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The effect of social support on the subjective well-being of the elderly in the post-epidemic era: A chain mediation model

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Abstract: *This study was conducted to investigate the influence of perceived social support on subjective well-being and its relationship with meaning in life and resilience among elderly population in China. The Social Support Scale, the 10-item Connor-Davidson Resilience Scale, the Meaning in Life Questionnaire, and the Memorial University of Newfoundland Scale of Happiness were employed. A total of 308 valid questionnaires were collected with a response rate of 100%. The data were analysed using SPSS 27.0. The results were as follows: (1) There were no significant differences in perceived social support, meaning in life, resilience, and subjective well-being by gender. However, significant differences were found in place of origin (urban/rural), socioeconomic status, educational level, marital status, and COVID-19 infection status; (2) Perceived social support, meaning in life, and resilience were positively and significantly correlated with subjective well-being; (3) Meaning in life and resilience mediated the relationship between perceived social support and subjective well-being. Overall, the subjective well-being of the elderly participants was in the medium to high range. Improving perceived social support, meaning in life, and resilience may enhance the well-being of elderly population in the aftermath of major crises such as epidemics.*

Keywords: *Social Support, Resilience, Meaning in Life, Subjective Well-being, The Elderly*

1. Introduction

China entered into senescence after 2000 and has the largest elderly population and the highest aging rate in the world. During the COVID-19 pandemic and even in the post-pandemic era, health issues in the elderly population are still rising rapidly. Even though the virus has been weakened, the declining health condition of the elderly renders them subject to relatively serious threats of underlying diseases and complications. There is also a possibility of another round of outbreaks or new types of epidemics, posing new threats to the health of the elderly.

Social support refers to factors that positively influence individuals through specific supportive behaviours such as emotional and material support (Xiao, 1987). Subjective well-being encompasses subjective emotional experience (positive and negative emotions) and cognitive evaluation (life satisfaction) of quality of life (Diener & Ryan, 2009). According to Hedlund (1977), meaning in life represents individuals' perception of their state of existence, which can provide a sense of strength and value for survival. Kathleen (2004) considers resilience as the process by which individuals faced with adversity quickly relieve stress and restore equilibrium by maintaining an optimistic mindset and taking constructive action. Social support is a complex and multifaceted concept that plays a crucial role in promoting psychological health and well-being.

The present study aimed to investigate perceived social support and subjective well-being among elderly population during the COVID-19 pandemic and, by analogy, the extent to which the elderly can access social support when encountering other major crises. The study also aimed to explore intervention strategies to enhance the well-being of elderly population. Numerous studies have explored the relationship between perceived social support and subjective well-being among specific populations, such as elderly individuals living alone (Gao, 2022), rural teachers (Liu & Liu, 2023), elderly primiparas (Liu, Wang, & Zhao, 2022), college students, and high school students. Research on various elderly populations has surged in recent years. Most studies have focused on mechanisms of

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influence or strategies to promote well-being of specific groups. However, less attention has been devoted to perceived social support and subjective well-being during critical periods or in the face of major events.

The present study aimed to examine the impact of perceived social support on subjective well-being among elderly population after the COVID-19 pandemic and explore the mediating roles of resilience and meaning in life.

2. Methodology

2.1. Participants

Within this research, aged individuals exceeding 60 years of age were selected to complete the questionnaire in China. Given certain impediments for the aged to address the questionnaire, the researcher proffered elucidations to the aged or entrusted their progeny to read and prompt them to complete the questionnaire. An aggregate of 308 questionnaires were assimilated ultimately. Amongst them, 136 were male and 172 were female; 97 inhabited rural localities and 211 inhabited towns; the mean age was 66.5. 26 had education below elementary level, 103 had elementary education, 60 had middle school education, 63 had high school or vocational secondary education, and 56 had college education or above. There were 240 individuals retired and idle at home, 31 individuals still gainfully employed, and 37 individuals otherwise (e.g., engaged in self-sufficient trading, etc.). There were 217 subjects who were infected and retrieved subsequent to the alleviation of the pandemic, 15 who were in the progression of being positive, and 76 who were not infected. The survey of the infected population (encompassing those who had recuperated from the infection and those who were in the progression of infection) disclosed that 104 had a pharmaceutical shortage at the moment of infection, nearly half (100) had grave complications subsequent to the infection, 65 were hospitalized during the period of infection, and only 82 were less fearful or completely fearless of reinfection. 271 of the subjects selected to age at home, 20 in the community and 17 in the institution; the primary origin of quotidian funding was relying on children's provision and pensions, followed by relying on governmental subsidies, or relying on spouses, self-employment, dividends and other means (23).

2.2. Questionnaire survey method

The study utilized several well-established scales to measure different aspects of well-being among elderly participants. The Meaning in Life Questionnaire (MLQ) (Steger et al., 2006) assessed the presence and search for meaning in life, with higher scores indicating greater meaning (Cronbach’s alpha 0.850). The Social Support Revalued Scale (SSRS) (Xiao et al., 1994) measured perceived social support, enacted social support, and social support utilization (Cronbach’s alpha 0.811). The 10-item Connor-Davidson Resilience Scale (CD-RISC-10) (Connor & Davidson, 2003) evaluated resilience (Cronbach’s alpha 0.916), while the Memorial University of Newfoundland scale of happiness (MUNSH) (Qiu et al., 2008) quantified overall well-being based on positive and negative affect and experiences (Cronbach’s alpha 0.889). These scales demonstrated strong reliability and validity in the study sample.

3. Results

3.1. Test of common method deviation

Within this research, all data were obtained by self-appraisal, and there is a possibility that common method distortion subsists and influences the consequences of the research. Consequently, the Harman one-way trial was utilized to evaluate for prospective common method distortion in the research. The outcomes demonstrated that the variance explicated by the initial factor without rotation was 22.25%, which was inferior to the critical value of 40%, indicating that there was no grave common method distortion.

3.2. Descriptive statistics of the main variables

As exhibited in Table 1, the social support and subjective well-being of the aged in this research are generally at a moderate to intensified level (Jiang & Zhang, 2015; Shu, 2022).

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Table 1: Descriptive statistics of the main variables (N=308)

	M	*SD*
social support	39.160	8.290
meaning in life	45.000	11.090
resilience	36.198	7.117
subjective well-being	33.770	13.170

3.3. Differences in main variables on source, infection status, presence of complications, and hospitalization status

Table 2: Table of analysis of differences in the main variables across source locations (urban/rural) (N=308)

	Rural (*M*±*SD*, *n*=97)	Urban (*M*±*SD*, *n*=211)	*t*	*p*
meaning in life	41.217±12.276	46.739±10.064	-3.873	0.000
social support	37.072±8.899	40.123±7.837	-2.899	0.004
resilience	33.464±7.595	37.455±6.529	-4.471	0.000
subjective well-being	29.773±14.414	35.602±12.159	-3.457	0.001

As exhibited in Table 2, there was a substantial discrepancy ($p < 0.001$) in the gradations of meaning in life by origin (urban/rural), with urban subjects having a substantially intensified meaning in life; there was also a substantial discrepancy ($p < 0.01$) in social support between urban and rural localities, with urban subjects having a substantially intensified gradation of social support; there was a substantial discrepancy ($p < 0.001$) in resilience between urban and rural localities, with urban subjects having a substantially intensified gradation; there was a substantial discrepancy in subjective well-being between urban and rural localities ($p < 0.01$), with urban subjects having substantially intensified subjective well-being gradations.

Table 3: Table of analysis of differences in the main variables on whether the subjects were infected with COVID-19 (N=308)

	Infected (*M*±*SD*, *n*=232)	Uninfected (*M*±*SD*, *n*=76)	*t*	*p*
meaning in life	44.664±11.519	46.026±9.666	-1.015	0.312
social support	39.147±8.832	39.211±6.432	-0.068	0.946
resilience	35.664±7.553	37.829±5.295	-2.761	0.006
subjective well-being	32.642±13.637	37.197±11.015	-2.941	0.004

As can be perceived from Table 3, there was no substantial discrepancy in the sense meaning in life and social support on whether they were infected, and there was a substantial discrepancy in resilience on whether they were infected ($p < 0.01$), which was intensified in the aged subjects who had never been infected; there was a substantial discrepancy in subjective well-being on whether they were infected ($p < 0.01$), which was substantially intensified in the aged subjects who had never been infected with COVID-19.

Table 4: Table of analysis of variance of main variables on whether the subjects developed complications (N=232)

	With complications (*M*±*SD*, *n*=100)	Without complications (*M*±*SD*, *n*=132)	t	*p*
meaning in life	42.360±12.800	46.409±10.150	-2.603	0.010
social support	38.180±9.605	39.879±8.159	-1.422	0.157
resilience	33.310±7.467	37.447±7.143	-4.258	0.000
subjective well-being	30.130±14.683	34.546±12.512	-2.415	0.017

For the infected population, it was further investigated whether the aged had more grave complications subsequent to infection with COVID-19. As exhibited in Table 4, there was a substantial discrepancy in the meaning in life on whether the aged developed complications subsequent to infection with COVID-19 ($p < 0.05$); there was no substantial discrepancy in social support on whether they developed complications; there was a substantial discrepancy in psychological resilience and subjective well-being on whether they developed complications ($p < 0.001$; $p < 0.05$), and the aged who developed complications had substantially intensified meaning in life, resilience and subjective well-being gradations.

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Table 5: Table of analysis of variance of main variables on whether the subjects were hospitalized (N=308)

	Hospitalized (*M*±*SD*, *n*=232)	non-hospitalized (*M*±*SD*, *n*=76)	*t*	*p*
meaning in life	40.123±13.171	46.431±10.322	-3.469	0.001
social support	35.554±10.334	40.545±7.768	-3.526	0.001
resilience	31.323±8.374	37.353±6.488	-5.227	0.000
subjective well-being	25.585±15.537	35.389±11.774	-4.599	0.000

According to the consequences of the analysis (perceive Table 5), there were substantial discrepancies in the meaning in life, social support, resilience, and subjective well-being with regard to whether they were hospitalized ($p < 0.01$; $p < 0.01$; $p < 0.001$; $p < 0.001$), and the hospitalized aged had an inferior meaning in life, resilience, social support, and subjective well-being than the non-hospitalized aged.

3.4. Correlation analysis between the main variables

Table 6: Table of correlation analysis of main variables (N=308)

	1	2	3	4
social support	1			
meaning in life	0.612**	1		
subjective well-being	0.670**	0.618**	1	
resilience	0.567**	0.618**	0.723**	1
*Note:*p < 0 .05,**p < 0 .01,***p < 0 .001*				

The consequences of the correlation analysis demonstrated (perceive Table 6) that there was a substantial positive correlation between social support, meaning in life, resilience and subjective well-being ($p < 0.01$).

3.5. Analysis of chain intermediary effects

Table 7: Social support and Subjective well-being: mediating effect analysis & model fitting (N=308)

Dependent variable	Independent variable	R^2	*F*	*β*	*t*	*p*
SW	SS	0.632	174.336***	0.330	7.145	<0.001
	MIL			0.137	2.826	0.005
	R			0.452	9.738	<0.001
R	SS	0.439	119.174***	0.303	50.576	<0.001
	MIL			0.432	7.968	<0.001
MIL	SS	0.375	183.524***	0.612	13.547	<0.001
Abbreviation: SS, Social Support; MIL, Meaning in Life; R, Resilience; SW, Subjective Well-being						

The SPSS macro program PROCESS, prepared by Hayes, was utilized to test the chain mediating role of meaning in life and resilience in social support and subjective well-being by selecting model 6 and repeating the sample 5,000 times and calculating 95% CI. The outcomes are exhibited in Table 7. All paths were substantial, and the chain mediating role of meaning in life and resilience between social support and subjective well-being was established.

Table 8: Social support and Subjective well-being: Significance test of mediating effect & effect size (N=308)

	Effect	Bootstrap SE	Bootstrap 95% CI		effect size%
			Low	High	
Direct Effect: SS→SW	0.330	0.046	0.239	0.421	49.254%
SS→MIL→SW	0.084	0.035	0.017	0.156	12.537%
SS→R→SW	0.137	0.031	0.078	0.201	20.448%
SS→MIL→R→SW	0.120	0.023	0.078	0.168	17.910%
Total Indirect Effect	0.340	0.041	0.260	0.421	50.746%
Total Effect	0.670	0.042	0.586	0.754	100%
Abbreviation: SS, Social Support; MIL, Meaning in Life; R, Resilience; SW, Subjective Well-being					

From the table 8, the direct consequence of X on Y is 0.330 with a confidence interval of [0.239, 0.421]. Furthermore, X had a substantial indirect consequence on Y with a consequence value of 0.340

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and a confidence interval of [0.260, 0.421]; where the consequence value obtained with M1 as the mediating variable was 0.084 and a confidence interval of [0.017, 0.156]; The consequence value obtained with M2 as the mediating variable was 0.137 with a confidence interval of [0.078, 0.201]; the consequence value obtained with both M1 and M2 as chain mediators was 0.120 with a confidence interval of [0.078, 0.168], and the consequence sizes for the three mediated paths were 12.537%, 20.448% and 17.910% respectively. The consequence values for each model were within the confidence interval and the confidence interval did not contain 0. All three indirect consequences reached a substantial level.

4. Discussion

Social support and subjective well-being both contain strong subjective overtones, relying primarily on perceived resources and information provided by the outside world, or on one's own state of being to make psychological evaluations. By analyzing the consequences of the discrepancy comparison, we found that social support positively predicted subjective well-being, which is consistent with previous research (Jiang, 2022).

The outcomes indicate that the chain mediating role of meaning in life and resilience between social support and subjective well-being of the aged holds true. We should pay more attention to the social support system of the aged population and create a favorable societal environment for them. It is more important to provide social support than to receive it. At the same time, through guidance and publicity, we should strengthen the aged's active seeking of social support and the degree of utilization of social support (Ma, 2007). Ameliorated resilience increases subjective well-being, and positive emotions and confidence in the future are protective factors for well-being (Donizzetti & Capone, 2023). Resilience is effectual in alleviating ageism, loneliness and depression and improving mental health (Ribeiro-Gonçalves, Costa, & Leal, 2023), and we can consider interventions to improve subjective well-being in the aged through this factor.

In the basic demographic survey, we found that the number of aged people with primary education is quite high, most of them are retired and idle, while most of them choose to age at home and the proportion of aging in institutions and in societal care agency is very low. About 75% of the aged were newly infected after the lifting of the pandemic and nearly half of them suffered from a shortage of medication, even though nearly half of them had serious complications, nearly a third were hospitalized during the infection and 65% were relatively afraid of re-infection. The aged are dependent on their children and pensions for their financial resources, with very few being subsidized by the government and still earning a living. Economic status, physical condition, literacy level, marital status, work status, and urban and rural origin remain important influences on the social support and well-being of the aged. In a survey of aged people in Zigong, Zhao (2022) also found significant differences in their subjective well-being status in terms of income level as well as literacy. In a research survey in 2021, it was also found that 86.4% of the retired aged in Changchun were relatively satisfied with their retirement life, and that they generally had a stable income, more adequate social support and medical coverage (Yang & Wang, 2021). All are generally consistent with the findings of this study.

Social support, happiness, meaning in life and resilience are significantly lower among the aged in rural areas. We should give more attention and support to the aged in rural areas to enhance their life in old age. Guiding rural aged people to participate in more leisure and recreational activities can significantly alleviate the negative effects of the intensity of labor participation and improve the level of well-being (Nie & Wu, 2021).

This study collected fewer questionnaires for aged subjects from Hong Kong, Macau and Taiwan, institutional and societal retirement, and the number of subjects can be expanded in subsequent studies to compare the differences between inside and outside the mainland of China; new and emerging forms of retirement, such as tourism, should be added to the survey of retirement methods and measured, but the number of aged people who retire through tourism may be relatively small and difficult to find; community activities and institutional activities that enhance resilience and meaning in life can be designed and measured before and after to examine their role in enhancing the well-being of the aged, as well as other positive effects.

5. Conclusions

The research variables have different degrees of differences in economic status, education level,

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work status, marital status, place of origin and whether they had been infected with COVID-19 and had serious complications or hospitalization as a result, but the gender difference is not significant; There is a significant positive correlation between all variables; The chain mediated effect of meaning in life and resilience is established.

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