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Successful Ageing and its Associated Factors among Older Adults in Guangdong Province, China: A conceptual paper

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Abstract
Global population ageing underscores the significance of studying successful ageing. This study aimed to identify factors linked to successful ageing in older adults, focusing on spirituality, physical function, cognitive function, and social support. A cross-sectional study of 425 elderly individuals from eight community health centres in Xiashan District, Guangdong, China, will employ the Successful Ageing Inventory, Spiritual Well-Being Scale, Barthel Index, Mini-Mental State Examination, and Social Support Rating Scale for assessment. Data collection is scheduled from March to June 2024. The study intends to enhance understanding of successful ageing components, potentially informing interventions and addressing developmental concerns for the elderly.

Keywords: older adults; successful ageing; China

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1.0 Introduction

With low fertility rates and rising life expectancy, the world's population is ageing at an unprecedented rate, making ageing a major public policy and health issue. The United Nations estimated that the share of global older persons is projected to rise from 10% in 2022 to 16% in 2050 (United Nations Department of Economic and Social Affairs, 2022). China, the world's most populous country, is experiencing tremendous demographic changes. According to China's 2020 national population census, the proportion of individuals over 60 has increased significantly, reaching 18.7% of the total population (Census, 2021).

Ageing leads to a progressive decline in physical and mental abilities, increased susceptibility to disease and, ultimately, death. Rowe and Kahn distinguished between normal ageing and successful ageing within the category of normal ageing. They went on to develop Rowe and Kahn's model. This widely used framework includes three principal components: low risk of disease and disease-related disability, maintenance of high mental and physical function, and continued engagement with life (Rowe & Kahn, 1997).

Despite its advantages, Rowe and Kahn's model needs to be integrated with spirituality and health research, which could improve its value as a framework for successful ageing interventions. Recognising spirituality as a major factor influencing health and well-being

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outcomes in older adults is critical. As a result, health professionals and government organisations should promote spirituality-based interventions, particularly in underserved populations. In light of these issues, Crowther and colleagues propose adding spirituality as a fourth element to Rowe and Kahn's theoretical framework, which older adults have received positively (Crowther, Parker, Achenbaum, Larimore, & Koenig, 2002).

Exploring factors affecting successful ageing is a pressing issue. Older adults across countries and regions shared similar general perspectives on what concepts pertain to successful ageing, while details varied by country and culture. In China, there have been extensive studies on successful ageing. However, studies which include the fourth element (spirituality) of successful ageing, as proposed by Crowther and colleagues, still need to be included. Therefore, exploring the determinants of successful ageing among older adults in China is critical.

In the context of Xiashan District, Zhanjiang City, Guangdong Province, China, this study aims to explore the relationship between spirituality, physical function, cognitive function, and social support with successful ageing among the elderly community. Understanding cultural nuances is critical for identifying mechanisms that contribute to successful ageing. The study hopes to provide insights for more targeted interventions by focusing on these factors in this cultural context. It applies not only to the elderly in Xiashan District but also to a broader understanding of successful ageing in China.

2.0 Literature Review

The literature describes many factors that affect successful ageing. These factors include age, gender, educational level, economic status, and marital status (Gallardo-Peralta, Mayorga Muñoz, & Soto Higuera, 2020; Tiwery, Heriani, & Rusvitawati, 2023). Additionally, physical, cognitive, social and spiritual factors are associated with successful ageing.

2.1 Spirituality

Research on the relationship between successful ageing and spirituality has gained traction in recent years, shedding light on the importance of spirituality in promoting well-being among older individuals. Sadler and Biggs examined the relationship between successful ageing and spirituality, emphasising the considerable focus on the former as both a condition and a progression. At the same time, the latter has been mostly ignored as a source of successful ageing in later life (Sadler & Biggs, 2006). Their findings illustrate the importance of spirituality in understanding and fostering successful ageing. The study, which involved 107 participants aged 65 years and above in the United States, highlights the significance of life satisfaction, hope, and depression as reliable measures for successful ageing (Christensen, 2008). Significantly, spirituality was determined to be a strong predictor of both hope and life satisfaction, although it did not show a significant predictive association with depression (Christensen, 2008). Using cross-lagged panel analysis, Cowlishaw and colleagues showed that spirituality influenced longitudinally successful ageing (Cowlishaw, Niele, Teshuva, Browning, & Kendig, 2013). Overall, these studies add to a growing corpus of research emphasising the role of spirituality in supporting successful ageing. Recognising spirituality as a significant resource for older adults enables researchers and healthcare professionals to create interventions and support systems that address the spiritual needs of the elderly, thereby improving their overall well-being and quality of life.

2.2 Physical Function

Physical function is a significant factor affecting successful ageing. The decline in physical function is most severe during the ageing process and can act as a compensation mechanism for other aspects of well-being, particularly among the youngest-old (Saadeh et al., 2023). Byles and colleagues used survey data from 12,432 participants of the 1921-1926 birth cohort of the Australian Longitudinal Study of Women's Health from 1996 (age 70-75) to 2016 (age 90-95). The study demonstrated that individuals with low physical function, which is frequently a precursor to significant chronic diseases, were more likely to be excluded from the classification of successful ageing (Byles et al., 2019). In Gallardo-Peralta and colleagues' study involving 800 elderly individuals residing in northern and southern Chile, the results indicated that independence in daily living (ADL) was associated with successful ageing (Gallardo-Peralta et al., 2020). Therefore, interventions to maintain or enhance physical function can be key in promoting successful ageing outcomes across different age groups and populations.

2.3 Cognitive Function

Cognitive function plays a pivotal role in determining the extent to which individuals can adapt, engage with life, and maintain a high quality of life as they age. Eyler and colleagues stated that " … cognitive performance is a key feature of successful ageing…" (pg 115) (Eyler, Sherzai, Kaup, & Jeste, 2011). This comprehensive understanding involves examining various cognitive domains and their impact on successful ageing. A study of 656 community-dwelling individuals aged 60 and over found that memory and meta-memory significantly contribute to both objective and subjective successful ageing (Ruvalcaba, Arias-Merino, Díaz, & Flores-Villavicencio, 2022). It suggests that interventions to improve memory and foster positive perceptions of one's memory could potentially enhance successful ageing outcomes in older adults. Executive function, encompassing higher-order cognitive processes like planning, decision-making, and goal-directed behaviour, is integral to successful ageing (Zelazo & Carlson, 2012). Older adults with strong executive functions can plan, make sound health decisions, and solve problems effectively, fostering a sense of control and autonomy. In addition, cognitive function is critical to successful ageing by enabling individuals to adapt, engage in life, and maintain a high quality of life as they age.

2.4 Social Support

Social support is crucial for successful ageing, providing emotional and instrumental support. Emotional support reduces stress and improves mental health, while instrumental support improves independence and functional ability (Tiwery et al., 2023). Gallardo-Peralta and colleagues' study collectively indicate a positive relationship between social support and successful ageing (Gallardo-Peralta et al., 2020). Moreover, Several studies indicated social support's direct importance in successful ageing. Byles and colleagues found that successful agers, particularly women, had higher levels of social support (Byles et al., 2019). Similarly, Tiwery's study in Indonesia with 260 participants aged 60 and older also found a positive correlation between social support and successful ageing outcomes (Tiwery et al., 2023). Research consistently shows a favourable relationship between social support and various aspects of successful ageing across different demographics and situations, emphasising the universal value of social ties in fostering well-being as people age.

3.0 Theoretical Framework

The theoretical framework of the study is constructed at Figure 1.

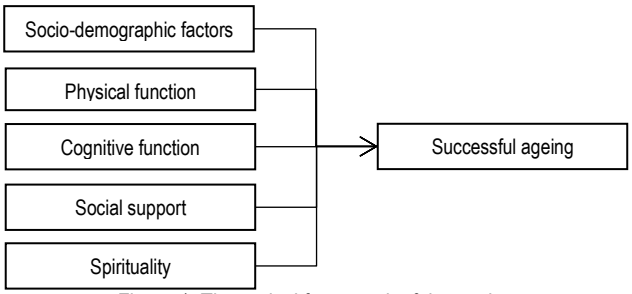

Figure 1: Theoretical framework of the study

4.0 Objectives

The research paper seeks to achieve its general objective of identifying factors associated with successful ageing in older adults, by focusing on the following specific objectives:

a) To identify the profile of older adults.
b) To investigate the level of spirituality, physical function, cognitive function, and social support in older adults.
c) To investigate the relationship between demographic profile with successful ageing in older adults.
d) To investigate the relationship between spirituality, physical function, cognitive function, and social support with successful ageing in older adults.
e) To determine predictors for successful ageing in older adults

5.0 Research Hypothesis

There is a significant positive relationship between spirituality, physical function, cognitive function, and social support with successful ageing.

6.0 Methodology

6.1 Research Design and Procedure

This cross-sectional study design involves participants from the community health service centres in Xiashan district. According to the Zhanjiang Statistics Bureau, the total population of Xiashan District was 536,424, with 14.86% of the population aged 60 and above, resulting in approximately 79,713 people aged 60 and over in Xiashan District in 2020 (Bureau, 2021).

Eight community health service centres are located on various streets around Xiashan District, providing basic healthcare services to the surrounding residents. All eight centres will be approached, and permission to conduct the study there will be sought.

A purposive sampling method will be employed. For data collection, the researcher will follow the team to each community centre during the health screening programme for the elderly in their community. All older people who meet the inclusion criteria will be invited to participate in the study. After the verbal agreement, participants will be instructed on the study's aims, confidentiality issues, withdrawal rights, and participation risks and advantages. Consented participants will receive a consent form to review and sign.

Once consented, participants will be interviewed in a quiet environment to avoid distractions. They will have a Mini-Mental State Examination (MMSE) interview to establish their eligibility for studies. Participants who score 10 or higher on the MMSE can proceed to the following assessments via interview. This cut-off score was chosen based on the studies done by Trigg (Trigg, Jones, & Skevington, 2007).

The questionnaire administration is planned to take roughly 30 minutes, with participants given pauses to reduce fatigue. If a participant refuses or cannot react, the administration will be discontinued. Before ending the interview, we will verify any missing data. Data collection will continue until the required sample size is achieved.

6.2 Participants

Participants for this study will be recruited from 8 community health service centres in Xiashan District of Zhanjiang City, Guangdong Province, China. The sample size will be determined using the Raosoft sample size calculator. Given a 95% confidence level and a margin of error of 5%, the minimum required sample size is 383. Considering the 10% attrition rate and after rounding the number, the total number of participants needed for this study is 425.

The inclusion criteria for the present study are: (1) Consented participants aged 60 years and above, and (2) Sufficient command of the Mandarin, Cantonese, or local dialects and scored 10 or above on the Mini-Mental State Examination (MMSE). The exclusion criteria for the present study include the following: (1) Absent on the day of data collection, and (2) Physically challenged (e.g., blind, deaf, no limp).

6.3 Measurements

a) Demographic Data

Demographic information such as age, gender (male and female), nationality (han and minority), religion (Buddhism, Taoism, others), marital status (married, separated, divorced, widowed and never married), number of children, educational level (illiterate, primary school, high/vocational school, and college and above), living arrangement (live with a spouse, live with spouse and offspring, live with offspring, live with others, and living alone), financial support from children (yes, no), financially stable (yes, no), chronic illness (yes, no) will be collected.

b) Successful Ageing Inventory (SAI)

The Successful Ageing Inventory (SAI) was initially developed to measure older adults' successful ageing (Troutman, Nies, Small, & Bates, 2011). The scale comprises twenty items in five dimensions, including "functional performance mechanisms", "intrapsychic factors", "gerotranscendence", "spirituality", and "purposefulness/life satisfaction". Some items contain overlapping concepts from the dimensions. The answers to each item encompassed five levels, including never, occasionally, sometimes, usually, and all the time, for which scores were 0, 1, 2, 3, and 4, respectively. Scores on the SAI range from 0 to 80, with higher scores indicating more successful ageing. The SAI takes approximately 10 minutes to complete. The Chinese version of SAI demonstrated Cronbach's alpha of 0.832, the Guttman split-half coefficient of 0.871, and the content validity index of 0.975 (Cheng, Xu, Ji, Zhang, & Gao, 2014). Principal components analysis extracted five factors, contributing 58.035% of the variance (Cheng et al., 2014).

c) Spiritual Well-Being Scale (SWBS)

The Spiritual Well-Being Scale (SWBS) is comprised of two subscales, one as an assessment of one's perception of well-being in ordinary religious language, called the Religious Well-Being Scale (RWBS), and the other as an assessment of one's perception of well-being in existential terms, called Existential Well-Being Scale (EWBS) (Paloutzian & Ellison, 1982). It comprises 20 items, with 10 items in each subscale. Each item is rated on a six-point modified Likert scale from Strongly Agree to Disagree, with a higher number reflecting more well-being Strongly. The specific evaluation criteria are as follows: a score in the range of 20-40 reflects a sense of low overall spiritual well-being, a score in the range of 41-99 reflects a sense of moderate spiritual well-being, and a score in the range of 100-120 reflects a sense of high spiritual well-being. The Chinese version of the SWBS demonstrated an internal consistency of 0.89 and revealed an underlying two-factor structure explaining 46.94% of the variance through exploratory factor analysis (Tang & Kao, 2017).

d) Barthel Index (BI)

The Barthel Index (BI) consists of 10 items: feeding, bathing, grooming, dressing, bowels, bladder, toilet use, chair/bed transfers, mobility on level surfaces, and stairs. Each item is assessed on a 2-4 Likert classified response with corresponding values (0, 5, 10, 15), and a higher score indicates higher levels of function. In brief, a score of 100 means total independence, 91-99 means slight dependence, 61-90 means moderate dependence, 21-60 means severe dependence and 0-20 total dependence. The Chinese version of the BI demonstrated a Cronbach's alpha coefficient of 0.903 (Zhang et al., 2022). The criterion-related validity was supported by significant correlations between the BI score with the Geriatric Depression Scale ($r=-0.36$, $P<0.001$), Satisfaction with Life Scale ($r=0.23$, $P<0.001$) and Visual Analogue Scale ($r=0.22$, $P<0.001$) (Zhang et al., 2022). Two factors accounting for 73.64% of the total variance were retained in the Exploratory Factor Analysis, and all items loading on the corresponding factor were greater than 0.6 (Zhang et al., 2022).

e) Mini-Mental State Examination (MMSE)

The Mini-Mental State Examination (MMSE), a measure of cognitive mental status, consists of 11 questions and can be completed in 5-10 minutes. The items of the MMSE include tests of orientation (10 points), registration (3 points), attention and calculation(5 points), recall (3 points), language (8 points) and visual construction (1 point) (Folstein, 1975). Correct answers are awarded 1 point, while incorrect or unknown answers receive 0 points. The total scale score ranges from 0 to 30, with higher scores indicating better cognitive performance. MMSE scores of less than 10 indicate severe impairment, 10-20 indicate moderate impairment, 21-24 indicate mild impairment, and scores of 25 and greater are considered within normal limits. The Chinese version of the MMSE demonstrated great

reliability, with a coefficient of 0.99, and good test-retest reliability with a coefficient of 0.90 over a 48-72 hour interval (Zhengyu, Mingyuan, Guangya, Jiangxin, & Jie, 1989). It also showed a significant correlation with other cognitive evaluation instruments, such as the Blessed Dementia Scale and Hasegama's Dementia Scale, as well as measures of living and social function, such as Activities of Daily Living and Pfeffer Outpatient Disability Questionnaire, indicating that it can accurately indicate cognitive impairment (Zhengyu et al., 1989).

f) Social Support Rating Scale (SSRS)

The Social Support Rating Scale (SSRS) was developed to measure an individual's level of social support based on global research and Chinese culture (Shuiyuan, 1987). This 10-item scale encompasses three dimensions: subjective support (4 items), objective support (3 items), and support utilisation (3 items). The specific evaluation criteria were as follows: 22 points or less indicated a low level of support, 23-44 points indicated a medium level of support, and 45-66 points indicated a high level of support. The Cronbach's alpha coefficients of the total scale and subscales were 0.896, 0.849, 0.825, and 0.833, respectively, indicating that the scale has high reliability (Liu, Li, & Lian, 2008). The three dimensions explained 55.84% of the total scale variance, and the correlation coefficients ranged from 0.462 to 0.664, indicating good construct validity (Liu et al., 2008). The correlation coefficients between the total scale and dimensions (0.724 to 0.835) indicated strong content validity (Liu et al., 2008).

6.4 Data Analysis

Data will be analyzed using the SPSS Statistics version 26. Normality testing using the Sphiro-Wilks test will be conducted on all ratio data to determine the suitable statistical test that will be used i.e. either parametric or non-parametric. If the distribution of data shows normal distribution, the Parametric Statistical test will be used, but if the distribution of the data is not normally distributed, the Non-Parametric Statistical test will be used. Significant levels will be considered at an alpha level of 0.05.

7.0 Timeline

The study will take three years to complete. The first ten months will cover the development of the study's conceptual framework, followed by confirmation and ethics approval. Upon receiving ethics approval, questionnaires will be field tested. This process will take about four months to allow further adjustment to the questionnaires (if needed). The next ten months will be dedicated to data collection and analysis. The remaining 12 months will be used to report the findings and write up the thesis.

8.0 Discussion

Currently, the population of China is undergoing an unparalleled and rapid ageing transformation. With the ageing population increasing, there is a reduction in the available workforce, heightened requirements for medical resources, greater stress on social welfare systems, and a heightened burden on care for older adults, which raises various social and economic apprehensions that encompass families, government, and society. Since the ageing process is inevitable, the focus to date has been on facilitating older individuals to successful ageing. While there are theoretical and research grounds for successful ageing among older adults in areas such as physical health, mental health, and social support, there is a lack of robust evidence to demonstrate the extent of the advantages that spirituality can contribute to successful ageing. In particular, it remains uncertain whether older adults with greater spirituality exhibit higher successful ageing.

This study has some limitations. Firstly, the study is cross-sectional, precluding the establishment of causality between variables but identifying associations between them. Our analytical framework aims to investigate the relationship between spirituality and successful ageing. However, in order to determine the presence and direction of causal relationships, it is essential to employ a longitudinal research design. Secondly, the heterogeneity of successful ageing, combined with the absence of consensus on defining or measuring this complex phenomenon, is limitation in our study. Successful ageing is a multi-faceted concept with many dimensions, and the adoption of diverse criteria and measurements by different researchers may result in consistency in the findings across studies. Lastly, we will be sampling from a limited number of community health service centers which are located in selected geographic regions of China.

Nonetheless, the sample design suggests that the results will represent the Xiashan District in Zhanjiang City. Although these locations were selected based on the high population density in Zhanjiang City and the representation of the city's cultural and sociodemographic diversity, it is important to acknowledge that these might only be representative of some Chinese older adults. Other variables that may influence the research outcomes have been incorporated into the demographic data and will be utilised as covariates during the data analyses (e.g. marital status, educational level, and financial stability).

With these considerations in mind, this study will offer insights to families and care administrators on this topic by investigating the relationship between spirituality and successful ageing among older adults. The findings are anticipated to aid older individuals and caregivers in identifying better management practices for older adults. Through a deeper comprehension of their requirements, service providers and governments can initiate services that are more responsive to the successful ageing of those, which may reduce the burden of caregiving and provide a better life for older adults.

6.0 Conclusion& Recommendations

Finally, this paper focuses on the elements contributing to successful ageing among older adults in Guangdong Province, China. This study sheds light on the predictors for successful ageing, offering significant insights for increasing well-being and quality of life in later life. Furthermore, this study adds to the field of gerontology by deepening our understanding of ageing processes and informing strategies for promoting successful ageing in varied cultural contexts.

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Paper Contribution to Related Field of Study

This paper has contributed to successful ageing among older adults.

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