Analysis of the Impact of Interpersonal Interactions on the Mental Health of Older People

--Life Satisfaction as a Measure

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Abstract: An essential indicator of the psychological well-being of older adults is their life satisfaction. This paper examines the effect of interpersonal interactions on the psychological well-being of older adults. Life satisfaction is used as a mediator. The following conclusions were drawn life satisfaction was significantly and positively related to psychological well-being, and interacting with children and social interactions were positively associated with older adults' life satisfaction. Negative marital status, including being unmarried and widowed, is detrimental to older adults' life satisfaction, while the effects of divorce and marriage are not statistically significant. Older adults' life satisfaction was negatively associated with the frequency of internet use.

Keywords: older adults, mental health, life satisfaction, interpersonal interactions

1. Introduction

Population ageing has become one of China's most critical social issues. As early as the turn of the century, data from the fifth national census in 2000 showed that the Chinese mainland was gradually entering an ageing society. And in 2020, the total number of people aged 60 and over in China had increased by 103.15% to 264 million by the time of the seventh census compared to 2000. This is an increase of about 5.44% from 2010, accounting for 18.7% of the country's population. People over 65 also reached 190 million, accounting for about 13.5 per cent of the country's population. There are 16 out of 31 counties with more than five million senior citizens and six with more than 10 million. In this context, the old-age dependency ratio in China reached 19.7 per cent, an increase of 7.8 per cent compared with 2010. This means that, on average, about one in five young people is expected to support an older adult.[1]

In general, the current ageing in China is marked by: a substantial elderly population, a marked acceleration in the ageing process, and a significantly higher rate of ageing in the countryside than in the cities. All these figures indicate that China is entering a period of rapid ageing, and the number of older adults is expected to continue rising, reaching 300 million by the 14th 5-year plan. Until then,

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[1] National Bureau of Statistics of the People's Republic of China, (2001), https://www.eliresearch.org/paper/confirm.html?id=ICGPSH_0127&token=dd96a2e5-046d-4d36-9f90-bc00a34e03cf

various social issues concerning older people will arise. Research on older people has received much attention and continues to develop.Of the many problems that have been studied relating to older adults, most have an explicit or implicit focus on their mental health. The study of physical illness in ancient people from a medical point of view, the study of feelings of loneliness and access in older adults from a psychosocial point of view, or the study of care and support relationships between older adults and their children and spouses from a differential social relations point of view, are all ultimately related to the satisfaction of older adults in later life. Undoubtedly, changes in these factors have a greater or lesser impact on older adults' psychological well-being and, thus, their life experience in old age [1]. The importance of research on ageing lies in its human dimension. This can only be emphasised if it is fundamentally based on the living conditions of older adults.

Satisfaction with life, on the other hand, is an essential indicator of mental health. Low life satisfaction often directly reflects the problems and difficulties older adults experience. And the systemic and structural issues among them can become obvious social problems. Simultaneously, low life satisfaction can cause direct or indirect harm. It can lead to depression, suicide, and other physical or mental health problems. Therefore, this study investigates the impact of older adults' interpersonal behaviour on their life satisfaction and the mechanisms of both. Hopefully, this study will lead to a deeper understanding of older adults' life satisfaction and help develop ideas for improving their lives.

Moreover, a deeper understanding of issues related to the ageing population will also help improve the Chinese people's overall well-being and contribute to society's stability and sustainable development. Theoretically, research on older adults' life satisfaction and psychological well-being has already reached a particular scale and produced some excellent results. This study also hopes to open a dialogue with these studies to review and improve the theory and findings in this field.

2. Literature Review

Using CLASS data, life satisfaction was significantly associated with psychological well-being when life satisfaction was used as a mediating variable [1]. A study of the relationship between life satisfaction and mental health among dropouts also showed that life satisfaction scores were negatively associated with mental health scores (the higher the mental health score, the greater the propensity for mental subhealth/disease) [2]. Liu, S. Xiang, Sun, and Du (2020) also showed that mental health was significantly correlated with life satisfaction [3].

Life satisfaction has long been taken seriously in ageing research as an essential indicator of the population's quality of life. In related research areas, life satisfaction and well-being are two concepts in everyday use. Some scholars have defined the concepts in terms of life satisfaction being an evaluative dimension of subjective well-being [4]. The other two dimensions are positive and negative affect, i.e., positive and negative feelings. However, the author believes positive and negative emotions can influence people's feelings. If a person is always in a negative emotional state, their life satisfaction will have a certain amount of impact.

On the other hand, at a theoretical level, the distinction between life satisfaction and subjective well-being is unclear, and it isn't easy to distinguish between them. If a concept is to be formulated and created, it should have a meaning that the other image cannot convey. If not, the idea needs not to be developed and produced. A similar problem arises when distinguishing between life satisfaction and subjective well-being [5]. Many researchers choose between the two concepts because of the wording of similar questions in questionnaires - i.e. use emotional well-being when the question is about happiness and write life satisfaction when the question is about satisfaction - or follow previous research and use the appropriate concept. And this takes the issue of concept use to a deeper level, the relationship between the lifeworld and the scientific world. True, the world of life is the basis of the world of science [6].

The concepts used in academic research, especially qualitative research, follow and approximate those of everyday life to avoid loss of meaning, mixing, and distortion. However, many concepts in the lifeworld could be more specific. They are mixed and confused. In this case, using such ideas brings the ambiguity of everyday language into science [7]. This study will review both concepts in the literature review, as subjective well-being and competent life satisfaction are somewhat related.

Comprehensive research on the subjective well-being or life satisfaction of older adults is mainly to be found in early-stage research. Such studies tend to be exploratory, finding, listing, and analysing relevant factors as far as possible but need more depth. Through correlation and regression analysis, Xu Huilan concluded in her study that the life satisfaction of older people was significantly influenced by occupation, marriage, income, economic status, housing status, family relationships, ability to perform daily living activities, self-perceived health, and mental level. Using multiple regression analysis, Xiang Manjun, Wu Xiaoguang, and Liu Xianghong examined the factors influencing the satisfaction of Beijing's elderly in eight life domains and identified 17 significant factors. The five factors with the strongest correlations were self-rated health, family harmony, financial satisfaction, psychological state, and education level. The quantitative study by Liu Rengang and Gong Yao Xian examined nine factors in terms of their influence on the subjective well-being of older adults [8]. It concluded that personality was the most critical factor influencing the emotional well-being of older adults. Tang, Dan et al. also examined the factors influencing subjective well-being. The conclusions they came instead to emphasise social support, health status, and self-efficacy.

The above studies are based on direct analysis of survey interview data, and the factors identified cover all aspects of ageing. In contrast, the study by Ren et al. used a meta-analysis to analyse and synthesise the existing literature to arrive at more definitive determinants. They concluded that correlates of demographic variables were poor predictors of subjective well-being, whereas social support, coping styles, and personality were stronger predictors. This conclusion differs from many previous studies, firstly in terms of methodology, using a meta-analytic approach. Second, the demographic factors rejected by the results of this study, like gender and marital status, have reliable explanatory power in theory and prior research. However, a synthesis by several scholars shows that the influential role of factors such as family ties and marital status has been confirmed in previous studies. Still, their possible complex interactions with other factors may lead to biased results.

As the body of research on life satisfaction and subjective well-being of older people continues to grow, scholars have begun to explore its depth beyond the breadth of impact. More and more analyses involving mechanistic analyses of the effects of individual factors have emerged as a result. For example, Feng Xiaoli examines the effects and mechanisms of financial income and marital status on elderly satisfaction. Other influential factors, such as social support and psychological level, have also been analysed. In recent years, the number of older adults using the Internet has increased with the rise of the Internet.

Consequently, several studies have been conducted on Internet use as an influencing factor. A survey by Sally Jiang and Zonghai Chen concluded that Internet use increases subjective well-being among older adults. The study by Du Peng and Wang Bin also came to a similar conclusion and also focused on the mechanisms of influence.

While many studies have shown that interpersonal relationships affect subjective well-being and life satisfaction in older people, few studies have examined this in detail. The social interactions studied by Chu Qi can be counted as part of interpersonal interactions but exclude the influence of couple interactions accompanying marital relationships and the relatively open interpersonal interactions in cyberspace brought about by modern Internet technology. Therefore, the present study aims to shed light on the effects and mechanisms of interpersonal interactions broadly on the subjective life satisfaction of older adults. It also hypothesises that H0, the frequency of interpersonal interactions, is positively related to the personal life satisfaction of older people. To test this

hypothesis, four hypotheses have to be taken into account: H1, poor marital status affects the life satisfaction of older persons; H2, the quality of interactions with children is positively related to the life satisfaction of older persons; H3, social interactions are positively associated with the life satisfaction of older persons; and H4, Internet use is positively related to the life satisfaction of older persons.

3. Research Methodology

3.1. Data Sources

The data for this study were obtained from the data related to the China General Social Survey 2017 (hereafter referred to as the CGSS 2017). These data collected 11,582 valid samples in total. Based on previous studies, the category of older adults in this paper is defined as Chinese citizens 60 years of age and above. After the screening process, 1,444 valid samples were obtained for this study.

3.2. Measurement of Variables and Their Treatment

Life satisfaction was the dependent variable in this study. The author used question C-33 (Overall, how satisfied are you with your current overall life situation?) from the CGSS 2017 questionnaire as the outcome of its measurement. In the questionnaire, there are eight possible answers to this question: "Completely satisfied", "Very satisfied", "Somewhat satisfied", "It does not matter whether you are satisfied or not", "Satisfied", "Satisfied", and "Satisfied". Satisfied, somewhat dissatisfied, very dissatisfied, totally unhappy, and unable to choose. The author set 'unable to choose' as missing and converted the remaining responses into continuous variables by assigning 7 to completely satisfied and 1 to wholly dissatisfied.

Interpersonal interactions are the core objective of this study, and they have four main dimensions, thus breaking them down into four independent variables. Firstly, the author's interpersonal interactions consist of two main aspects: intra-family interpersonal interactions, which are related to kinship relations and are closely related to daily life, and for older people, these interactions are mainly found in marital and child relationships. This includes real-life interactions and relationships with friends, neighbours, and others and those established in cyberspace. The author believes the two have very different characteristics and cannot be substituted for each other, with the former as offline communication being embodied and the quality of its interaction information often higher. This is because, in face-to-face interactions, people can capture much information beyond words, such as expressions and tone of voice. At the same time, it is easier for both parties to create shared memories in the same space. Online interactions, however, have a broader scope and are more accessible as a medium, allowing older adults to develop relationships according to their aspirations and initiatives. This paper divides interpersonal interactions into four independent variables: 'marital status', 'relationship with children', 'frequency of social interaction', and 'frequency of internet use'. The four independent variables are 'marital status', 'relationship with children', 'frequency of social interaction', and 'frequency of internet use'. For "marital status", the question it used was questioned a69 (What is your current marital status?).

The question was based on question a69 (What is your current marital status?). The answers to this question were as follows: "unmarried", "cohabiting", "first married with a spouse", "remarried with a spouse", and "separated but not divorced". The question was answered as follows: "unmarried", "cohabiting", "spouse from first marriage", "spouse from second marriage", "separated but not divorced", "divorced", and "widowed". The author considers this classification redundant and has combined them into four categories. "Unmarried" is one category. Cohabitation" can be regarded as a de facto marriage and therefore can be classified as "married" together with "first married with a spouse" and "remarried with a spouse". The same applies to "separated without divorce". Similarly,

"separation without divorce" can be considered as a de facto divorce and therefore can be classified as a "divorce" together with "divorce". Finally, "widowed" is classified as a separate category. After this treatment, the author converts all four types into dummy variables to facilitate the construction of the model. The variable 'relationship with children' was measured using question v951 (Thinking about the adult child with whom you have the most contact, how often do you contact them?). The responses to this question were divided into eight items, from "every day" to "never", and two specific things, "The adult child it have the most contact with lives with me" and "No children". There were also two options: "No children" and "No children". The former was considered higher than "every day", while the latter was lower than "never". Therefore, after ranking them, they were given a score of 10 to 1 according to their degree. "Don't know" and "Refused to answer" were classified as missing values. The "frequency of social interaction" was measured by question a311 (In the past year, did you often do the following in your free time?). The five responses were scored on a scale of 5 to 1 according to their frequency, with "don't know" and "refused to answer" classified as missing values. "Frequency of Internet use was measured by question a285 ([5 Internet (including mobile phone access)] In the past year, how much did you use the following media:). The author still assigns a score of 5 to 1 according to frequency, with "don't know" and "refused to answer" classified as missing values.

The paper also sets several control variables, including 'gender', 'education', 'age', 'physical and mental health' and 'status'. "and 'status'. These variables have largely been shown in previous studies to have a significant impact and association with older adults' life satisfaction and therefore need to be controlled to analyse the effect of interpersonal interaction on the dependent variables. For 'gender' and 'age', the demographic data from the questionnaire were used directly. The item 'education' was adjusted to some extent according to question a7a (what is your current highest level of education). I have combined vocational and high school, secondary and technical school, university college (adult higher education) and university college (formal higher education), university bachelor's degree (adult higher education) and university bachelor's degree (formal higher education) according to the number of years of education, treating "other" as a missing value and leaving the rest of the responses as they were. This resulted in nine categories, which were assigned a score of 9 to 1 from highest to lowest. The "physical and mental health" item was based on question c30 (in general, do you feel that your health is good (both physical and mental))? The author used the response "unable to choose" as the missing value and assigned the remaining five levels a score of 5 to 1, depending on the level. Similarly, "status" was measured by question a43e (in general, your socio-economic status in the current society). The author classifies "don't know" and "refused to answer" as missing values and assigns the remaining five options a score of 5 to 1, in descending order.

3.3. Research Methodology

In this study, the SPSS 26.0 software was used to carry out Pearson correlation analysis and multi-layer linear regression analysis, and five models were developed through multi-layer linear regression to provide a detailed analysis of the role of each variable.

4. Results of Data Analysis

4.1. Correlation Analysis

Table 1: Relevance.

		satisfaction level	status	educational attainment	(a person's) age	distinguishing between the sexes	wellness	Frequency of network use	social frequency	Child contact	Unmarried or not	Married or not	Divorced or not	Widowed or not
Pearson Correlation	satisfaction level	1.000	.315	.140	.072	.022	.346	.048	.087	.175	-.119	.103	-.020	-.064
	status	.315	1.000	.290	.034	-.022	.276	.178	.058	.130	-.055	.038	-.005	-.021
	educational attainment	.140	.290	1.000	-.081	-.199	.189	.489	-.053	.106	-.051	.137	.080	-.158
	(a person's) age	.072	.034	-.081	1.000	.036	-.046	-.180	-.046	.047	-.027	-.326	-.022	.360
	distinguishing between the sexes	.022	-.022	-.199	.036	1.000	-.100	-.084	.059	.066	-.051	-.135	-.027	.168
	wellness	.346	.276	.189	-.046	-.100	1.000	.163	.107	.096	-.016	.049	.053	-.065
	Frequency of network use	.048	.178	.489	-.180	-.084	.163	1.000	.028	.097	-.018	.120	.056	-.141
	social frequency	.087	.058	-.053	-.046	.059	.107	.028	1.000	.039	-.042	-.018	.037	.019
	Child contact	.175	.130	.106	.047	.066	.096	.097	.039	1.000	-.390	.081	-.073	.061
	Unmarried or not	-.119	-.055	-.051	-.027	-.051	-.016	-.018	-.042	-.390	1.000	-.217	-.020	-.073
	Married or not	.103	.038	.137	-.326	-.135	.049	.120	-.018	.081	-.217	1.000	-.250	-.899
	Divorced or not	-.020	-.005	.080	-.022	-.027	.053	.056	.037	-.073	-.020	-.250	1.000	-.084
	Widowed or not	-.064	-.021	-.158	.360	.168	-.065	-.141	.019	.061	-.073	-.899	-.084	1.000
Significance (one-tailed)	satisfaction level	.	.000	.000	.003	.203	.000	.034	.000	.000	.000	.000	.224	.007
	status	.000	.	.000	.100	.205	.000	.000	.013	.000	.018	.076	.425	.213
	educational attainment	.000	.000	.	.001	.000	.000	.000	.023	.000	.027	.000	.001	.000
	(a person's) age	.003	.100	.001	.	.084	.039	.000	.040	.037	.155	.000	.198	.000
	distinguishing between the sexes	.203	.205	.000	.084	.	.000	.001	.012	.006	.026	.000	.151	.000
	wellness	.000	.000	.000	.039	.000	.	.000	.000	.000	.270	.032	.023	.007
	Frequency of network use	.034	.000	.000	.000	.001	.000	.	.140	.000	.247	.000	.017	.000
	social frequency	.000	.013	.023	.040	.012	.000	.140	.	.069	.055	.245	.079	.235
	Child contact	.000	.000	.000	.037	.006	.000	.000	.069	.	.000	.001	.003	.010
	Unmarried or not	.000	.018	.027	.155	.026	.270	.247	.055	.000	.	.000	.220	.003
	Married or not	.000	.076	.000	.000	.000	.032	.000	.245	.001	.000	.	.000	.000
	Divorced or not	.224	.425	.001	.198	.151	.023	.017	.079	.003	.220	.000	.	.001
	Widowed or not	.007	.213	.000	.000	.000	.007	.000	.235	.010	.003	.000	.001	.

Table 1 above shows the correlation coefficients β and the significance P between each variable and the life satisfaction of older people. It can be seen that when analysing the Pearson correlation between each independent variable and the dependent variable in terms of Pearson correlation only, only gender (P=0.203) and divorce or not (P=0.224) lack significance (P<0.05). All remaining factors, including status (beta=0.315, P<0.05), education (beta=0.14, P<0.05), age (beta=0.72, P<0.05), physical and mental health (beta=0.346, P<0.05), frequency of using the Internet (beta=0.048, P<0.05), frequency of social interaction (beta=0. 087, P<0.05), contact with children (β=0.175, P<0.05), being unmarried or not (β=-0.119, P<0.05), married or not (β=0.103, P<0.05) and widowed or not (β=-0.064, P<0.05) were all significantly associated with older adults' maximum life satisfaction.

4.2. Multiple Linear Regression

Five models were constructed to investigate further the specific and predictive effects of the respective variables on the life satisfaction of older people. The author built five models utilising multi-level linear regression. The author divided the independent variables into five levels, with all covariates in the first level, 'frequency of internet use' in the second level, 'social frequency' in the third level, 'contact with children' in the fourth level, and four dummy variables for marital status in the fifth level. "Four dummy variables for marital status are included in the fifth level.

Table 2: Anova.

	modelling	square sum (e.g. equation of squares)	(number of) degrees of freedom (physics)	mean square	F	significance
	regression (statistics)	294.946	5	58.989	63.981	.000[b]
1	residual	1325.804	1438	.922		
	(grand) total	1620.750	1443			
	regression (statistics)	298.172	6	49.695	53.995	.000[c]
2	residual	1322.578	1437	.920		
	(grand) total	1620.750	1443			
	regression (statistics)	301.945	7	43.135	46.968	.000[d]
3	residual	1318.805	1436	.918		
	(grand) total	1620.750	1443			
	regression (statistics)	321.651	8	40.206	44.413	.000[e]
4	residual	1299.099	1435	.905		
	(grand) total	1620.750	1443			
	regression (statistics)	342.062	11	31.097	34.825	.000[f]
5	residual	1278.688	1432	.893		
	(grand) total	1620.750	1443			

As seen from the table 2 above, the analysis of variance results for the five models shows that all five models are significant, confirming their existence and that the model regression equation exists.

Table 3: Model Summary.

modelling	R	Square R	Adjusted R-square	Errors in standard estimates	Change statistics					Durbin Watson.
					Change in R-square	F Amount of change	Degree of freedom 1	Degrees of freedom 2	Significance F Amount of change	
1	.427[a]	.182	.179	.96020	.182	63.981	5	1438	.000	
2	.429[b]	.184	.181	.95936	.002	3.505	1	1437	.061	
3	.432[c]	.186	.182	.95833	.002	4.108	1	1436	.043	
4	.445[d]	.198	.194	.95147	.012	21.768	1	1435	.000	
5	.459[e]	.211	.205	.94495	.013	7.619	3	1432	.000	1.883

However, the VIF values in the table above are all less than 3 (Table 3). This does not prove that there is a covariance problem between the variables. On the other hand, looking at the covariance test results in the table below (Table 4), it can see that the eigenvalues of dimensions 10, 11, and 12 of Model 5 are close to 0, their conditional indicators are greater than 10, and the proportion of variance accounted for by age in dimension 11 is relative to 1. It can be concluded that the model suffers from a more severe covariance problem.

Table 4 below shows the impact and validity of the regression coefficients in the five models. In model 5, the independent variable "married or not" was automatically excluded because the significant results were too poor. As can be seen from model 5, of all the independent variables in this study, only "education" (B=0.031, p>0.05), "divorced or not" (B=-0.255, p>0.05), and the proposed "married or not" lacked significance. "Married or not" lacked force and negatively affected older people's life satisfaction. All the remaining independent variables had a significant effect on the dependent variable (p < 0.05). Among them, "frequency of internet use" (B=-0.05, p<0.05) was negatively associated with the life satisfaction of older people, which was not as expected, and hypothesis H4 was not tested. "Social frequency" (B=0.045, p<0.05) was positively correlated with older people's life satisfaction, as expected, and hypothesis H3 was tested. "Child contact" (B=0.046, p<0.05) showed a positive correlation with older people's life satisfaction, as expected, and hypothesis H2 was verified. Of the four dummy variables indicating marital status, "unmarried or not" (B=-0.543, p<0.05) and "widowed or not" (B=-0.258, p<0.05), two variables indicating negative marital status did show a negative relationship with The other two variables, 'married or not' and 'divorced or not', did not prove to have a significant effect on the personal lives of older people. Therefore, the results differ from expected, and hypothesis H1 needs further discussion and analysis.

It is worth noting that when the independent variable 'frequency of internet use' was added to the model alone to form Model 2, it was insignificant (B=-0.43, p>0.05). However, as subsequent independent variables were added, their significance gradually increased, thus confirming the effect on the dependent variable. This suggests that there may be a negative confounding effect between the independent variables in this paper, i.e. multicollinearity.

Table 4: Ratio.

modelling	Unstandardised coefficient		Standardised coefficient	t	significance	relevance			covariance statistics	
	B	standard error	Beta			zero step	stray from the intended line	part	tolerances	VIF
1 (Constant)	2.738	.267		10.273	.000					
status	.256	.030	.223	8.660	.000	.315	.223	.207	.859	1.165
educational attainment	.023	.015	.040	1.546	.122	.140	.041	.037	.864	1.158
(a person's) age	.011	.003	.079	3.286	.001	.072	.086	.078	.987	1.013
distinguishing between the sexes	.128	.052	.061	2.477	.013	.022	.065	.059	.953	1.049
wellness	.263	.023	.287	11.432	.000	.346	.289	.273	.904	1.106
2 (Constant)	2.820	.270		10.449	.000					
status	.258	.030	.225	8.729	.000	.315	.224	.208	.858	1.166
educational attainment	.038	.017	.064	2.220	.027	.140	.058	.053	.692	1.445
(a person's) age	.010	.003	.072	2.942	.003	.072	.077	.070	.962	1.040
distinguishing between the sexes	.130	.052	.062	2.520	.012	.022	.066	.060	.953	1.050
wellness	.266	.023	.290	11.543	.000	.346	.291	.275	.900	1.112
Frequency of network use	-.043	.023	-.052	-1.872	.061	.048	-.049	-.045	.736	1.359
3 (Constant)	2.697	.276		9.762	.000					
status	.255	.030	.222	8.626	.000	.315	.222	.205	.855	1.169
educational attainment	.041	.017	.069	2.392	.017	.140	.063	.057	.686	1.457
(a person's) age	.010	.003	.074	3.032	.002	.072	.080	.072	.960	1.042
distinguishing between the sexes	.125	.052	.059	2.407	.016	.022	.063	.057	.950	1.053
wellness	.261	.023	.285	11.287	.000	.346	.285	.269	.890	1.123
Frequency of network use	-.045	.023	-.054	-1.960	.050	.048	-.052	-.047	.734	1.362
social frequency	.046	.023	.049	2.027	.043	.087	.053	.048	.973	1.028
4 (Constant)	2.479	.278		8.906	.000					
status	.245	.029	.213	8.302	.000	.315	.214	.196	.850	1.176
educational attainment	.036	.017	.061	2.144	.032	.140	.057	.051	.684	1.461
(a person's) age	.010	.003	.067	2.765	.006	.072	.073	.065	.956	1.046
distinguishing between the sexes	.104	.052	.049	2.008	.045	.022	.053	.047	.943	1.061
wellness	.255	.023	.278	11.080	.000	.346	.281	.262	.887	1.127
Frequency of network use	-.050	.023	-.061	-2.207	.027	.048	-.058	-.052	.732	1.365
social frequency	.043	.023	.046	1.913	.056	.087	.050	.045	.972	1.028
Child contact	.058	.012	.112	4.666	.000	.175	.122	.110	.961	1.040
5 (Constant)	2.272	.291		7.818	.000					
status	.243	.029	.211	8.287	.000	.315	.214	.195	.849	1.177

Table 4: (continued).

educational attainment	.031	.017	.052	1.837	.066	.140	.048	.043	.676	1.479
(a person's) age	.014	.004	.101	3.969	.000	.072	.104	.093	.843	1.186
distinguishing between the sexes	.128	.052	.060	2.470	.014	.022	.065	.058	.925	1.081
wellness	.256	.023	.279	11.181	.000	.346	.283	.262	.884	1.131
Frequency of network use	-.050	.023	-.061	-2.213	.027	.048	-.058	-.052	.731	1.368
social frequency	.045	.022	.048	2.000	.046	.087	.053	.047	.969	1.032
Child contact	.046	.013	.089	3.404	.001	.175	.090	.080	.812	1.231
Unmarried or not	-.543	.208	-.067	-2.608	.009	-.119	-.069	-.061	.840	1.191
Divorced or not	-.255	.169	-.036	-1.510	.131	-.020	-.040	-.035	.974	1.026
Widowed or not	-.258	.065	-.103	-3.985	.000	-.064	-.105	-.094	.827	1.209

However, from the VIF values in the table above, all deals are less than 3, which does not prove that there is a covariance problem between the variables. In contrast, observation from the covariance test results in the table below shows that the eigenvalues of dimensions 10, 11, and 12 of model 5 are close to 0, their conditional indicators are greater than 10, and the proportion of variance of age in dimension 11 is relative to 1. It can be judged that there is a more severe covariance problem in the model.

Table 5: Covariance Diagnosis.

modelling	hold together	eigenvalue (math.)	Conditional indicators	(Constant)	status	educational attainment	(a person's) age	distinguishing between the sexes	wellness	Frequency of network use	social frequency	Child contact	Unmarried or not	Divorced or not	Widowed or not
									variance ratio						
5	1	8.206	1.000	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
	2	1.017	2.840	.00	.00	.00	.00	.00	.00	.00	.00	.00	.32	.39	.10
	3	1.006	2.856	.00	.00	.00	.00	.00	.00	.00	.00	.00	.45	.41	.00
	4	.757	3.294	.00	.00	.01	.00	.00	.00	.02	.00	.00	.05	.18	.59
	5	.344	4.885	.00	.00	.05	.00	.02	.01	.46	.03	.00	.00	.00	.16
	6	.177	6.803	.00	.10	.09	.00	.06	.30	.20	.13	.00	.00	.00	.02
	7	.149	7.413	.00	.02	.22	.00	.03	.43	.12	.19	.01	.00	.00	.01
	8	.122	8.217	.00	.01	.24	.00	.12	.10	.09	.58	.02	.00	.00	.01
	9	.106	8.795	.00	.86	.22	.00	.00	.10	.06	.00	.02	.00	.00	.00
	10	.071	10.713	.00	.00	.10	.00	.48	.04	.01	.00	.52	.06	.01	.00
	11	.040	14.327	.04	.01	.06	.09	.25	.01	.02	.05	.41	.11	.00	.01
	12	.004	43.012	.95	.00	.00	.90	.04	.01	.02	.02	.01	.01	.00	.10

a. Dependent variable: level of satisfaction

In summary, the equation for model 5 (Table 5) constructed for this study is Y (life satisfaction of older adults) = 2.272 + 0.243X (status) + 0.31X (education) + 0.14X (age) + 0.128X (gender) + 0.256X (physical and mental health) - 0.050X (frequency of internet use) + 0.045X (frequency of

social interaction) + 0.046X (child contact) - 0.543X (unmarried or not) - 0.255X (divorced or not) - 0.258X (widowed or not).

5. Conclusion

From the results of the data analysis, it can learn that interpersonal interaction and the relationship between older adults' social situation and their children significantly impact their life satisfaction. As many studies have shown, social interaction and contact with children can effectively reduce loneliness and increase self-efficacy in older adults. On the other hand, social interaction and communication with children also have a role to play in providing social support. Both are also important sources of emotional and financial support for older people.

The results for marital status show that, among older adults, a negative marital status significantly negatively affects life satisfaction. In contrast, the impact of a positive marital status on life satisfaction cannot be confirmed. This might reflect that this paper's category of 'married' is quite broad. "Being 'married' does not imply a good marital status and harmony in the family. This independent variable likely includes both married but strained and conflicted marriages and harmonious marriages, and therefore it is not a good predictor of older adults' satisfaction with living well. The reasons for 'getting divorced' not being significant seem similar. As a state, divorce may be so old that its effects have almost disappeared as a change. Divorce is likely to have put an end to strained family relationships and conflicts. Therefore, it may be good for older adults' life satisfaction. Being 'unmarried' is a continuous state, and the effects of it persist over time. "Widowhood, as a significant life change, is likely to occur in the older years of those interviewed and has a significant negative impact.

It is worth noting that, contrary to the findings of many researchers, the effect of Internet use on older adults' life satisfaction in this study was negative. This may be explained as follows: firstly, using the Internet led to a presence substitution effect occurring. This is the idea that using the Internet reduces older adults' interpersonal and social participation in the physical space, increasing their isolation and leading to lower life satisfaction. This means that the high amount of low-quality social interaction of older adults in the Internet space displaces real-life social events while hardly reducing the loneliness of older adults, thereby undermining life satisfaction; secondly, it is the imprecise results of the human text study on this independent variable. A look at the stratified regression process shows that Internet use was initially insignificant. With the addition of the independent variable, it slowly became significant, representing the emergence of a negative confounding effect. In the subsequent analysis of covariance, the problem of covariance was also found in model 5 of the present study. Therefore. This may be due to the imprecision of the analysis of the effect of this independent variable due to the occurrence of cointegration between the independent variables of this study.

This study confirms hypothesis H0 that interpersonal interactions contribute to older adults' life satisfaction. The first is that the questions used to measure the independent variables in this study are likely to be imprecise. This is because the CGSS 2017 data had a different set of questions, and only some more indirect questions could be used for measurement. Secondly, despite a lack of technology, the author could not correct and further investigate the covariance problem, despite its identification. This resulted in possible errors in the final analysis results.

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