makers?

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Abstract Subjective wellbeing is an important component of wellbeing that benefits people by influencing their subjective feelings. Using the Building Knowledge Base on Population Ageing in India (BKPAI 2011) survey data, the study attempts to investigate the linkages between social support and subjective wellbeing (SWB) among older adults of age 60 and above in India. The path analysis revealed that the social support have an indirectly effect on SWB through mediating role of family income, education, religion and financial status. The social support explained 23% of the variation in SWB. The structural equation model were performed to test the relationship between the latent variables divided into exogenous and endogenous, with the former affecting the latter. Study also tested the reliability of the questionnaire scores and its criterion and structural validity of SWB. The results confirm the validity is suitable for the multidimensional assessment of SWB. Using instrumental variables approach there is moderate evidence of positive correlation and endogenous regressors social support yield unbiased and consistent and effect of being involuntary retired has a negative on SWB, but the effect is not significantly different from zero. However, this study doesn't found significant positive effect between retirement and SWB. In view of the findings, the study calls for devising policy implications that contribute to support and wellbeing research for future.

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Keywords Subjective wellbeing · Social support · Retirement · Instrument approach · Structural equation model · Odds ratio · Path analysis

Introduction

The share of the elderly population of age 60 and above swiftly increasing exponentially over the globe at an alarming rate in the first half of twenty-first century. According to the United Nations, 841 million elderly peoples were in 2013, and it is estimated that the number will double and reach around 2 billion by 2050. The projected elderly population is expected to be more than 21% in the year 2050, which has increased from 9.2 to 11.7% from 1990 to 2013 respectively (United-Nations 2013). Countries like India and China are witnessing new challenges of an aging population. India, a second largest country in the world after China with a population of aged 60 and above having a limited time to meet the challenges of population aging. According to Indian Census 2011, the number of elderly population is about 8.6%, which has increased from 4% during 10 years of lifespan (Registrar General 2011). The projected proportion of elderly will rise from 7.5 to 11% from 2010 to 2025 respectively. In India, more than 91 million elderly were in 2010 which is projected to reach 158.7 million in 2025 (United-Nations 2009). As estimated there are 100 million elders, 90 million need to work to be able to eat, 55 million sleep hungry, 30 million live alone, 12 million are blind and cannot afford treatment. In the year 2009, there were only 88 million elderly citizens aged 60 years and over. It is expected to increase to 324 million (23%) by the year 2050 while 48 million of them will be over 80 years (Help Age 2013). Population aging is emerging with changes in the age structure of the population in Indian context reflecting a remarkable social, demographic and economic achievements (Chakrabarti and Sarkar 2011). The size and share of elderly Indians are increasing over time, becoming a major concern and thus cannot be ignored. Changing traditional norms and values of Indian society had laid to emerging nuclear family system in recent years. With economic development and modernization, the family care of the elderly is likely to decrease in the future. This study will examine the elderly availing the social support across selected states of India, use a scientific and reliable scale to measure their subjective wellbeing (SWB) with effect on retirement and explore its socio-economic factors with its inter-linkages between them.

Retirement and Subjective Wellbeing

Wellbeing is often classified as objective and subjective. Subjective wellbeing is often measured by self-reports and self-perception while objective wellbeing is measured by some observable criteria or external indicators (Hombrados-Mendieta et al. 2013). It is a multidimensional broad category phenomenon comprises life satisfaction, individual's emotional responses. It varies over the lifespan and has been linked to various important economic, social and health related factors, such as age, gender, health, income, religion, marriage, education, occupation, etc. (Diener 2000; Diener et al. 1995). Subjective well-being is defined by Diener (2009) as "*a person's evaluation of his or her life. This valuation can be in terms of cognitive states such as satisfaction*

with one's marriage, work, and life, and it can be in terms of ongoing effect (i.e., the presence of positive emotions and moods, and the absence of unpleasant affect)."

Research cogently demonstrated that SWB tends to have implications on work outcomes with the better immune system and not only that but also the quality of social relationships. However, it is unclear why social relationships are beneficial. With an increasingly aging population retirement is one of the key transitions and its relationship with SWB has long interested in old age that could explain country and age differences (OECD 2008; Sawyer and Wasserman 1976). Evidence shows that in most of the developed countries retirement and SWB are mixed. After retirement, a substantial portion of national resources is provided as old-age pensions for the protection of subjective wellbeing. Individuals, retirement age is not endogenous, as well as policy variations, exist in the generosity of pension benefits within the country (OECD 2011). There is a possibility that an individual either they can rely on someone when comforts are needed or can obtain support whenever necessary.

Several authors have studied the link between SWB and retirement. Zaidi et al. (2006), found that because of parametric and systemic pension reforms between 1995 and 2005 in the European Union annual public pension retirement incomes have decreased with increasing the risk of poverty. Kerwin (2002) found the direct and positive effect of retirement on subjective wellbeing. Social support benefits increased the shared of living arrangements for elderly households because, it could reduce the risk of loneliness though the loss of privacy, could have negative effects in old age (Engelhardt et al. 2005). On the other hand beyond the economic component of retirement theory, Atchley (1976) suggests that on the onset of retirement lifestyle and self-esteem of individual remain stable. Over the life course, Halleröd et al. (2013) found no substantial effect of retirement transitions on post-retirement health. Accumulation of advantage and disadvantage brought into retirement, are more suited to explain the health and subjective wellbeing.

Based on country and gender specific eligibility ages for retirement pensions few recent papers try to address the endogeneity of the retirement decision. Our strategy to construct instrumental variables for retirement ages which change with retirement behavior, is necessary to be valid. The relationship between social support and retirement through a cross-country analysis was first recognized social support programs and retirement around the world (Gruber and Wise 2000; Gruber 2000). A strong correspondence across countries between social support program incentives to retire early for a typical worker and the proportion of older persons who have left the labor force Engelhardt et al. (2005). Social support was found as a significant factor of SBW(Siedlecki et al. 2014). Subjective wellbeing and social support have found to be negative interaction associated with happiness and self-esteem (Nguyen et al. 2016). A study conducted by Gençoz et al. (2004) showed that social support has its influence on SWB by different pathways. Results have shown that social support does not have an adverse impact on SWB induced through retirement (Fonseca et al. 2014). After retirement the main source of income shifts from earnings to government or private pensions. An instrumental variable approach method is best to estimate retirement effects. Several papers have argued by studying the effects of retirement on dynamics of subjective wellbeing (Fonseca et al. 2014; Coe and Zamarro 2011; Kofi Charles 2004).

Financial consequences of retirement is not taken into account during our analysis as it might complicate the estimation of effects of retirement on SWB. As the generosity of pensions and financial consequences of retirement vary across individuals as well as within and across the states. It may influence SWB in both absolute and relative terms. Therefore, the effects of retirement can be confounded by the reduction of income or type of occupation. Some unobservable determinants of income or type of occupation probably related with SWB, makes it endogenous if used as a control in SWB regressions. To address these issues, we intend to estimate a simultaneous model, expressly demonstrating the dynamics of retirement, income, and SWB while still utilizing our instrumental variable approach for retirement choices based on public pension eligibility. Thusly, we will have the capacity get a better understanding of the effect of retirement induced through Social Support pension eligibility on the SWB of the elderly.

Social Support

Social support is a complex and open-ended phenomenon which deals with both absolute deprivation and vulnerabilities related risk factors (Cohen and Wills 1985; Jha and Acharya 2013; Laireiter and Baumann 1992; Sarason et al. 1983). Social support, in its broadest sense, refers to "overall support supplied to a person by family members, at the workplace, and from society". For the present study it implies "a securtiy of an income earnings to provide a retirement benefit, to ensure the basic needs (such as adequate nutrition, shelter, education, healthcare, clean water and food supplies), to accesses the state governments designed schemes and programmes of social security in order to maintain the standard of living as well as to be protected against the loss of life, such as those connected with deaths, accidents, unemployment, medical care, and widowhood" (Administration 1937, 2002; Paul and Kurien 2010).

Under Millennium Development Goals (MDGs), an idea was introduced at UN Summit, 2010 to eradicate poverty and provide social security for all. After second world war, several social security arrangements were developed in the late nineteenth century all over the world. Urbanization and industrialization have laid the importance of social support as an integral part of the progressive public policy. Social support benefit schemes are different for organized and unorganized sectors. It is can be described as informal, semiformal and formal. Informal supports are provided by family and friends; support provided by neighborhood organizations such as clubs, churches, senior citizen centers, etc. refers to semiformal support while medical, financial or other support services provided by NGOs and Government includes formal supports. High fertility in traditional societies where cultural norms for adult children to support elderly is common, Social support benefit from children during old age and is positive associated. However due to change in nature of roles of family, it is often argued that this expectation is deteriorating (Hugo 1997). On the other hand, in low-fertility situations, social support among elderly deriving from children have strong association even in absence of any assistance coming from relatives, neighbours or Government. The reason is because those categories with high burden with financial constraints.

In India, the majority of the population works in the informal sector, thus lack the opportunity to enjoy social security as a human right (Jha and Acharya 2013). India constitutes a heterogeneous category among which retirement is a major problem for many older people and their problems vary according to their occupation, social position, residential location and socio-cultural characteristics. Several attempts has been made by Demographers, Biologists, Sociologists and Psychologists to study these problems from different perspectives. Existing policy for older persons and laws are insufficient to cater the needs of Indians. Social support have been under challenges and that the labor work association frameworks are excessively costly mischief, making it impossible to the process of socio economic development of individuals. Social support plays a significant role in promoting subjective wellbeing (Kumar 2001). Several studies have identified linked between social support and subjective wellbeing. Some researchers have found negative or no consequences of social support on subjective wellbeing (Lakey et al. 2010; Lee et al. 1995; Lepore et al. 2008). The reason why social support and subjective wellbeing are a complex concept, as it can depend on one's own opinion to self rate his/her feelings but the nature of the association is not yet very clear.

The process of retirement in most of the developing countries and India, is such that the age of retirement is fixed in the formal employment sector. Several studies of the problems of the aged have been undertaken in India. Regardless the fact that public and private sector retirement frameworks deal of wealth and have conceivably capable impacts on work and capital markets, they are frequently neglected in structural analyses of nation issues and prospects. Decline is social support provisions create disincentives to continued labor-force participation by older workers. Due to delay in retirement, workers swear off advantages which often replace close to their full wage, notwithstanding paying the high finance charges required to finance generous social support benefits mostly in urban areas. There is a striking connection crosswise over states between high understood expense rates on additional work and low labor-force participation rates among older workers. Moreover, in rural areas, the main issues of discussions and reconstruction of the whole economy depend on how the older population will be supported after retirement still remains a question. Unfortunately, no studies have focused on importance of Social support on SWB through retirement. Accordingly, this paper examines the importance of Social support and SWB, by occupation, of those who retired from the Service and currently not working. This suggests that social support program incentives are an important determinant of retirement. Thus, it is a challenge to Policymakers for implementation and reforming social support programs in the India and within states.

Research Objectives

Subjective wellbeing of an individual is not only affected by age, gender, and income but also there are several other factors responsible. This study based on the following objectives, first, to examine the influences of background characteristics on social support and SWB of older adults in India, and second, to investigate the linkages between social support and subjective wellbeing. In particular, the association between social support and subjective wellbeing may differ depending on its aspects. Thus, our first hypothesis is, H_{01}: "*Indian elderly enjoying social support and subjective wellbeing shows differences in terms of socio-demographic variables (i.e., age, sex, gender, and education etc)*".

Based on previous research, social support is associated with increased subjective wellbeing in younger adults, but not in older adults. The study explores our second goal, linking social support and subjective wellbeing. However, there are few studies highlighting the issue of social support playing a positive and indirect role in subjective wellbeing. Therefore our second hypotheses is as follows- H_{02}: "*Social support benefits can enhance the subjective wellbeing of an older Indians*" and our third hypothesis is H_{03}: "*Social support is correletaed with stuctrure error through retirement*".

As a result, this study hypothesizes that education, age, and marital status are important determinants of subjective wellbeing. Moreover, these variables significantly influence the other variables in the model (i.e., family income, occupation, and social support). Figure 1 presents the posited of subjective wellbeing among elderly. This model systematically outlines the hypothetical effects of the independent variables included in the model. Path analysis is used to examine **the** assumptions of the model and to better identify the exact that variables play in context.

Methods and Materials

Data Source

We examined the links between social support and subjective wellbeing in India by analyzing the data from 'Building Knowledge Base on Population Ageing in India' (Alam et al. 2012). This survey was sponsored by UNFPA, New Delhi; Institute of

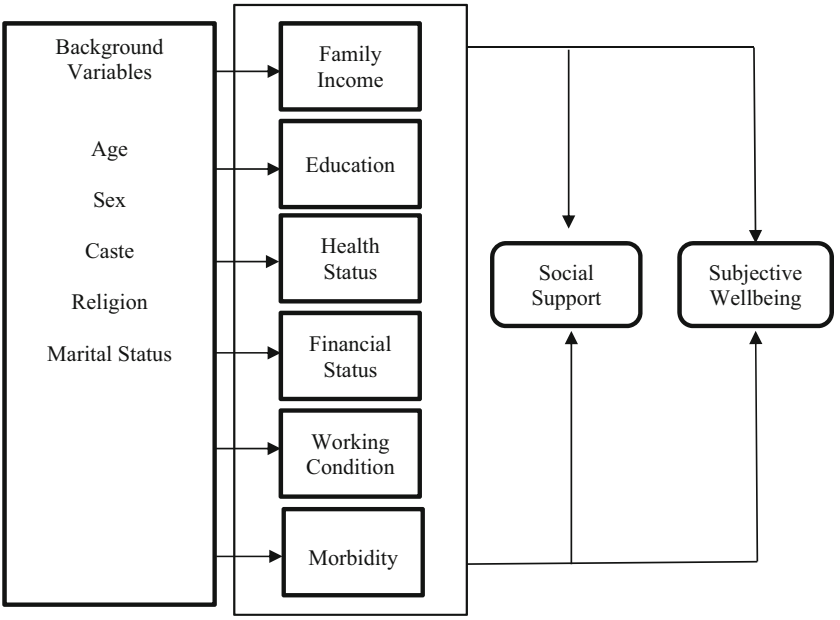

Fig. 1 A conceptual framework model of subjective wellbeing among elderly Indians

Economic Growth (IEG), New Delhi; Institute for Social and Economic Change (ISEC), Bangalore and Tata Institute of Social Sciences (TISS), Mumbai. The sample is national representative of the adult population (i.e., those over 18 years and above). Probability proportionate to population size method is used to create a sample representing individuals from all seven Indian states.

Within states the 80 primary sampling units (PSUs) are equally distributed in the strata, and the sample was aslo stratified by urban and rural residence. There was total 1280 selected households, all women aged 18 years and above were eligible to be respondents in the survey. The survey collected detailed information about 9850 (N) elderly individuals from 8329 household aged 60 years and above across the seven states. These states were Odisha, West Bengal, Maharashtra, Himachal Pradesh, Punjab, Tamil Nadu and Kerala selected on the basis of speedier ageing and relatively higher proportions of the elderly population higher than the national average. The survey collected detailed information about respondents' views on living arrangements, functional limitations, health status, chronic morbidity, disability, personal habits, social support, and subjective wellbeing. In addition, detailed information on socio-demographic and economic characteristics, including education, religion, caste, region, wealth and occupation in which they live were also collected.

Variables Description

Outcome Variables

Social support was measured in relation to perceived support and provided support on the basis of three questions living status (e.g. what is your current living status?), the source of support (Do you feel that your basic needs are being fully met by any sources of support?), and scheme benefits (Are you availing any benefits of the scheme?).

The tripartite structure of subjective wellbeing was assessed. Busseri and Sadava (2011) examined the SWB using five conceptual models in the literature. On the original scale, Cronbach's alpha was 0.91, while in our study the complete scale of SWB was in likert format with a Cronbach's alpha coefficient of 0.89.

The questionnaire assessing the SWB in a specific context is described in Appendix 1. Each participant were assessed in relation to 3- point scale of domains ranged from very much, to some extent, and not so much. The Cronbach's alpha coefficient for each measure registered is showed in Table 1. Varimax rotated factor analysis loaded onto a separate factor from life satisfaction (LS), postive affect (PA) and negative affect (NA) as reported by (Balatsky and Diener 1993; Galinha et al. 2013) also reported the evidence in support of the separability of LS, PA, and NA has been accumulated over the past several decades.

Socio-Demographic Predictors

These factors includes the age, sex, education, marital status, current living status, caste, religion and place of residence. Age of the older persons had been categorised

Table 1 The Cronbach's alpha reliability indexes value related to questionnaire on the frequency of subjective wellbeing (SWB)

	Cronbach's alpha
Feeling Life Interesting (FLI)	0.8838
Past and Present life Comparison (PPC)	0.8904
Happiness doing work (HW)	0.8937
Achieved Standard of Living and Social Status (SL & SS)	0.8864
Extent of achieving success and getting ahead (AS & GA)	0.8840
Wanted Accomplish (WA)	0.8866
Managing Situations (MS)	0.8830
Feel confident in case of Crisis (FCC)	0.8855
Feel confident in coping with future (FCCF)	0.8858
Overall Cronbach's alpha	0.8979

into three groups, '60–69', '70–79', and '80+'. Gender was recoded into 'male' and 'female'. Education variable was divided into two groups 'ever attended school' and 'not attended school'. Caste includes 'Scheduled Tribes/Scheduled Caste', 'Other Backward Class' and 'Others'. Respondent's religion was classified as 'Hindu', 'Muslim' and 'Others'. Marital status of the elderly was coded into two categories naimly currently married, and single (includes never married, widowed, divorced, separated/deserted). Correlation matrix between Socio-economic and Socio-demographic variables is shown in Table 8 (appendix).

Socioeconomic Predictors

Wealth index indicates the economic status of household which was constructed using information on household assets and housing characteristics. Wealth quintile was measured on the 5 point scale ranging from poorest, poorer, middle, richer & richest (Rutstein 1999). Financial status is one of the variables under health characteristics. Respondents had been asked to rate their financial status on a scale of not dependent, partially and fully dependent. The occupation were classified into three categories, those who had not worked in last one year, worked more than six months and less than six months in last one year.

Other Covariates

Self-rated health status was measured on the 5 point scale ranging from excellent to poor. Further, it was classified into three categories with 'poor' health was retained as such, excellent and very good were clubbed into the second category and good and fair were grouped together. Chronic morbidity included chronic lung disease (Emphysema, Bronchitis, and COPD), Asthma (allergic respiratory disease), Diabetes, Hypertension, Depression Cancer, Alzheimer, Arthritis, Rheumatism or Osteoarthritis, Cerebral embolism, Stroke or Thrombosis, and others (if not in the list). It comprises of 20 chronic diseases which were coded into 1 as "any chronic morbidity" and 0 as "no chronic morbidity". Retirement variable was used as an instrument variable in the analysis.

Statistical Analysis

All the analysis has been done with statistical software STATA version 13.1 to examine the relationship between the demographic characteristics (i.e., age, marital status, education, household income, etc.) with social support, subjective wellbeing and retirement (Long and Freese 2006).

Factor Analysis The validity of a questionnaire tested by Cronbach's alpha shows that all items together represent the underlying construct well. Hence, the total score on nine items of the questionnaire of interest represents SWB correctly. Exploratory factor analysis (EFA) was used to determine the number and nature of factors describing the covariance structure items (Fabrigar et al. 1999; Gorsuch 1983). Factor analysis is assumed to be a more reliable questionnaire evaluation method than principal component analysis (Costello and Osborne 2005). Using polychoric correlations, responses to questionnaire items (recorded on dichotomous/ ordinal scales) correlation matrix for these items was estimated (Brown and Benedetti 1977; Drasgow 1986; Flora and Curran 2004; Olsson 1979). On the basis of the assumption that observed categorical values are functions of latent normal random variables, to estimate the correlation between categorical variables polychoric correlations were used. The nine items were used together for all correlation estimates, therefore all available observations for a given pair of variables were used to estimate their correlation. Subjective wellbeing index was obtained using possible scores from compiling all the variables, and then we divided each dimension into three equal parts. The possible combination for this could be life satisfaction, positive affect, and negative affect.

Path Analysis The hypothesized relationship between study variables with social support and SWB were examined using path analysis. It is a statistical technique used for estimating the magnitude and significance (direct and indirect) of hypothetically associations among sets of variables (Lleras 2005). The ordinary least-squares regression equations was conducted to obtain the path model. The set explored the relationship between the socio-demographic and socio-economic characteristics as independent variables and perceptual factors as dependent variables. The path (Beta) correlation coefficients or stadarndised regression coefficients were reported, to measure the relative strength and sign of the effect from a variable to an outcome variable in the model and it found to be significant. It is generally accepted that standardised coefficients that are greater than 0.8 are large, between 0.5 and 0.8 are moderate and less than 0.5 are small (Garson 2008; Lleras 2005).

Structural Equation Modeling (SEM) All the nine different domains, represented by the composite variables, were simultaneous predictors of three latent constructs reflecting subjective wellbeing (LS, PA and NA; see Fig. 3). Structural model was used to assess the different types of social support with subjective wellbeing. Structural equation modeling is a statistical technique for building and testing models. It is a technique that encompasses aspects of confirmatory factor analysis, path analysis, and regression. Indeed all of these can be seen as special cases of structural equation modeling. It is also an extension of the General Linear Model (GLM) that simultaneously estimates relationships between multiple independent and dependent variables

in the case of a structural equation model, multiple observed and latent variables in the case of confirmatory factor analysis (Mazaheri 2010).

Ordered Logistic Model The ordered logit model is an extension of the binary logit model, which is used when a dependent variable has more than two categories and the values of each category have a meaningful sequential order where a value is indeed 'higher' than the previous one, then you can use ordinal logit. (Fiebig et al. 2010; Böhning 1992). Here, it has been used to assess SWB in which dependent variable have multiple response. The following ordered logistic regression model has been used in this study:

$$ologit(\mathrm{P}_1) = \ln \frac{p1}{1-p1} = \alpha_1 + \beta' \mathrm{X} + \varepsilon_i$$

$$ologit(\mathrm{P}_1 + \mathrm{P}_2) = \ln \frac{p1 + p2}{p3} = \alpha_2 + \beta' + \varepsilon_i$$

Where α_1 and α_2 are constant terms, and $\beta \in R$ is the regression estimation parameter vector. P_1, P_2, and P_3 are the probabilities when the SWB is 1, 2, and 3, respectively.

Econometric Instrument Variable Model: The present study also interested in estimating the effect of the binary decision of being retired ($Di = 1$) receiving social support on subjective wellbeing. The traditional approach consists of estimating the following equation by ordinary least square method:

$$\mathbf{SWB} = \alpha_1 + \beta_1 \mathrm{age} + \beta_2 \mathrm{sex} + \beta_3\, social \quad Support + \beta_3\, education + \beta_4\, health \quad status \ldots\ldots\ldots + \beta_n x_n + u_i$$

Where subjective wellbeing is the dependent variable, social support is our explanatory variable of interest and the set of explanatory/ exogenous variables included are: age, age squared, marital status, gender, interaction of gender and marital status, health status etc., α_1 is a regression constant, and u_i is an error term with $E(u_i) = 0$. However, the variable social support is assumed to be endogenous, i.e., the variable is correlated with the error term u_i. The instrumental variables approach is considered to be an appropriate estimator in the presence of endogeneity (Angrist and Krueger 2001; Card 2001). The basic idea is to find an instrument that is uncorrelated with the errors u_i in the model but that is correlated with the endogenous variable social support. In our case, this idea leads to the following equation:

$$\mathbf{Social \quad support} = \alpha_2 + \delta z + \beta_1 \mathrm{age} + \beta_2 \mathrm{sex} + \beta_3\, education + \beta_4\, health \quad status \ldots\ldots\ldots\ldots + \beta_n x_n + u_2$$

Where, social support is the endogenous variable, z refers to the instrument used, δ measures the strength of the relationship between the instrument and the endogenous variable, $\alpha_2$is a constant, and u_2 is an error term. The idea of the IV approach is to

estimate both equations simultaneously. However, for this approach to work and to produce meaningful estimates, two conditions need to be satisfied: (1) cov (z, u_i) = 0 (i.e., the instrument should not be correlated with the error term of the performance equation), and (2) $\delta \neq 0$ (i.e., there should be a non-zero relationship between the instrument and the endogenous explanatory variable). The first condition refers to the validity of the instrument, whereas the second condition refers to the strength of the instrument.

In estimating the effects of retirement, we separate out unemployment, while the reference category is "currently working". To address the potential endogeneity of retirement, we instrument with two dummy variables indicating whether the respondent is eligible for retirement public pensions and after retirement benefit as described in the questionnaire:

$$\textbf{Instrument}_1 = 1 = if \quad retirement\,\text{age}\,of \quad individual\&receiving \quad retirement \quad benefit, 0 = Otherwise$$

$$\textbf{Instrument}_2 = 1 = if \quad retirement\,\text{age}\,of \quad individual\&receiving \quad pension \quad benefit, 0 = Otherwise$$

Note: *These instruments vary across individuals of different ages.*

To estimate the bias when using instrument variables, we assume that there is a (small) direct effect of the instrument on predicted probability of SWB among individuals. Then above equation is rewritten as follows:

$$\textbf{SWB} = \alpha_1 + \beta_1\, social \quad Support + \delta\, z + \beta_2\, \text{age} + \beta_3\, \text{sex} + \beta_4\, education + \beta_5\, health \quad status\ldots. + \beta_n x_n + u_i$$

as the ratio of the effects of the instrument and the respondent's social support on subjective wellbeing. Correlation matrix between items used in instrument variable approach is shown in appendix (Table 9).

Results and Findings

The distribution of social support and SWB different category has shown below in Table 2 with socio-demographic characteristics. The provided social support are increasing with increasing age of the respondent. Nearly, 62% in the age group 80 & above who provides social support. The considerably higher proportion of females received social support. Therefore results accomplish that age and sex and urbanization is valuable substance for support and playing a very crucial role.

In addition, 50% of the participants received perceived support those who are currently married, including 56% receiving provided support those who were single. Although 45% and 55% suffering from morbidity received perceived and social support respectively. Nearly, 44% reported bad health status receiving perceived support while 55% received provided support. Most of the participants fully dependent on others received perceived support while only 2 % received support that is provided. More than 31% of individuals receives life

Table 2 Distribution of social support and subjective wellbeing by socio-economic and demographic characteristics of elderly population in India

Background characteristics	Social support		Subjective wellbeing			$N = 9850$
	Perceived	Provided	LS	Positive	Negative	
Age group						
60–69	50.16	49.84	31.48	37.98	30.55	6238
70–79	45.78	54.22	40.92	33.01	26.07	2600
80+	38.15	61.85	45.76	31.71	22.54	1012
Sex						
Male	57.47	42.53	31.50	36.09	32.41	4671
Female	38.85	61.15	39.29	35.81	24.90	5179
Residence						
Rural	48.61	51.39	37.48	34.60	27.91	5137
Urban	45.02	54.98	30.37	39.67	29.97	4713
Marital status						
Currently single	44.09	55.91	42.89	33.69	23.42	3965
Currently married	49.98	50.02	30.85	37.41	31.74	5885
Ever attended school						
No	44.68	55.32	44.82	34.47	20.71	4526
Yes	50.77	49.23	26.03	37.47	36.50	5324
Religion						
Hindu	49.13	50.87	37.48	36.20	26.31	7780
Muslim	42.83	57.17	44.59	25.13	30.28	804
Others	42.10	57.90	18.70	41.27	40.03	1266
Ethnic background						
SC/ST	49.44	50.56	41.80	36.93	21.27	2383
OBC	48.83	51.17	35.34	35.72	28.94	3352
Other caste	45.38	54.62	31.70	35.49	32.81	4115
Health status						
Good	51.00	49.00	15.20	27.68	57.13	1604
Normal	47.93	52.07	34.17	40.95	24.88	6538
Poor	44.28	55.72	57.62	24.38	18.00	1688
Wealth quintile						
Poorest	57.82	42.18	58.37	24.43	17.20	1954
Poorer	49.46	50.54	42.26	35.68	22.05	1974
Middle	45.46	54.54	29.79	42.17	28.04	1938
Richer	38.33	61.67	20.69	45.45	33.86	1961
Richest	43.00	57.00	14.26	35.00	50.75	2017
Worked in last one year						
Not worked	42.50	57.50	36.88	35.65	27.46	7586
More Than 6 months	64.73	35.27	29.02	37.73	33.25	1847
Less Than 6 months	60.43	39.57	42.22	33.19	24.59	417
Chronic morbidity						
No chronic morbidity	52.56	47.44	31.48	39.54	28.98	3494
Any chronic morbidity	45.01	54.99	37.83	33.99	28.18	6356
Financial status						
No	47.58	52.42	46.29	30.93	22.79	2488
Partially dependent	31.46	68.54	35.90	37.16	26.94	2431
Fully dependent	97.24	2.76	22.30	38.53	39.17	659
Retirement						
Not retire	45.57	54.43	37.8	35.48	26.72	8810
Retired	71.41	28.59	11.73	41.31	46.96	1040

satisfaction, positive and negative subjective wellbeing in the age group 60–69. As age increases life satisfaction increases while positive and negative SWB effect decreases. Among three tertile structure of SWB, life satisfaction is high

among female while positive and negative affect is high among males. Similar results have been found for other covariates. Overall, 1040 out of 9850 are retired with approximately, 10.5% of older population retired are not working or engaged in any of informal sector and retired in all the seven states considered in the BKPAI survey.

Under exploratory factor analysis process a correlation matrix used to display the relationships between individual variables. Henson and Roberts (2006) pointed out that a correlation matrix is the most popular among investigators. The correlation matrix (often termed factorability of R) recommended by Tabachnick and Fidell (2007) for correlation coefficients over 0.30. Using thumb rule these loadings were categorised as ±0.30 = minimal, ±0.40 = important, and ±.50 = practically significant (Hair et al. 1995). If no correlations go beyond 0.30, then the researcher should reconsider whether factor analysis is the appropriate statistical method to utilise (Hair et al. 1995; Tabachnick and Fidell 2007) In other words a factorability of 0.3 indicates that the factors account for approximately 30% relationship within the data, or in a practical sense, it would indicate that a third of the variables share too much variance, and hence becomes impractical to determine if the variables are correlated with each other or the dependent variable (multicollinearity). Factorability of the correlation matrix between items in SWB scale with inter-item reliability is shown in the Table 2.

The Kaiser-Meyer-Okin measure of sampling adequacy (KMO) can signal in advance whether the sample size is large enough to reliably extract factors (Field 2013). The KMO represents the ratio of the squared correlation between variables to the squared partial correlation between variables. When the KMO is near 0, it is difficult to extract a factor, since the amount of variance just two variables share (partial correlation) is relatively large in comparison with the amount of variance two variables share with other variables (correlation minus partial correlation). When the KMO is near 1, a factor or factors can probably be extracted, since the opposite pattern is visible. Therefore, KMO values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb (Field 2013). The KMO value of items used for constructing SWB is 0.9313 as described in the Table 3.

Table 4 shows the goodness of fit statistics of SWB in the model estimated in this study. RMSEA was commonly known as one of the most informative fit indices due to its sensitivity to the number of estimated parameters in the model. The cutoff value of RMSEA estimates varies from 0.06 to 0.07 within this range model is acceptable or best fit (Hooper et al. 2008). Confirmatory factor analysis (CFA) gave the RMSEA index value of 0.064 (RMSEA < .10 or even lower is considered desirable). AIC is the most widely used model selection tool used to delineate between different fitted models having the same dimension (Hooper et al. 2008). BIC is an asymptotic approximation to a transformation of the Bayesian posterior probability of a model based on the empirical log-likelihood and does not require the specification of priors (Neath and Cavanaugh 2012). The comparative fit index (CFI) is one of the most popularly fit indices because measures least affected by sample size. The values are closer to range

Table 3 Factorability of the correlation matrix between items in subjective wellbeing scale, Inter-item reliability

	FLI	PPC	HW	SL & SS	AS & GA	WA	MS	FCC	FCCF	Inter item reliability
Feeling Life Interesting (FLI)	1									0.487
Past and Present life Comparison (PPC)	0.559	1								0.503
Happiness doing work (HW)	0.479	0.430	1							0.512
Achieved Standard of Living and Social Status (SL & SS)	0.537	0.487	0.416	1						0.493
Extent of achieving success and getting ahead (AS & GA)	0.545	0.495	0.468	0.564	1					0.487
Wanted Accomplish (WA)	0.496	0.435	0.411	0.516	0.548	1				0.494
Managing Situations (MS)	0.519	0.444	0.432	0.514	0.529	0.565	1			0.485
Feel confident in case of Crisis (FCC)	0.499	0.415	0.392	0.468	0.496	0.488	0.631	1		0.491
Feel confident in coping with future (FCCF)	0.515	0.418	0.418	0.468	0.492	0.491	0.568	0.643	1	0.492

Table 4 Kaiser-Meyer-Olkin Measure (KMO) of Sampling Adequacy

Feeling Life Interesting (FLI)	0.9339
Past and Present life Comparison (PPC)	0.9358
Happiness doing work (HW)	0.9549
Achieved Standard of Living and Social Status (SL & SS)	0.9434
Extent of achieving success and getting ahead (AS & GA)	0.9395
Wanted Accomplish (WA)	0.9437
Managing Situations (MS)	0.9253
Feel confident in case of Crisis (FCC)	0.8973
Feel confident in coping with future (FCCF)	0.9187
Overall KMO	0.9313

between 0 and 1 indicating the suitable model. The cutoff criterion of CFI ≥ 0.90 is acceptable (Table 5).

Tucker-Lewis index (TLI) is well accepted where sample size is very small, and it gives the most accurate results that prefer the simpler models. The cutoff point is 0.80 for this index while researcher suggested TLI ≥ 0.95 as the threshold level (Neath and Cavanaugh 2012). The CFI and TLI were 0.950 and 0.938 respectively, also indicate a good fit of the model, since both values are higher than 0.90. The Standardized root mean squared residual (SRMR) describe the square root of the difference between the residuals of the sample covariance matrix and the hypothesized covariance model. The value of SRMR ranges from 0 to 1 for fitting the model. The SRMR indicator gave the value 0.026. The value close to 0 indicates the perfect fit and the value up to 0.08 are acceptable (Cavanaugh and Neath 1999).

Overall, the final path model explained 23% of the variance in SWB. Family income explained about 17% of variance in subjective wellbeing (R2 change = 0.17, $p < .001$). Marital status directly explained about 09% of variance in subjective wellbeing (R2 change = .089, $p < .001$). Age also had an indirect effect on SWB vis-ai-vis its direct effect on social support. Education had indirect effects on SWB through their effects on family income, and social support. Finally, financial status had a direct effect on SWB through its effects on social support decrease as shown in Fig. 2 and the detail description is shown in Table 10 (appendix).

Table 5 Goodness of fit of confirmatory factor analysis models of SWB ($N = 9850$)

Statistics	Model
RMSEA	0.064
AIC	137,899.210
BIC	138,154.374
CFI	0.950
TLI	0.938
SRMR	0.026

RMSEA, Root mean squared error of approximation, *AIC,* Akaike's information criterion, *BIC,* Bayesian information criterion, *CFI,* Comparative fit index, *TLI,* Tucker-Lewis index, *SRMR,* Standardized root mean squared residual

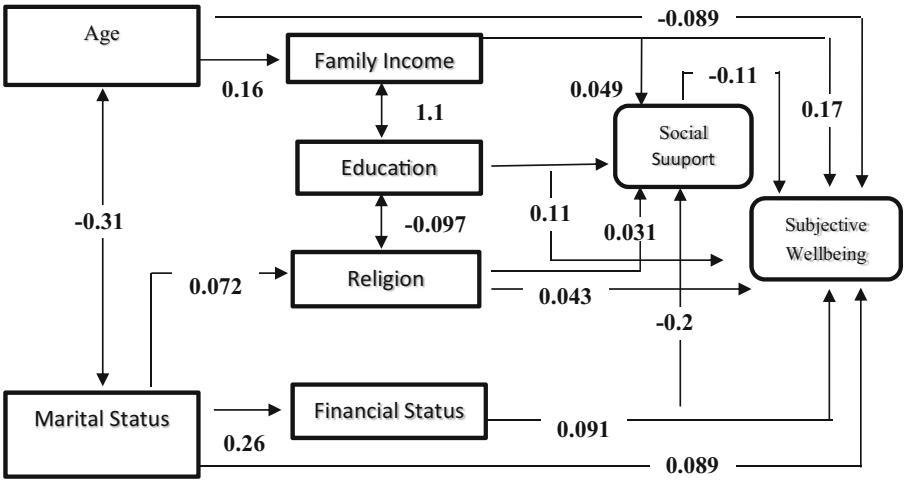

Fig. 2 Path analysis model of subjective wellbeing among elderly Indians

Ordered logistic regression model was performed to examine the effect of socio-demographic and socio-economic on different aspects of the subjective wellbeing (Table 6). After attributing demographic factors such as age, gender and education levels, along with the place of residence, results suggested that gender is an insignificant predictor for positive and negative effect on subjective wellbeing. Details analysis of ordered logistic regression is shown in appendix (Table 11).

In terms of age, result shows that being older (80+ years of age) was associated with more life satisfaction. In terms of self-rated health, more positive affect and more negative affect were associated with better health conditions. Results found that age, religion, and self-rated health factors were more or less associated with positive/negative affect levels, which was consistent with previous literature (Bowling and Browne 1991; Brown and Benedetti 1977; Prince et al. 1997). Last but not least, wealth status was associated with life satisfaction, positive affect and negative affect for subjective wellbeing among older adults at significant levels. Lastly, ordered logistic regressions of financial status on SWB were individually analyzed and the results were consistent among those who were fully dependent as compared to those who were not dependent.

Many researchers have used a latent variable with multiple indicators to represent subjective wellbeing in structural models. Structure equation model is used to access the linkages between the social support and SWB and analysed the extent to which these two latent variables are correlated. Figure 3 represents that life satisfaction, PA, NA are indicators for the latent variable subjective wellbeing, with perceived and provided another latent variable social support were represented as correlated predictors of subjective wellbeing. Standardized path coefficients are shown and the strength of this hypothesized model was examined using structure equation model.

Numbers within ovals or rectangles represent squared multiple correlations for outcomes. From the above figure, we can see that most of the relations are significant. We further notice that social support has a maximum association

Table 6 Predicted Probabilities of factors associated with subjective wellbeing of persons aged 60 years and above in India

Background characteristics	Life satisfaction (LS)	Positive affects (PA)	Negative affects (NA)
Age group			
60–69	0.278	0.357	0.365
70–79	0.336	0.353	0.311
80+	0.403	0.353	0.244
Sex			
Male	0.264	0.353	0.383
Female	0.370	0.360	0.270
Residence			
Rural	0.338	0.360	0.302
Urban	0.267	0.351	0.382
Marital Status			
Currently Single	0.373	0.361	0.265
Currently married	0.264	0.352	0.384
Ever Attended School			
No	0.418	0.360	0.221
Yes	0.229	0.352	0.419
Religion			
Hindu	0.314	0.358	0.328
Muslim	0.379	0.343	0.278
Others	0.215	0.350	0.436
Ethnic background			
SC/ST	0.384	0.361	0.255
OBC	0.305	0.368	0.327
Other caste	0.256	0.343	0.401
Health Status			
Good	0.105	0.279	0.616
Normal	0.310	0.383	0.307
Poor	0.518	0.326	0.156
Wealth Quintile			
Poorest	0.518	0.337	0.146
Poorer	0.386	0.386	0.228
Middle	0.303	0.394	0.303
Richer	0.201	0.368	0.431
Richest	0.116	0.301	0.583
Worked in Last One Year			
Not worked	0.292	0.351	0.357
More Than 6 months	0.304	0.363	0.333
Less Than 6 months	0.417	0.358	0.225
Chronic Morbidity			
No Chronic Morbidity	0.291	0.353	0.355
Any Chronic Morbidity	0.312	0.357	0.331
Financial Status			
No	0.461	0.345	0.193
Partially Dependent	0.354	0.368	0.279
Fully Dependent	0.215	0.347	0.438

with benefits of scheme (0.92) time more associated with social support as compared to fulfilling basic need of support (0.11), then current living status (0.08). further, we observe that SWB has highest and equal association with variables for feeling Life Interesting (0.46), Past and Present life Comparison

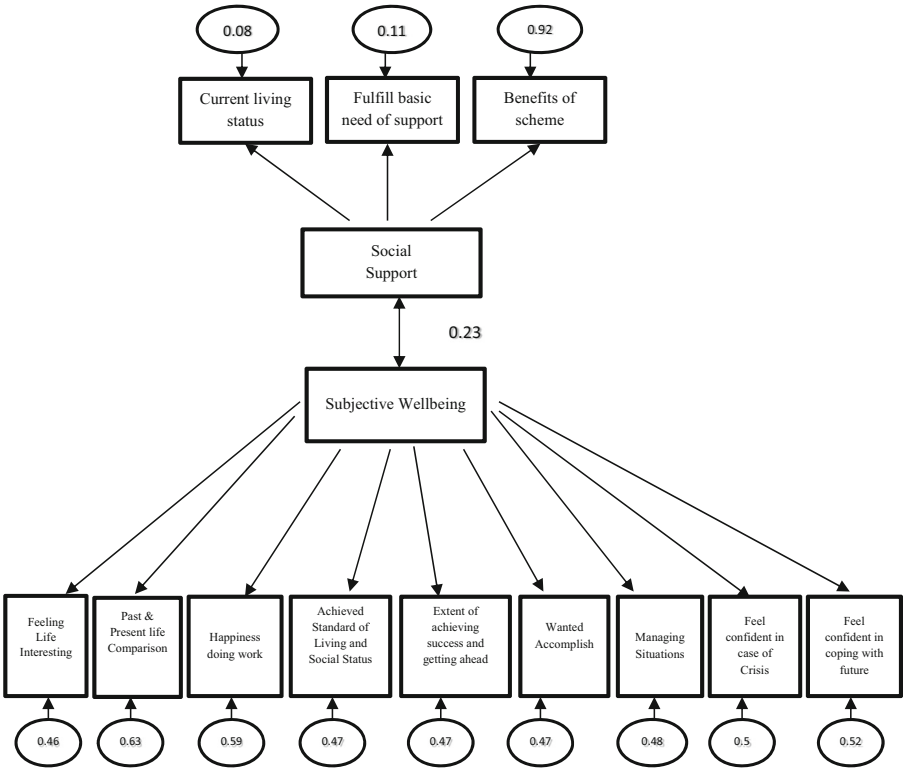

Fig. 3 Structure equation model of the theoretical relationships between variable

(0.63), Happiness doing work (0.59), Achieved Standard of Living and Social Status (0.47), Extent of achieving success and getting ahead (0.47), Wanted Accomplish (0.47), Managing Situations (0.48), Feel confident in case of Crisis (0.5) and Feel confident in coping with future (0.52). Finally, we observe that the correlation between social support and SWB is positive with a value of 0.23. Structure equation model table describing about all the variables of Sociap support and SWB is shown in Table 12 (appendix).

We further analyse the results by using the instrumental variable method which is a popular statistical technique. This estimates of both OLS and IV cross-sectional models is mention in the Table 7. The study found that effect of being involuntary retired has a negative effect on the subjective wellbeing but the effect is not significantly different from zero. However, this study doesn't found any significant positive effect between retirement and subjective wellbeing once we use our preferred IV specification. The estimate of the effect on subjective wellbeing with occupation and health status is not significantly different from zero.

Result demonstrate that using instrumental variables approach, there is moderate evidence of positive correlation between error terms. Thus, we conclude that endogenous regressors social support yield unbiased and consistent results. F-statistics of the instruments in the first stage regression as a summary measure of the quality of the

Table 7 Two stage regression for retirement decision on subjective wellbeing through social support

Background characteristics	Ordinary least square	Instrument variable
Social support	−3.31(0.594)***	0.15(0.045)***
Retire	−0.24(0.195)	0.73(0.080)***
Age	−0.14(0.056)***	−0.06(0.043)
Age squared/100	0.10(0.039)***	0.04(0.029)
Female	0.35(0.116)***	0.21(0.090)**
Marital status	0.22(0.112)**	0.28(0.088)***
Married * Female	0.41(0.158)***	−0.07(0.107)
Ever attended school	0.83(0.060)***	0.79(0.047)***
Occupation	−0.443(0.099)***	0.02(0.047)
Health status	0.001(0.044)	−0.06(0.034)*
N	9850	9777
Constant	6.016(2.119)	1.66(1.573)
	$\chi^2 = 55.01$	P-value = 0.000

instruments used was significant. The coefficient is significant at 05% level. Therefore we reject the null hypothesis that social support is exogenous (not correlated with the structural error) at 05% level. There is moderate evidence that social support is endogenous and thus 2SLS was be reported along with OLS satisfying the assumptions of the methods.

Discussion

The purpose of the study was to develop the understanding of complicated associations of variables and its effects on subjective wellbeing. The results clearly indicate a linkages between SWB and social support. As found in this study, path regression analysis suggested that social support had an indirect effect on subjective wellbeing. Education has a direct impact on increasing family income, which helps to increase the SWB of the individual. Age is also an important factor that directly and indirectly through marital status influences a person's subjective wellbeing. Besides, these result match with the study of (Tran and Wright 1986) which examine the influences of social support on SWB by different pathways. However, the relationship between outcome, mediator, and predictor may not have indirect effects as the same was remarked in the study by (Holmbeck 1997).

The study aimed to establish the reliability and validity of subjective wellbeing. We evaluated the goodness of fit using GFI, AGFI, CFI, and RMSEA. The three models showed acceptable fitness as was found in previous work Matsuda et al. (2014). Gracia and Herrero (2006) point out, as the present study used the cross-sectional design without taking into account the community level to analyse the intimate relationships of social support with retirement and their effect on subjective wellbeing. The regression analysis suggested that both social support and SWB were attenuated by other predictors and the findings were consistent with previous research. (Meddin and Vaux 1988) have shown significant contribution of three life events of SWB (LS, PA, and

NA) as the life change varies in society but fewer is seen among elderly as compared to younger populations.

Particularly in India a trend to link the retirement and pension entitlements also led improvements in life expectancy to some extent in the country. Retirement increases the health expenditure and thus, worsening the subjective wellbeing. Our results suggest that retirement may have an adverse effect on subjective wellbeing. Once controlling for endogeneity and using retirement as an instrument induced through eligibility for retirement benefit or pension benefits seems to have its impact on subjective wellbeing. Conversely, healthy individuals and occupation are more likely to exit, while retirement does not affect the probability of doing so. The result indicate that changing old tradition trend of families with increasing nuclearisation and migration of children can help to improve the subjective wellbeing. Therefore, there is area of concern to strengthen the children's awareness for older adults. The multidimensional construct of social support and SWB in relation to socio-demographic variables have found some differences and studied as a function of the individual's characteristics.

The findings in this study have some implications for policy makers. Firstly, development of micro pension and micro- insurance are the growing needs for India, given those without any social support and living in rural areas. Secondly, building public-private partnerships will help to strengthen in terms of policy development and implementation. Contribution towards National Old Age Pension Scheme have increased in many states of India, but still it is targeted towards the destitute. Future policies and social intervention programs must be developed to systematic efforts and to promote positive relationships within the family. In addition, future research efforts to analyse and examine factors to meet the needs of community support and increase the social network and facilitate bonding at the community level.

Conclusion

Before research on the linkages between social support and SWB can advance, a clear definition of terms is needed in order to gain a better understanding of social support, subjective wellbeing (LS, PA and NA) defined in different ways. The result of the current study clearly indicates the association between social support and SWB with an attempt to understand why it is beneficial. It may refer to many constructs as it plays an important and different role in our lives.

Over dozens of Social support schemes and programmes are scattered in India, on the whole woefully inadequate. Thus, if all the existing schemes related to social support schemes are added, still it will only touch the fringe of the problem. Firstly, these schemes do not provide universal coverage. Leaving sideways the pension related schemes of organized sector such as Maternity Benefit, Gratuity, Employee Compensation, the others target specific groups of unorganized sector when not tied to specific occupational categories, such as IGNOAPS (only for Below Poverty Line population). Secondly, large

number of individuals insist some contribution from beneficiaries, which is again a challenging issue. As per Constitution Social support in India is on the concurrent list, but in order to put a comprehensive social support framework primary responsibility is taken by Union Government. The reason behind is fiscal federalism in terms of augmenting resources linked to the states of the Indian Union. Hence, Needless to say that this is the time to go for comprehensive social support schemes, particularly for elderly living in the society which doesn't take care of its vulnerable citizens.

Future research efforts should also focus on its variation across age or cultural groups. Further, it is unclear whether the mechanisms through which life satisfaction, positive and negative affect influence the social support. Researchers should include parallel measures of perceived and provided support, LS, PA and NA to investigate different dimensions on social support and SWB will greatly contribute to the literature. In addition, future research would be useful to assess LS, PA, and NA using multiple time frames, because correlations among SWB components may change as a function of the time periods. Obviously, the argument suggests that it would be useful and informative if SWB components are examined separately in future research. This approach may yield better model fit with information about different pathways relating different aspects of subjective wellbeing.

Limitations of the Study

Despite the relevance of these findings, there are some limitations to the current study should be noted. Firstly, self-reported questionnaires were applied for data collection under the assumption that the participant's responses accurately. There may be the possibility of recall bias and under-reporting among elderly which cannot be ignored. Secondly, the sample collected in the data may not represent the complete picture of the population of India as it includes only the states where most of the elderly population lives. In addition, our sample data excluded the institutionalised older adults which might lead to underestimation as it is expected that on an average elderly have more exposure to lack of social benefits and satisfaction than the non-institutionalised.

Since the study is being cross-sectional in nature, it is unable to capture the longitudinal changes that arise with advancing age. The data brings an issue of endogeneity that likely exists between social support and subjective wellbeing. Also, it is impossible to draw inferences regarding the direction of influence. Another important dimension which could not be answered through this analysis is the recognition that as life expectancy of older adults increase and they remain healthy at advanced ages, older men and women are also able to contribute to the wellbeing of their families and communities (Hughes et al. 2007; Silverstein et al. 2002; Verbrugge and Chan 2008).

In future, longitudinal data would help to explicate the changes in relationships that arise with advancing age and enhance the linkages between social support and subjective wellbeing. Lastly, researchers must improve the reliability and validity of existing instruments; that are theoretically and conceptually linked to

the dimensions of social support and subjective wellbeing. Standardization of existing measures for assessment of better results will be comparable across diverse groups (Corcoran and Fischer 1987).

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Compliance with Ethical Standards

Conflict of Interest The authors declare no conflict of interest.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Ethical Treatment of Experimental Subjects (Animal and Human) Disclosure of potential conflicts of interest has been provided. This study was based on a large dataset that is publicly available on population ageing in India conducted by the UNFPA in India with ethical standards being complied with including informed consent obtained from participants.

Appendix

Subjective wellbeing (SWB) includes-

"How do you rate your general health condition?" on a three point scale; very, much, to some extent and not so much. It includes-.

a) Do you feel your life is interesting?

b) Compared with the past, do you feel your present life is?

c) On the whole, how happy are you with the kind of things you have been doing in recent years?

d) Do you think you have achieved in your life the standard of living and the social status that you had expected?

e) How do you feel about the extent to which you have achieved success and are getting ahead?

f) Do you normally accomplish what you wanted to accomplish?

g) Do you feel you can manage situations even when they do not turn out to be as expected?

h) Do you feel confident that in the case of a crisis (anything that substantially upsets your situation in life) you will be able to handle it or face it boldly?

i) The way things are going now, do you feel confident in coping with your future?

Table 8 Correlation matrix between Socio-economic and Socio-demographic variables

	SWB	Social Support	Family Income	Education	Health Status	Financial Status	Working Condition	Chronic Morbidity
SWB	1							
Social Support	−0.078	1						
Family Income	0.371	−0.046	1					
Education	0.294	−0.1785	0.535	1				
Health Status	−0.313	0.1354	−0.151	−0.187	1			
Financial Status	0.204	−0.425	0.184	0.247	−0.255	1		
Working Condition	−0.071	−0.014	−0.286	−0.128	−0.084	0.049	1	
Chronic Morbidity	−0.033	0.103	0.098	−0.028	0.206	−0.124	−0.136	1

Table 9 Correlation matrix between items used in instrument variable approach

	Social Support	Retire	Age-Group	Age Square	Sex	Marital Status	Sex* Marital Status	Ever Attended School	Working Condition	General Health Status
Social Support	1									
Retire	−0.175	1								
Age- Group	0.060	−0.036	1							
Age Square	0.053	−0.018	0.910	1						
Sex	0.185	−0.273	0.00	−0.006	1					
Marital Status	−0.050	0.162	−0.225	−0.232	−0.471	1				
Sex* Marital Status	0.154	−0.117	−0.172	−0.186	0.473	0.408	1			
Ever Attended School	−0.068	0.279	−0.144	−0.126	−0.296	0.229	−0.075	1		
Working Condition	−0.150	−0.176	−0.186	−0.196	−0.271	0.167	−0.129	0.019	1	
General Health Status	0.063	−0.109	0.134	0.142	0.092	−0.126	−0.026	−0.108	−0.090	1

Table 10 Path analysis of subjective wellbeing of persons aged 60 years and above in India

Variable	Coefficient	Std. Err.	z	P- Value	95% confidence interval	
Family Income ← Age-group	0.16	0.02	8.080	0.0000	0.12	0.20
Family Income ←Ever attended school	1.11	0.03	41.490	0.0000	1.06	1.16
SWB←Family Income	0.17	0.01	22.750	0.0000	0.16	0.19
SWB←Social Support	−0.01	0.02	−0.490	0.6250	−0.05	0.03
SWB←Age-group	−0.09	0.02	−5.730	0.0000	−0.12	−0.06
SWB←Religion	0.04	0.01	4.430	0.0000	0.02	0.06
SWB←Financial status	0.09	0.01	8.160	0.0000	0.07	0.11
SWB←Marital status	0.09	0.02	4.190	0.0000	0.05	0.13
SWB←Ever attended school	0.11	0.02	4.560	0.0000	0.06	0.15
Social Support←Family Income	0.00	0.00	1.170	0.2420	0.00	0.01
Social Support←Religion	0.03	0.01	5.420	0.0000	0.02	0.04
Social Support←Financial status	−0.20	0.01	−32.580	0.0000	−0.21	−0.19
Age-group←Marital status	−0.31	0.01	−23.110	0.0000	−0.34	−0.29
Religion←Marital status	0.07	0.02	3.370	0.0010	0.03	0.11
Religion←Ever attended school	−0.10	0.02	−4.640	0.0000	−0.14	−0.06
Financial status← Marital status	0.26	0.02	9.79	0.0000	0.20	0.31
Log likelihood = −57,217.547						
Number of observation = 9850						

Table 11 Ordered logistic regression of subjective well-being of persons aged 60 years and above in India

Background characteristics	Coefficient	Std. error	z	*P* Value	95% confidence interval	
					Lower	Upper
Age group						
60–69						
70–79	−0.201	0.063	−3.27	0.001	−0.33	−0.08
80+	−0.382	0.101	−3.76	0.000	−0.58	−0.18
Sex						
Male						
Female	−0.021	0.074	−0.29	0.771	−0.16	0.12
Residence						
Rural						
Urban	−0.261	0.058	−4.47	0. 000	−0.37	−0.14
Marital status						
Currently single						
Currently married	0.125	0.071	1.76	0.078	−0.01	0.26
Ever attended school						
No						
Yes	0.267	0.066	4.03	0. 000	0.13	0.39
Religion						
Hindu						
Muslim	0.009	0.117	0.08	0.935	−0.22	0.23
Others	0.451	0.076	5.91	0. 000	0.30	0.60
Ethnic background						
SC/ST						
OBC	0.087	0.072	1.21	0.227	−0.05	0.23
Other caste	−0.055	0.070	−0.79	0.432	−0.19	0.08
Health status						
Good						
Normal	−1.088	0.080	−13.55	0. 000	−1.24	−0.93

Table 11 (continued)

Background characteristics	Coefficient	Std. error	z	*P* Value	95% confidence interval	
					Lower	Upper
Poor	−1.864	0.111	−16.65	0. 000	−2.08	−1.64
Wealth quintile						
Poorest						
Poorer	0.393	0.086	4.53	0. 000	0.22	0.56
Middle	0.762	0.089	8.48	0. 000	0.58	0.93
Richer	1.248	0.096	12.91	0. 000	1.05	1.43
Richest	1.801	0.105	17.11	0. 000	1.59	2.00
Worked in last one year						
Not worked						
More Than 6 months	−0.069	0.064	−1.07	0.285	−0.19	0.05
Less Than 6 months	−0.250	0.114	−2.18	0.029	−0.47	−0.02
Chronic morbidity						
No chronic morbidity						
Any chronic morbidity	0.015	0.057	0.27	0.785	−0.09	0.12
Financial status						
No						
Partially dependent	0.200	0.090	2.21	0.027	0.02	0.37
Fully dependent	0.505	0.093	5.44	0. 000	0.32	0.68
/cut1	−0.821	0.163			−1.141	−0.502
/cut2	1.017	0.164			0.694	1.339

Table 12 Structural Equation Model of of subjective wellbeing of persons aged 60 years and above in India

	Coefficient	Std. Error	z	P-Value	95% Confidence Interval	
Social Support						
Current living status	0.080	0.007	11.45	0.000	0.07	0.09
Fulfill basic need of support	0.115	0.005	22.13	0.000	0.10	0.12
Benefits of scheme	0.918	0.005	176.48	0.000	0.91	0.93
SWB						
Social Support	0.225	0.022	10.25	0.000	0.18	0.27
SWB						
Feeling Life Interesting (FLI)	0.466	0.009	52.12	0.000	0.45	0.48
Past and Present life Comparison (PPC)	0.627	0.012	52.07	0.000	0.60	0.65
Happiness doing work (HW)	0.587	0.013	46.29	0.000	0.56	0.61
Achieved Standard of Living and Social Status (SL & SS)	0.472	0.010	45.29	0.000	0.45	0.49
Extent of achieving success and getting ahead (AS & GA)	0.465	0.010	47.46	0.000	0.45	0.48
Wanted Accomplish (WA)	0.439	0.011	40.28	0.000	0.42	0.46
Managing Situations (MS)	0.476	0.009	50.63	0.000	0.46	0.49
Feel confident in case of Crisis (FCC)	0.502	0.010	48.21	0.000	0.48	0.52
Feel confident in coping with future (FCCF)	0.525	0.011	46.36	0.000	0.50	0.55
Log likelihood = −58,956.618						
Number of observation = 6067						
Chi2(78) = 8826.40,						
Prob > chi2 = 0.0000						

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