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The Impact of Re-Employment after Retirement on the Health State of Older Adults—Evidence from the CHARLS 2020

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Abstract: In the context of aging, re-employment after retirement is an important form of labor market participation for older adults. However, there is no consensus on the effect of re-employment intensity on the health status of older adults. This study leverages the China Health and Retirement Longitudinal Survey (CHARLS 2020) to classify re-employment motivations and employment types. We utilized the database questionnaire to analyze the heterogeneity in health effects among older adults with different re-employment characteristics. Classified by CHARLS 2020, among the four motivation types of "More Income, Better health, As Workout, Family Issue", those motivated by "More Income" were more likely to have higher work intensity and better self-rated health. Among the three types of employment, "Employed, Self-employed, Non-paid Family Business", self-employed older adults showed significant positive effects of work on health. This study can help us understand the complex health effects of re-employment more comprehensively from a theoretical perspective and thus provide a scientific basis and further recommendations for policy-making in practice.

Keywords: re-employment after retirement; older adults

1. Introduction

Under the dual challenges of accelerated global population aging and increased life expectancy, the adjustment of retirement policies and the development of human resources for older adults have become the core issues for countries to address labor shortages [1]. In the report "Decade of Action for Healthy Aging 2021–2030", the World Health Organization (WHO) pointed out that improving the "functional ability" of older adults is the key path to achieving healthy aging [2]. As one of the fastest-aging countries in the world, China faces the serious challenge of aging before getting rich [3]. Against this backdrop, a small number of older adults choose to continue employment after retirement to meet their diverse needs. Re-employment of older adults is defined as the active participation in social labor by Chinese adults aged 60 and above, who have the willingness and ability to work, to obtain corresponding labor remuneration or profit [4]. There seems to be an intuitive contradiction between work and health in older adults, and this contradiction raises urgent scientific questions: Is re-employment after retirement likely to slow functional decline by maintaining social participation and physical activity? Or does an excessive labor burden exacerbate health risks in the older population?

Existing research suggests inconsistencies in the health effects of post-retirement re-employment among older adults. On a positive note, reworking after retirement allows older adults to increase their social participation, which can be beneficial to health [4–7]. In addition, work can motivate older adults to maintain a certain level of physical activity, which helps to maintain physical health and reduce the risk of chronic diseases, such as

hypertension and diabetes [8,9]. Meanwhile, re-employment allows retired older adults to receive more income, which can enhance physical and mental health in terms of improving quality of life [10–12]. Nevertheless, some studies indicate that re-employment may negatively affect health. Significantly extending working life considerably reduces older adults' subjective well-being [13,14], thereby adversely impacting their mental health, particularly among low–income female groups [15,16].

An important reason for the divergence formed by existing studies on the re-employment of older adults is that the heterogeneity of the re-employment conditions of older adults is ignored [17]. For example, middle-aged and older women face greater re-employment needs and challenges due to greater economic pressures [18]. Some scholars have delineated between active and passive motivations for older adults to re-enter the labor market, and involuntary retirement may have adverse health effects [19]. At the same time, some scholars have separated the concept of "bridge employment" from employment motivation as one of the types of active re-employment [20]. At the same time, studies have found that self-employed older adults have better physical and mental health than those who are retired [21–24]. However, the motivation for re-employment of older adults may also be divided into a variety of factors, and purely active and passive cannot make an effective and reasonable distinction between situations, and the analysis of heterogeneity regarding the motivation for re-employment needs to be further deepened. Therefore, this paper proposes the hypothesis that post-retirement re-employment under different motivations and with different types of employment has different effects on the physical health of older adults.

Against this backdrop, this study leverages data from the China Health and Retirement Longitudinal Study (CHARLS 2020) to further differentiate the motivations and employment types of older adults post-retirement re-employment. This study can help us gain a more comprehensive understanding of the complex effects of re-employment on health, thereby offering a scientific foundation for policy formulation. Additionally, by distinguishing between motivations and employment types, we can more accurately pinpoint the groups likely to benefit from re-employment and those prone to facing greater health risks. This can guide older adults and their families, enabling them to make more informed decisions regarding re-employment.

2. Materials and Methods

2.1. Data Resource

This paper uses data from the China Health and Retirement Longitudinal Study (CHARLS 2020) for statistical analysis. This project is a large-scale, continuous academic survey project under the auspices of the National Development Research Institute of Peking University (NDRI). It focuses on households and individuals of middle-aged and elderly people aged 45 years and above. The sample covers more than 10,000 households in 150 counties and 450 villages. The counties and villages are randomly selected nationwide. Since 2011, probability proportional to size (PPS) sampling methods have been used at both the county and village levels. The data collected includes basic personal information, household structure, and economic support. Follow-up surveys have been conducted every two years.

Prior to each wave of the CHARLS survey, participants are informed about the content and sign an informed consent form, facilitated by interviewers. All survey data are strictly confidential and protected under data security and privacy laws. Additionally, the Biomedical Ethics Committee of Peking University has approved each round of the CHARLS survey (ethical approval number IRB00001052-11015).

2.2. Statistical Methods

We made full use of the panel data structure of CHARLS to define re-employment behavior, i.e., if the employment status is retired in period t and the status is working in period $t + 1$, then the re-employment status is assigned a value of 1 in period $t + 1$; if the employment status is retired in both period t and period $t + 1$, it is assigned a value of 0. For this study, we selected those who chose to re-employ after retirement (No = 561).

We used multivariable regression analysis with Health Status as the outcome.

The dependent variable Health Status is based on the question "What do you think about your health status?", categorized using a five-point scale: very good, good, average, bad, and very bad health. As a subjective indicator, the self-reported health status reflects an individual's judgment of his/her own health status.

The independent variable work intensity is a continuous number reflecting the total number of days worked in the last year.

To eliminate the differences in the magnitude of the independent variable and improve the interpretability and robustness of the model, we normalized work intensity as described in Equation (1).

$$\text{Work Intensity}_{norm} = (\text{Work Intensity} - \text{Work Intensity}_{min})/(\text{Work Intensity}_{max} - \text{Work Intensity}_{min}) \quad (1)$$

Normalization scales the raw values of working days to the range of [0, 1], so that the working days of different individuals can be compared on a uniform scale, thus avoiding model estimation bias caused by differences in the range of values.

First, we used parametric and non-parametric methods as appropriate to explore correlations and univariate associations. To adjust for the effect of personal characteristics on the health status, we included gender, age and type of health insurance as covariates in the multiple regression model. Health Insurance is measured by different categories: "1 = Urban Employee Basic Health Insurance; 2 = Urban and Rural Resident Basic Health Insurance; 3 = Urban Resident Basic Health Insurance; 4 = New Rural Cooperative Medical Care; 5 = Government–funded Medical Care".

The study of the effect of work intensity on health status after re-employment was stratified by work motivation (1 = More Income; 2 = Better Health; 3 = Family Issue; 4 = As workout) and type of employment (1 = under employer; 2 = self-employed; 3 = non-paid family business). We used this strategy to establish heterogeneity as a four-dimensional motivation classification framework based on the CHARLS survey's questionnaire. The question "What is the main reason for starting work?" provides five options, namely: (1) economy-driven (More Income): returning to the labor market to make up for pension shortfalls or family financial pressures; (2) health-promoting (Better Health): slowing down the aging process by working to maintain physical activity and social connections; (3) family responsibilities (Family Issues): involuntary re-employment due to caring for grandchildren or sick relatives; (4) as workout: health management strategies that view low-intensity work as an alternative to physical activity. (5) others. We did not include the fifth generic option in our analysis.

In response to the the question "Is this job about earning a salary to work as an employee, starting an individual business, or not taking a salary to help with a family operation?", we classified "Type of Employment" as it follows: (1) employed: looking for or being rehired by a company; (2) self-employed: self-driven search for a job with a high degree of freedom; (3) family-employed: doing work to help the family (such as babysitting).

3. Results

3.1. Descriptive Statistics

Table 1 presents the descriptive statistical results of the main variables, as well as the relationship between the dependent variable and other variables. The figures in parentheses represent the proportion the number of variables. The results of descriptive statistics indicate that there are no significant differences in the distribution of the variables across the study groups. The last column on the right shows the *p*-values from the analysis of variance (ANOVA) for comparing continuous variables or the chi-square test for categorical variables.

Table 1. Descriptive Statistics for Selected Variables Among the Study Population.

Variables	Self-Reported Health Status						*p*-Value
	Overall (n = 561)	**Very Good (n = 46)**	**Good (n = 123)**	**Average (n = 272)**	**Bad (n = 65)**	**Very Bad (n = 55)**	
Age, Mean (SD)	60.19 (9.08)	61.00 (7.70)	59.50 (8.72)	60.31 (8.99)	59.97 (9.79)	60.03 (8.73)	0.500 [a]
Work Intensity, Mean (SD)	150.85 (122.89)	101.33 (104.70)	131.49 (116.18)	157.67 (127.22)	173.27 (117.43)	156.91 (134.42)	0.753 [a]
Type of Employment, n%							0.790[b]
Under employer	179 (31.91)	8 (17.39)	30 (24.39)	94 (34.56)	23 (35.38)	24 (43.65)	
Self-employed	27 (4.81)	1 (2.17)	6 (4.88)	15 (5.51)	2 (3.08)	3 (5.45)	
Family-employed	47 (8.38)	4 (8.70)	9 (7.32)	22 (8.09)	9 (13.85)	3 (5.45)	
Missing	308(54.90)	33 (71.74)	78 (63.41)	141 (51.84)	31 (47.69)	25 (45.45)	
Health Insurance, n%							0.065[b]
Urban Employee Basic Health Insurance	53 (9.45)	0 (0.00)	6 (4.88)	32 (11.76)	11 (16.92)	4 (7.27)	
Urban and Rural Resident Basic Health Insurance	50 (8.91)	3 (6.52)	13 (10.57)	24 (8.82)	8 (12.32)	2 (3.64)	
Urban Resident Basic Health Insurance	35 (6.24)	2 (4.35)	7 (5.69)	17 (6.25)	4 (6.15)	5 (9.09)	
New Rural Cooperative Medical Care	389 (69.34)	40 (86.96)	94 (76.42)	181 (66.54)	36 (55.38)	38 (69.09)	
Government–funded Medical Care	4 (0.71)	1 (2.17)	0 (0.00)	1 (0.38)	2 (3.08)	0 (0.00)	
Other	30 (5.35)	0 (0.00)	3 (2.44)	17 (6.25)	4 (6.15)	6 (10.91)	
Work Motivation, n%							0.135 [b]
More Income	338 (64.14)	23 (50.00)	77 (62.60)	169 (62.13)	35 (53.85)	34 (61.82)	
Better Health	32 (6.07)	6 (13.04)	8 (6.50)	13 (4.78)	3 (4.62)	2 (3.64)	
Family Issue	37 (7.02)	0 (0.00)	8 (6.50)	21 (7.72)	6 (9.23)	2 (3.64)	
As workout.	48 (9.11)	5 (10.87)	11 (8.94)	22 (8.09)	2 (3.07)	8 (14.55)	
Other	106 (13.66)	12 (26.09)	19 (15.46)	47 (17.28)	19 (29.23)	9 (16.35)	
Gender, n%							0.193[b]
Male	197 (35.18)	18 (39.13)	35 (28.46)	93 (34.19)	26 (40.00)	25 (45.45)	
Female	364 (64.82)	28 (60.87)	88 (71.54)	179 (65.81)	39 (60.00)	30 (54.55)	

Note: [a] Outcome of ANOVA test. [b] Outcome of chi-square test. SD: Standard Deviation.

3.2. Effect Based on Different Work Motivation

Further analyzing the effect of different work motivations on health as shown in Table 2, we observed that work intensity has a significant effect on health under the "more income" work motivation, i.e., the greater the work intensity after retirement, the better the self-reported health status will be. In the case of "family problems" and "as exercise" motivation, work intensity does not have a significant effect on health, with coefficients of 0.388 and −0.055, respectively, suggesting that different motivations for work make a difference in the relationship between work intensity and health status of retired, re-employed elderly adults.

Table 2. The influence of different work motivation and work intensity on the health state of older adults.

Self-Reported Health Status	More Income		Better Health		Family Issue		As Workout	
	β	SE	β	SE	β	SE	β	SE
Constant	2.540	0.507	3.710	1.777	2.885	1.316	4.140	1.151
Work Intensity	−0.362 *	0.173	−0.507	0.650	0.388	0.408	−0.055	0.607
Gender	0.052	0.121	0.445	0.416	0.310	0.304	−0.435	0.435
Age	−0.004	0.007	−0.001	0.024	−0.010	0.009	0.018	0.214
Health Insurance	−0.014	0.056	0.170	0.190	−0.108	0.124	0.230	0.167
Observations	317		32		33		44	
R^2	0.020		0.071		0.120		0.079	

Note: * $p = 0.019$. SE, standard error.

3.3. Effect Based on Different Employment Types

Table 3 shows the effect of post-retirement work on the health status of re-employed elderly adults by different types of employment. The results showed that, in the employed status, the number of days of work had no significant effect on health status, and the explanatory power of the model was low ($R^2 = 0.0233$). In the self-employed status, work intensity and self-reported health were significantly inversely correlated ($p = 0.013$), indicating that continuing to work after retirement in the self-employed status has a positive effect on health.

Table 3. The influence of different employment types work intensity on the health state of older adults.

Self-Reported Health Status	Under Employer		Self-Employed		Non-Paid Family Business	
	β	SE	β	SE	β	SE
Constant	3.611	0.673	1.720	1.647	3.568	1.638
Work Intensity	−0.158	0.223	−1.275 *	0.571	0.247	0.490
Gender	0.177	0.156	0.128	0.410	0.578	0.331
Age	0.001	0.009	−0.001	0.220	−0.135	0.022
Health Insurance	0.076	0.670	−0.229	0.175	0.123	0.131
Observations	182		26		45	
R^2	0.023		0.263		0.125	

Note: * $p = 0.013$. SE, standard error.

4. Discussion

This study enriches the research on factors influencing the physical health of re-employed older adults by establishing a theoretical framework that differentiates between motivational perspectives and employment types. On the basis of four types of motivation, namely, economic drive, health promotion, family responsibility, and alternative exercise, matched with employed, self-employed, and family-employed employment patterns, our study suggests that health outcomes are dependent on the motivation of employment rather than employment status alone. Economically driven re-employment was significantly and positively associated with self-rated health, verifying the theoretical hypothesis that different types of motivation will have different impacts on physical health. Regarding employment type, self-employment showed a greater positive impact on elderly adults' health. This may be because self-employed individuals transitioning from unemployment to employment tend to have higher life satisfaction and well-being, leading to health status heterogeneity [25].

Based on the results of this study, many recommendations can be made at the practical level. First, the government can differentiate policy design based on the findings related to the re-employment of retired elderly adults. The economically driven group of re-employed elderly adults requires targeted occupational health protection, as they are more likely to perform manual labor. For example, mandatory disease screening can reduce

the risk of physical illness associated with labor-intensive work. For the health-promoting group, "work-exercise" integration positions (e.g., community gardening management) should be developed to achieve healthy aging goals.

Second, there is a need to further improve the retirement process. Research findings suggest that health-driven employment has negligible health benefits, which may imply that the current labor market fails to integrate job characteristics with the health goals of older adults. Policymakers should encourage employers to create flexible, skill-matched roles (e.g., part-time counseling, part-time seminar training), and to treat "transitional employment" as a smooth transition rather than a financial imposition.

Third, re-employment driven by family responsibilities, which means intergenerational parenting and care, seems to exert economic pressure on the elderly, who might be forced into involuntary employment by traditional family values and intergenerational care responsibilities. Government policies to conduct relevant childcare subsidies and reduce involuntary employment caused by kinship care can shift older people to voluntary participation, potentially reversing the decline in the subjective well-being of the elderly population.

There are many shortcomings in this study. This was a cross-sectional study, which exposed the possibility of reverse causation. In other words, we cannot exclude that subjects who continued working as self-employed after retirement did so thanks to the good health status they enjoyed, instead of their health benefiting from continuing work. However, if so, we would have expected the same association among those who kept working under an employer or those who did so for health purposes, while this was not the case. Future prospective studies following up on subjects in good health after retirement by whether self re-employed or not would help clarify the nature of the observed association. Incorporating biomarkers (e.g., cortisol levels) would also provide objective support for the impact of different motivation types on physical health. Besides, while the CHARLS data ensured national representation, self-reported health may introduce bias. Additionally, the lack of significant results in those re-employed hoping to preserve health through continuing physical activity warrants continued exploration in the future, considering the possibility of gaps prior to motivation and current work or small sample sizes.

5. Conclusions

Based on data from the 2020 China Health and Retirement Longitudinal Survey, this paper delves into the impact of re-employment after retirement on the health status of elderly adults. The findings suggest significant motivational heterogeneity in the impact of re-employment after retirement on the health of older adults. In addition, the number of days worked in the self-employed status had a significant positive effect on health, whereas the effects in the employed and home-worked statuses were not significant. If confirmed, the findings of this paper can provide directions for subsequent policy making and theoretical research on the aging population.

Author Contributions

Y.P.: conceptualization, methodology, writing—original draft preparation; T.W.: data curation, software; J.D.: visualization, investigation; T.Y.: supervision; Y.W.: software, validation; W.D.: writing—reviewing and editing. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

All rounds of the CHARLS surveys have been approved by the Biomedical Ethics Committee of Peking University. The fieldwork protocol for the current round of household questionnaire survey was approved under the approval number: IRB00001052-11015. Data users who require this approval for publication should contact the project team at charls_info@pku.edu.cn with specific information about their needs. During the fieldwork, each respondent who agreed to participate in the survey was asked to sign two informed consent forms. One copy was kept by the respondent and the other was stored in the CHARLS office and scanned in PDF format.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data supporting this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that we have no financial interest in publishing this study, and no conflict of interest to declare that is relevant to the content of this article.

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