

## Exploring the Trajectory of Successful Ageing: Systematic Review of Its Determinants and Consequences

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### Abstract

**Background:** Successful aging concept has been highly explored. A significant difference is there in between “Usual Ageing” and “Successful Ageing.” Reducing the burden and increasing the benefits related to ageing population can be achieved by identifying the determinants associated with successful ageing. It may also help in implementing the programs that ensure the optimal quality of life in later years.

**Aim:** The main objective was to evaluate the present frameworks for successful aging and to review the determinants, their correlation and the related consequences.

**Method:** The authentic databases peer reviewed journals were used to find articles in the English language. Search engines like Google Scholar were also used. The period of 2007 to 2022 was chosen for article selection. There was no geographical limitation in choosing the articles.

**Result and discussion:** The outcomes of the review study can be explained by segregating into the following areas: three determinants of successful ageing a) Physical b) psychological and c) social and their relation with each other with respect to related consequences.

**Conclusion:** Some major determinants are physical activity, financial independence, functional independence, good cognitive functioning, absence of chronic disease and disability. This review study demonstrates the factors that will help in promoting successful aging.

**Keywords:** aging, successful, elderly, people

### Introduction

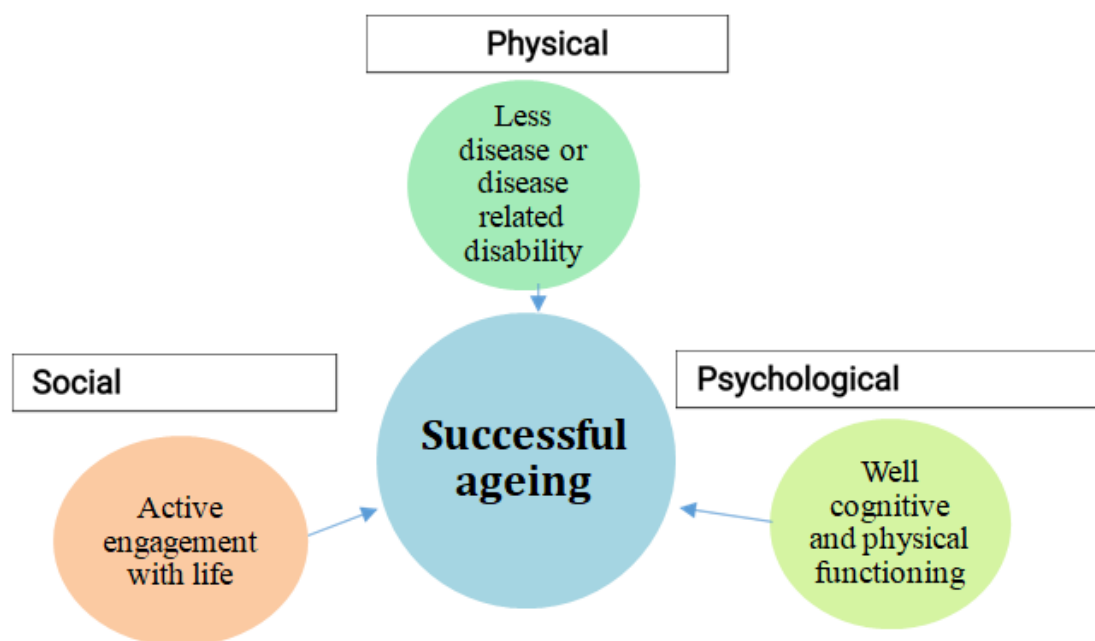
The course of ageing is unavoidable. According to World Health Organization (WHO) the population of old people which is above 60 years will increase from 1.2 billion (in 2025) to 2 billion (in 2050) (WHO, 2015). In 2050, at least one out of six people in the world will be above the age of 65 (16%) (Nations, 2019). The 80 years or older people are expected to increase by three-fold from 2020 to 2050 and will reach up to 426 million. The move like this in distribution of population of a country in the direction of older ages is identified as population ageing. It starts in the countries with high-income (for example, In Japan almost 30% of the total population is of age more than 60 years). Now, the low as well as middle-income countries are facing this greatest change. As per WHO by 2050, around two-thirds of the total world’s population which is over 60 years will be in low and middle-income countries (WHO, 2022).

There are physiological and anatomical changes due to increase in biological age. Other than physiological and anatomical changes, social changes also occur like retirement, less group activities, the demise of relatives and friends, parting from children for any reason. Because of all these physiological, anatomical and social changes the old people feel lonelier sometimes abandoned and the chances of having mental health issues are greater in them (Molavi, 2015). The general competency requirements for leading a decent life in both youth and old age must be considered by the elderly in order for them to successfully completing the course of ageing and embracing a healthy lifestyle. The elderly should also focus on living a meaningful life based on ideal objectives, maintaining close relationships, and promoting their level of self-esteem (Fatemeh Estebarsari, 2020). Because of this, numerous terminologies related to ageing and that encourage a pleasant and happy life during

old age have been more popular recently like successful ageing, active ageing, healthy ageing, positive ageing, productive ageing, and decent ageing (Fatemeh Estebarsari, 2020) (Martin, 2015). The advantages and potentials of ageing are approached differently by above mentioned conceptions (Martin, 2015; Dickstein, 2013).

Ageing is considered as a challenge in terms of health care for the growing group of individuals. Ageing is considered as a negative word. People largely relate ageing with sorrow, degradation, and limitation. Success is a totally different word. It is considered as a positive approach related to growth, satisfaction, and power. “Successful ageing” is the combination of Ageing and Success; it feels impossible to achieve. To make it possible, it is important to ensure that the growing years of life are not only free from major disease but also have good mental and physical functioning. Understanding the problems that older persons and families confront in an ageing society can help us better address those problems (Aliaga-Díaz, 2016).

Until the 1960s, “successful ageing” was not an open theme. Modern psychiatrists and psychologists have measured later life either as a product of developmental tasks in early life or as a period of nonstop growth and struggles that had to be negotiated. In the late 1970s and early 1980s, official models of successful ageing developed. In 1997, in their significant article, Rowe and Kahn differentiate “successful ageing” from “normal ageing” by recognising three main components, such as: less chances of having disease and disability related to disease; sound cognitive and physical functional capacity; and interacting with the community in meaningful ways (John W. Rowe, 1997).



**Figure 1: Rowe and Kahn model of successful ageing.**

There is a significant difference between “Usual Ageing” and “Successful Ageing.” Scholars and theorists give many concepts regarding the definition of “Successful ageing”. Erikson (1950) recognized that there are eight stages of life. The last one is labelled as “integrity versus despair (Erikson, 1950).” This stage comes when elderly individuals look at their life back and the feeling of content and pride or regret comes from their accomplishments or failures. Baltes and Baltes (1990) looked successful ageing in relations with resources like internal coping resources and the external social resources (Baltes, 1990). Dependence on resources can help someone cope with the difficulties that come with ageing. For some people, successful ageing means different things. Most people think that ageing successfully occurs when there is no age-related deterioration. However, some could counter that idea of successful ageing and according to them successful ageing is when despite of some changes and decline a person was still able to accomplish his objectives. Pruchno et al. (2010) propose

that there are two main independent as well as related dimensions such as objective success and subjective success. Based on these dimensions successful ageing can be described. (Pruchno, 2010). Jeste et al. (2010) found that there is a significant difference among the definitions of successful ageing given by researchers and laypersons (Jeste, 2010). Researchers believe that successful Ageing is freedom from disease and disability. Laypersons consider successful Ageing in terms of adaptation, meaningfulness, and connection.

Rowe and Kahn acknowledged that there is involvement of both intrinsic genetic factors as well as extrinsic lifestyle factors in successful ageing. Extrinsic factors involve diet and nutrition, physical exercise, habits and psychosocial characteristics related to ageing (Rowe, 1997). The extrinsic factors are often underestimated. People usually believe that ageing is guided by genetics, which is the half-truth.

We are in the period of a great escalation in life expectancy. The longer life expectancy results in new problems, including social, financial, and medical ones. The rise in number of elderly people and the popularity of the successful ageing concept, resolve uncertainty and confusion among researchers. To reduce the burden and to increase the benefits related to ageing population, lot of researches has been conducted that helps in elucidating the factors that reduce age-related disability and increase the quality of life. Identifying the determinants associated with successful ageing may help in implementing the programs that ensure the optimal quality of life in later years. The foremost aim of the systematic review was to identify the determinants of successful ageing by reviewing established studies. The review is done within the purview of physical, psychological/cognitive, and social well-being.

## Methods

This review study consists of several steps. The search strategy was planned at the first step. The keywords used were ageing, healthy Ageing, Successful Ageing, components of Successful Ageing, usual ageing, indicators of Successful Ageing, ageing population, physical determinants of successful ageing, mental and cognitive determinants of successful ageing, and psychological determinants of successful ageing. By following the search strategy, compilation of information which is linked to the subject matter was done. The authentic databases and indexing sites were used to find articles in the English language. Search engines like Google Scholar were also used. The period from year 2007 to year 2022 was chosen for article selection. There was no geographical limitation in choosing the articles. The articles, reports, and documents significant for the study were collected. At the next stage, the title, abstract and relevancy to the concept of the articles were studied. The unrelated articles to the study were excluded. Finally, the articles having relation with the review and are significant in nature were included in the study.

## Results

The study conducted on 720 participants with 81% of respondent rate showed that the highly valued concepts of 'successful ageing' were physical health, freedom, living without chronic diseases and with family, getting emotional care (HSU, 2007). Reichstadt et al (2010) conducted the interviews with adults over 60 years. The numbers of participants were 22. The nature of interview was quantitative. The average age of participants was 80 years (64 years to 96 years). The study demonstrated that the participants considered successful ageing as equilibrium of self-acceptance/self on one part and engagement with life/self-growth on another (Reichstadt, 2010). Hyun Cha et al. (2012) conducted a cross-sectional study on 305 older Korean people aged 60 years. The results yielded that among older Korean adults' self-esteem was major as well as primary predictor of successful ageing. Promoting a sense of self-worth in people of older age led them to successful ageing (Hyun Cha, 2012). A cross sectional study was conducted on 2160 participants of an average age of  $70.1 \pm 3.0$  years. Out of all participants, around 645 showed a good quality of life, which was qualified as successful ageing. The factors like lower weight, regular physical activity, and having religious beliefs were associated in a positive way with successful ageing and the factors like psychological distress, obesity, depression, comorbidity influenced ageing in a negative way (Dahany, 2014). Another study was conducted for 6 years with 2663 elderly participants (65-100 years). Attributes like education, economic stability, physical action, body mass index, anxiety and depression, social activities, participation in the events with friends and relatives, number of yearly outings, cardiovascular disease risk factors, and dietary habits were included in the study. The study finding suggested

that successful ageing is a multidimensional concept and the health services used by older people to improve their physical health is directly related to successful ageing (Tyrovolas, 2014).

Laverty et al. (2015) conducted a study involving participants from middle income countries. The total sample size is 40477. In case of middle-income countries, the physical activity like active travel at least for 150 min/week or more is normal among people belonging to lower socio-economic groups. It shows same health benefits to people of lower socioeconomic group as to those belonging to high-economic groups. The study also stated that obesity is linked with increasing physical inactivity. Obesity is one of the major reasons that affect the health of older people by decreasing the independent functioning of body. McKay et al. (2015) conducted a cross sectional study on 2,122 adults (18 years or above). The participants were from two rural sites, one from each India and Bangladesh and were sampled in 2011-2013. The study stated that active travel of more than 150 minutes was connected with comparatively less BMI, lesser risk of a high waist circumference and high waist-hip ratio. Promoting active travel proves to be an essential factor of the approaches to solve the problem related to obesity in country with low and middle income and rural setup. Kyu et al. (2016) proposed that people who were involved in rigorous amounts of physical activity have less chances of occurrence of cancer related to breast and colon, diabetes, heart related diseases. Gopinath et al. (2018) highlights the importance of physical and cognitive determinants. A fair amount of physical activity on daily basis improves the chances of having an added 10 healthy years without chronic diseases, psychological or cognitive impairment and disease related or any other /disability. The findings of this study underline the significance of program to promote participation of older adults in any kind of physical activity (Bamini Gopinath, 2018). A study using the Successful Ageing Inventory (SAI; Troutman et al., 2011) was conducted with 725 participants within the age group of 55-97 years (Gutiérrez, 2018). The study highlighted the fact that not all older people have the same motive behind doing physical activity. But all the motives (physical/psychological/social) have the same goal of successful ageing. A study was conducted on participants 3128 (age 65-100). The study establishes a connection between the nutrition's inflammatory potential and successful ageing. As per the study, the nutrition's inflammatory potential is a significant factor related to successful ageing (Tyrovolas, 2018). Le Chen et al. (2019) conducted a study on 97 participants of more than 80 years age. In this study participant recognised self-reliance as one of the goals of successful ageing. Physical activity, financial independence, community reach, and acceptance were the factors that helped in gaining self-reliance (Chen, 2019).

Moreno-Agostino et al. (2020) conducted an observational population study which included 130521 participants. The study shows that physical activity was related to more chances of successful ageing in middle-aged and older people (Moreno-Agostino, 2020). Jang (2020) analysed the factors related to successful ageing in older adults in Korea. The study was based on the ecological system model. The factors like age, gender, educational, financial status, subjective health status, living condition, satisfaction with spouse; relationship with family, siblings, friends, neighbours and relatives in the family system; accessibility of neighbourhood facilities was analysed. The study confirmed that both individual features as well as environmental systems around the older adults should be taken into account broadly for the successful ageing of older adults (Jeste, 2010) (Jang, 2020). Liu et al. (2021) in the study performed Meta-analysis of randomized controlled trials with 1039 participants over the age of 60 years. The study shows that among the elderly people, having cognitive decline, the nutrition and exercise interventions showed a positive effect. Another important determinant is resilience which is also emerging as an important factor for successful ageing (Merchant, 2022). Resilience acts as one of the pillars of successful ageing. In recent years, mainly post COVID-19, it has gained more importance and attention from the scientific community. Countries are trying to construct resilience on individual as well as communal and system level.

## Discussion

The outcomes of the current review study can be explained through the following areas: Physical determinants of successful ageing, psychological determinants of successful ageing, and social determinants of successful ageing. In the process of normal ageing, many physical changes occur like sensory impairment and the reduction of brain cells. However, a number of physical factors can be put into place to stimulate successful ageing, such as exercise and good nutrition. Successful ageing mainly means preserving the functions of body

and functional independence in later years of life (after 65 years of age). The functional independence, absence of chronic diseases or disease related disabilities, make the person productive in later years of life. An approach to healthy ageing is an important investment that results in successful ageing. Physical activities, diet, exercise, maintaining a healthy lifestyle at a younger age are some of the tools that make this task easy. Various psychological problems come as we grow up like, isolation, dementia, anxiety, depression, psychosis etc. However, some of these problems sometime start at young age. Psychological well-being of people is affected by self-esteem, self-worth, self-reliance, active learning, financial security, faith, etc. Social support, financial stability and interaction with the community are the main determinants that fall under the category of social determinants, which further includes community gatherings, relationships with care takers, family support, good relations with family members and acquaintances, emotional support, religious gatherings etc.

**Table 1: Category of factors of successful ageing and related consequences highlighted in the studies under review.**

Sr. no.	Factors highlighted in studies included	Category of Factor (Determinant type)	Category of the related consequences		
			P	S	Psy
1.	Functional independence	Physical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Having no chronic disease	Physical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Living with family	Social		<input type="checkbox"/>	<input type="checkbox"/>
4.	Getting emotional care	Psychological		<input type="checkbox"/>	<input type="checkbox"/>
5.	Independence	Psychological		<input type="checkbox"/>	<input type="checkbox"/>
6.	Self-acceptance	Psychological		<input type="checkbox"/>	<input type="checkbox"/>
7.	Self-growth	Psychological		<input type="checkbox"/>	<input type="checkbox"/>
8.	Self-contentedness	Psychological		<input type="checkbox"/>	<input type="checkbox"/>
9.	Engagement with life	Social		<input type="checkbox"/>	<input type="checkbox"/>
10.	Self esteem	Psychological		<input type="checkbox"/>	<input type="checkbox"/>
11.	Self-worth	Psychological		<input type="checkbox"/>	<input type="checkbox"/>
12.	Weight	Physical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.	Disability	Physical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.	Having religious beliefs	Social		<input type="checkbox"/>	<input type="checkbox"/>
15.	Education	Social	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.	Participation in social activities	Social		<input type="checkbox"/>	<input type="checkbox"/>
17.	Nutrition	Physical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.	Diet	Physical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.	Relation with family	Social		<input type="checkbox"/>	<input type="checkbox"/>
20.	Number of friends	Social		<input type="checkbox"/>	
21.	Frequency of meeting family, friends and neighbours	Social		<input type="checkbox"/>	<input type="checkbox"/>

22.	Resilience	Psychological	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.	Body mass index	Physical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.	Acceptance	Psychological		<input type="checkbox"/>	<input type="checkbox"/>
25.	Community engagement	Social		<input type="checkbox"/>	<input type="checkbox"/>
26.	Financial Independence	Psychological	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.	Dementia	Psychological/ Cognitive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.	Anxiety/depression	Psychological	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29.	Exercise	Physical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30.	Cognitive impairment	Psychological/ Cognitive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

P = Physical, Psy = Psychological, S = Social, (☐) mark shows inclusion in the category.

### Relation of determinants of successful ageing

All the determinants of successful ageing are related to each other in a non-ending multi-dimensional cycle. Each and every determinant has consequences that affect another determinant. For example, a person having good health (physical determinant) can perform his/her social duties (social determinant) which results in social recognition giving sense of self-worth (psychological determinant). Physical determinants have consequences of all nature type (physical, social and psychological) (Refer Table 1). For example, if a person is doing exercise, s/he will be physically fit, which further results in psychological satisfaction, improves cognitive behaviour and improves his/her engagement with life. However, this may not be the case with psychological and social determinants. For example, a person's high frequency of meeting with friends might ensure his/her psychological and social well-being, but not physical well-being.

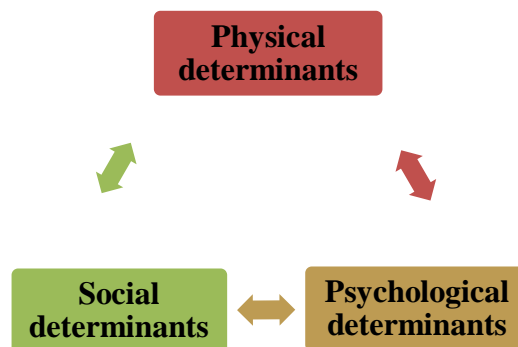


Figure 2: Relation between determinants of successful ageing

### Conclusion

Successful ageing is different from usual ageing. The definition given by Rowe and Kahn explained the concept of successful ageing very well. Every factor that affects successful aging falls into any one of three categories of determinants, i.e., Physical, Social or Psychological. All the determinants of successful ageing are related with each other in a non-ending multi-dimensional cycle. Each determinant has a direct or indirect influence on the social and psychological health of a person. Some major determinants are physical activity, financial independence, functional independence, good cognitive functioning, absence of chronic disease and disability. This review study demonstrates the factors that will help in promoting the successful aging. The determinants highlighted in the study can be used to reform the policies and programs to ensure equitable opportunities for older adults in achieving successful aging.

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