International Journal of
Mental Health Promotion

Tech Science Press

DOI: 10.32604/ijmhp.2023.041490

ARTICLE

A Model for Predicting the Psychological Well-Being of Older Adults in South Korea

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Received: 24 April 2023 Accepted: 13 July 2023 Published: 08 December 2023

ABSTRACT

This study examined factors related to the psychological well-being of older adults and built and verified a model for predicting psychological well-being. The participants were 350 older adults aged over 60 years who lived in South Korea and were active in the local community. The model proposed in this study was found to be suitable. Depression, self-efficacy, and social support had a direct effect on the psychological well-being of older adults, while depression, activities of daily living (ADLs), and self-efficacy had an indirect effect. Self-efficacy and social support mediated the relationship between depression and psychological well-being, and self-efficacy mediated the relationship between ADLs and psychological well-being. It is necessary to develop and implement a program that can help alleviate depression and improve self-efficacy and social support among older adults in order to enhance their psychological well-being. Additionally, to establish a model that predicts the psychological well-being of older adults, a study is needed to verify the model not only in Korea but also in other countries.

KEYWORDS

Older adults; psychological well-being; structural equation model; depression; self-efficacy; social support

Introduction

Background

The proportion of older adults aged 65 years and over in South Korea is now 15.7%; more than doubling in 20 years [1,2]. Thus, South Korea is on the verge of becoming a full-scale, super-aging society. These changes have led to a higher incidence of physical, social, and psychological problems among older adults [3]. In particular, older adults in South Korea have highly negative emotional experiences such as poverty and suicide. As of 2019, the older adult poverty rate was 43.2%, the highest among OECD member countries [2], and the suicide rate among older adults was 46.6 per 100,000 people, which reveals the severity of the issue as it is 2.7 times higher than the OECD average of 17.2 people [4]. These problems are complex and related to the interaction with the social environment [3,4]. Therefore, they require comprehensive solutions.

The concept of successful aging has various definitions. The model proposed by Rowe et al. [5] focuses on physical health and function to measure successful aging, whereas Reker [6] stated that maintaining and achieving a relatively high level of psychological well-being in life-changing situations leads to successful aging. Moreover, various psychological factors such as the personal meaning of life and goal achievement are emphasized as criteria [7]. However, Rowe et al.'s model [5] has limitations because it does not attend to the psychological aspects of individuals [8]. In contrast, Ryff [9] proposed a multidimensional model incorporating physical, clinical, and mental health. Thus, successful aging can improve the quality of life as it involves being active in, adapting to, and working during extended old age across physical, psychological, and social aspects [10,11]. Psychological well-being can measure successful aging [9], and therefore, it was used as a measure of successful aging in this study. Psychological well-being is

a subjective feeling that an individual acquires through the experiences of daily life and is a state of happiness or satisfaction with life in general [12]. It is composed of variables that are theoretically thought to affect the quality of life. In other words, psychological well-being refers to a feeling of happiness or overall emotion based on an individual's subjective experiences; it is an important factor for successful aging among older adults [13]. In order for older adults to experience a successful aging process through positive adaptation and possess a high quality of life in old age, it is necessary to improve their psychological well-being. Therefore, to understand the emotions of South Korean older adults and promote their psychological well-being, it is necessary to identify their characteristics and problems and examine the relationship between emotional factors and psychological well-being.

The literature includes research on the relationship between older adults' psychological well-being and psychosocial factors (depression, suicidal ideation, self-efficacy, social support, friendship, successful aging, etc.); research on factors that affect the psychological well-being of older adults; and research evaluating the effect of programs or education focusing on psychological well-being [14–24]. Many studies focus on fragmentary elements that influence psychological well-being; those that comprehensively identify various factors are scarce. In particular, older adults' self-efficacy affects their cognition, body, interpersonal relationships, and environmental harmony [14,16,23,25]. Social support is a major factor in improving older adults' psychological well-being, and has a moderating effect on depression and psychological well-being [15,17,20,21]. Rowe et al.'s [5] theory of successful aging proposes self-efficacy and social support as predictive factors for "continued participation in life." However, studies have highlighted the importance of psychological well-being—which is included in the theory of successful aging proposed by Ryff [9]—based on research demonstrating the mediating effect of self-efficacy and social support on enhancing psychological well-being. Therefore, based on Rowe et al.'s successful aging model [5] and previous literature, this study establishes a model to predict older adults' psychological well-being by examining associated factors and verifying the causal relationships between and mediating effects of other variables. The study aims to help older adults improve their psychological well-being and contribute data for the development of effective interventions to aid successful aging.

The conceptual framework of the study and hypothetical model

To build a model for predicting the psychological well-being of older adults, we constructed a conceptual framework and established a hypothetical model based on the successful aging model proposed by Rowe et al. [5] and previous research. Rowe et al.'s successful aging model consists of three factors: absence of disease and disability, maintenance of cognitive and physical functions, and active participation in life [5,8,26].

Older adults are exposed to various diseases and can age successfully despite having chronic diseases [26]. Therefore, it is undesirable to exclude older adults with diseases or disabilities based on the criteria for successful aging [6,13,26]. Accordingly, in this study, the criteria of "absence of disease and disability" in Rowe et al.'s successful aging model [5] was not measured and was excluded from our model.

Depression is a common mental health problem in old age, and high levels of depression have been shown to lower psychological well-being [19,22]. Activities of daily living (ADLs) are related to the level of physical health and ability to live independently, and affect physical and mental health status as well as social support [25,27]. Thus, when ADLs engagement is low, it negatively affects physical and mental health, which in turn interferes with older adults' successful aging and psychological well-being. Na et al. [28] reported that psychological well-being was lowered when ADL status was poor, and ADLs are known to affect psychological well-being [9,21]. Therefore, in this study, depression and ADLs were measured as factors affecting the "maintenance of cognitive and physical function," as suggested in the successful aging model of Rowe et al. [5].

Self-efficacy refers to the judgment and belief that an individual can make good use of their abilities to perform a given task [29], and high self-efficacy among older adults has a positive effect on improving psychological well-being by solving various problems as well as affecting leisure and health activities and interpersonal relationships [16,18,24]. Research also shows that the higher the self-efficacy, the higher the psychological well-being [14,23]. Furthermore, self-efficacy is known to affect depression, ADLs, and social support [14,16,23,25].

Social support is an important factor in improving the psychological well-being of older adults; the higher the social support, the higher the psychological well-being [15,17,21,30]. Additionally, social support improves ADLs and helps alleviate depression in older adults, has a mediating effect on relieving depression in the relationship between depression and quality of life, and has a moderating effect between depression and psychological well-being [20]. Moreover, self-efficacy and social support are predictors of "continuous participation in life" in Rowe et al.'s successful aging model [5], and are major antecedent factors in maintaining and improving psychological well-being.

Based on these previous findings, this study proposed three paths: the effects of depression, ADLs, social support, and self-efficacy on psychological well-being; the effect of depression and ADLs on self-efficacy; and the effect of depression, ADLs, and self-efficacy on social support (Fig. 1).

Methods

Research design

This study used a cross-sectional design and constructed a hypothetical model based on the successful aging model of Rowe et al. [5] as well as previous studies to ascertain the factors that affect older adults' psychological well-being. The suitability of the model and the hypotheses presented in it were assessed.

Research participants

The study participants were selected as a convenience sample of adults aged 60 years or older who lived in the provinces of

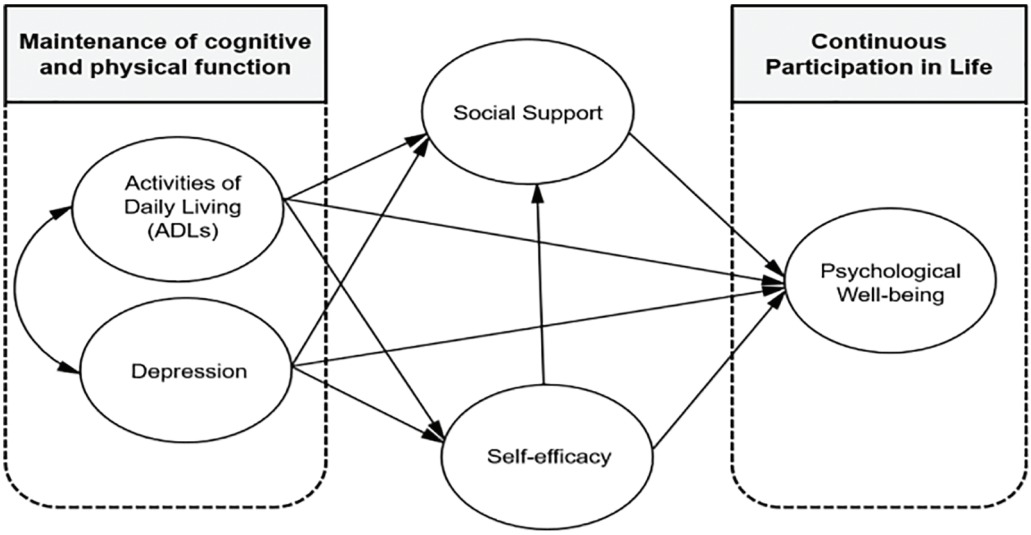

FIGURE 1. Conceptual framework.

Seoul, Gyeonggi-do, Jeolla-do, and Gyeongsang-do, and were active in senior citizens' centers, welfare centers, and local communities in the neighborhoods where they lived.

The inclusion criteria were as follows:

- a person who was not receiving inpatient treatment at the time of data collection, and
- a person whose language comprehension allowed them to answer the questionnaire and communicate.

The exclusion criteria were as follows:

- a person diagnosed with dementia, or
- a person who requested that their participation in the study be withdrawn.

The sample size was based on the sample size rationale, suggesting that it was generally appropriate to use the maximum likelihood method for validating the structural equation model [31]. A total of 400 questionnaires were distributed, and 365 questionnaires (91.25%) were finally collected, excluding 35 participants who agreed to participate in the study when explaining the purpose and contents of the research but did not respond to the questionnaire or wanted to withdraw from the study. Among the collected questionnaires, 15 were excluded because of responses that were insincerely written as one number or with two or more missing values. Thus, the final analysis included data from 350 questionnaires, which were analyzed using the mean imputation method.

Research instrument

Demographic characteristics

The demographic characteristics that were investigated included gender, age, marital status, religion, education level, monthly pocket money, health condition, and satisfaction with leisure life.

Psychological well-being

Psychological well-being was measured using the tool (MIDUS-II) developed by Ryff [9] and translated into Korean by Yoo [32]. This tool consists of 42 items, with 7 items for each of the 6 subscales: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Each item is scored on a 7-point scale (1 = strongly agree, 7 = strongly disagree), with total scores ranging from 42 to 294 points. Higher scores indicate more positive perceptions of psychological well-being. In Yoo's study [32], the overall Cronbach's alpha coefficient was 0.89, and those for the sub-factor were 0.52, 0.64, 0.54, 0.71, 0.68, and 0.72 for autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance, respectively. In this study, one item (41) with low validity was excluded after a confirmatory factor analysis. As a result of measuring reliability, except for one item, Cronbach's alpha coefficient for the tool was 0.91, and those for the sub-factors were 0.57, 0.64, 0.65, 0.74, 0.76, and 0.74, respectively.

Depression

The Geriatric Depression Scale was developed by Sheikh et al. [33], and the present study used its Korean version, the Geriatric Depression Scale Short Form Korea (SGDS-K), which was developed by Bae et al. [34]. The SGDS-K consists of 15 items and each item is scored on a 2-point scale (0 = no, 1 = yes). Total scores range from 0 to 15. The higher the score, the more severe the depression. The Cronbach's alpha coefficient was 0.86 in Bae et al.'s study [34] and 0.76 in this study.

Activities of daily living

Activities of daily living (ADLs) are often assessed using the Barthel Index [35] and the Instrumental Activities of Daily Living Scale developed by Lawton et al. [36]. Song [37] modified and supplemented these two tools, and the resulting tool, which was used in this study, consists of 15 items. Each item is scored on a 4-point scale (1 = cannot do it, 4 = good at it), and total scores range from 15 to 60. The higher the score, the better the ability to perform activities of daily living. In Song's study [37], Cronbach's alpha coefficient was 0.98, and in this study, it was 0.75.

Social support

Social support was measured using the Medical Outcomes Study-Social Support Survey [MOS-SSS], which was developed by Sherbourne et al. [38] and translated into Korean by Lim [39]. This tool was developed to evaluate the personality and strengths of participants' social support base. It consists of 19 items, including 8 items on emotional and informational support, 4 items on tangible support, 3 items on affectionate support, and 4 items on positive social interaction. Each item is scored on a 5-point scale (1 = never, 5 = always), and total scores range from 19 to 95. The higher the score, the higher the social support. In the study by Sherbourne et al. [38], Cronbach's alpha coefficient was 0.97, and in the study by Lim [39], the overall Cronbach's alpha coefficient was 0.98, and those for each sub-factor were 0.96, 0.90, 0.87, and 0.92, respectively. In this study, the overall Cronbach's alpha coefficient was 0.95, and those for the sub-factors were 0.94, 0.83, 0.86, and 0.93, respectively.

Self-efficacy

The Self-Efficacy Scale was developed by Sherer et al. [40], and modified and supplemented by Seo [41] for South Korean older adults living at home. The latter version was used in this study. It consists of 16 items, and each item is scored on a 4-point scale (1 = not at all, 4 = very much), with total scores ranging from 16 to 64. The higher the score, the higher the sense of self-efficacy. In the study by Seo [41], Cronbach's alpha was 0.80, and in this study, it was 0.83.

Data collection and procedure

Data were collected from January 11 to April 12, 2019. Before conducting the survey, the researcher contacted the representatives of institutions such as village senior citizen centers, welfare centers, and local communities in the neighborhood, and requested their cooperation and permission to conduct the survey. For the survey, the researcher or research assistant directly approached the participants and explained the purpose and content of the research, the research method, and ethical considerations such as the possibility of withdrawing midway, confidentiality, and anonymity. After receiving written consent from those who agreed to participate in the study, data were collected using a self-administered questionnaire. The survey lasted approximately 20–30 min, and the participants were presented with a gift of approximately $8 after data collection.

Data analysis

Using IBM SPSS 22.0 (IBM Corp., Armonk, NY, USA), the participants' demographic characteristics and the study variables were analyzed using descriptive statistics. In addition, the reliability of the research tool was analyzed using Cronbach's alpha, and the correlation and multicollinearity between the measurement variables were analyzed using Pearson's correlation coefficient. Structural equation modeling was conducted using IBM SPSS Amos 21.0 (IBM Corp., Armonk, NY, USA). First, skewness and kurtosis were checked to verify the normality of the structural equation. Second, confirmatory factor analysis (CFA) was performed to confirm the validity of the latent variables. Third, the structural model was estimated using the maximum likelihood method (MLM), assuming multivariate normality. Fourth, the structural model's fit was analyzed using χ^2 (CMIN) and the normed χ^2 index, goodness of fit index (GFI), adjusted goodness of fit index (AGFI), normed fit index (NFI), comparative fit index (CFI), Tucker-Lewis index (TLI), root-mean-square error of approximation (RMSEA), and SRMR (standardized root mean square residual) index. Fifth, for the explanatory power of endogenous variables, squared multiple correlation (SMC) was used. Sixth, bootstrapping was used to verify the statistical significance of the direct, indirect, and total effects of the research model. Finally, a Sobel test was conducted to verify the mediating effect of the hypothetical model.

Ethical considerations

This study was approved by the Institutional Review Board of Kyungil University (IRB 1041459-201808-HR-018-01). The study participants signed a research consent form declaring their voluntary intention to participate and were informed that they could withdraw from the research at any time if they wanted to and that there would be no disadvantages as a result. In addition, the participants were explained that the questionnaire data would not be used for any purpose other than the research.

Results

Demographic characteristics of participants

The total number of participants in this study was 350, and the average age was 68.08 ± 6.85 years. Married people accounted for the largest proportion of participants (283, 80.9%); 290 (82.9%) were religious, and in terms of education level, high school graduates accounted for the highest number (119, 34.0%). In terms of monthly pocket money, 146 participants (41.7%) earned under 500,000 won ($400). With regard to health, 168 (48.0%), 121 (34.6%), and 30 (8.6%) participants had normal, good, and very good health condition, respectively. Satisfaction with leisure life was average for 177 (50.6%) participants, satisfactory for 103 (29.4%), and very satisfactory for 51 (4.6%, see Table 1).

Descriptive statistics and correlation among the research variables

The average scores for psychological well-being, social support, self-efficacy, activities of daily living, and depression were 190.97 ± 27.20, 70.28 ± 12.88, 47.18 ± 6.10, 59.14 ± 1.78, and 2.54 ± 2.67, respectively. In the structural equation model, the analysis was performed with the assumption that the measured variables were normally distributed; thus, normality was confirmed using skewness and kurtosis values. If the absolute values for skewness and kurtosis did not exceed 3 and 10, respectively, univariate normality was satisfied [31]. The multivariate normality test showed that the skewness values of all the measured variables ranged from −2.675 to 1.409, and the kurtosis values ranged from −0.671 to 7.229. The absolute skewness and kurtosis values for each variable did not exceed 3 and 8, respectively, thereby satisfying univariate normality (Table 2).

TABLE 1

General characteristics (n = 350)

Variables		n (%) or Mean ± SD
Gender	Male	90 (25.7)
	Female	260 (74.3)
Age (years)		68.08 ± 6.85
	60–65	157 (44.9)
	66–70	88 (25.1)
	71–75	53 (15.1)
	76–80	31 (809)
	81–85	9 (2.6)
	≥86	12 (3.4)
Marital status	Never married	9 (2.6)
	Married	283 (80.9)
	Divorced/ separated	7 (2.0)
	Widowed	49 (14.0)
	Etc.	2 (0.6)
Religious	Yes	290 (82.9)
	No	60 (17.1)
Education level	No education	3 (0.9)
	Elementary school	37 (10.6)
	Middle school	42 (12.0)
	High school	119 (34.0)
	College	104 (29.7)
	≥Graduate school	45 (12.9)
Monthly pocket money (10,000 won)	≤50	146 (41.7)
	50–100	112 (32.0)
	100–150	37 (10.6)
	≥150	55 (15.7)
Health condition	Very good	30 (8.6)
	Good	121 (34.6)
	Not so good	168 (48.0)
	Bad	28 (8.0)
	Very bad	3 (0.9)
Satisfaction with leisure life	Very satisfied	51 (14.6)
	Satisfied	103 (29.4)
	Neutral	177 (50.6)
	Unsatisfied	17 (4.9)
	Very unsatisfied	2 (0.6)

Verification of the hypothesis model

Confirmatory factor analysis for the research variables

In this study, confirmatory factor analysis (CFA) was performed to verify the suitability of the research variables. In the confirmatory factor analysis that verified the suitability of the research variables, statistically, the factor loading (FL) was the degree of correlation between each item and the factor, and the item explained the factor. Therefore, concentration validity was good when the factor load of each measured variable was 0.40 or more and the critical ratio was 1.96 or more [31]. In this study, one item with a factor load ≤0.40 was removed through confirmatory factor analysis, and the remaining 106 items were included in the model analysis. The correlation coefficients between the variables were checked to confirm the discriminant validity of each variable, which was verified through confirmatory factor analysis. As all of the correlation coefficient values were intermediate (r = 0.056 or less), discriminant validity was confirmed between the variables, thus affirming that each concept was separate from the others (Table 3).

Verification of the hypothetical model

For the hypothetical model, the fit was judged good based on the following criteria: the smaller the χ^2 value; p values the larger than 0.05; GFI, AGFI, CFI, NFI, and TLI values greater than 0.90; and RMSEA values ranging from 0.05 to 0.08. The closer the SRMR value was to 0, the better; an SRMR value of less than 0.05 indicates a good model [31]. Evaluating the fit of the hypothetical model in this study showed that it was inappropriate, $\chi^2(p)$ = 131.50 (<0.001); however, χ^2/df = 2.35, which satisfied the fit criterion. The values of the absolute fit indices were GFI = 0.95, AGFI = 0.91, RMSEA = 0.06, and SRMR = 0.05, and those of the incremental fit indices were CFI = 0.97, NFI = 0.94, and TLI = 0.95. This indicated that all of the model fit indices were satisfactory (Table 3).

Parameter estimation and effect analysis of the hypothetical model

Table 4 presents the standardized path estimation coefficient values and their significance in the research model. Fig. 2 illustrates the model centered on the standardized path coefficients. Of the nine pathways, seven were found to be significant.

Psychological well-being had a statistically significant direct effect on depression (β = −0.273, p = 0.010), self-efficacy (β = 0.303, p = 0.021), and social support (β = 0.347, p = 0.005), with an explanatory power of 56.9%.

Furthermore, depression (β = −0.188, p = 0.005) and activities of daily living (β = 0.076, p = 0.039) had an indirect effect on psychological well-being with self-efficacy as a mediator. Additionally, depression (β = −0.188, p = 0.005) and self-efficacy (β = 0.088, p = 0.010) had an indirect effect on psychological well-being with social support as a mediator. A Sobel test was performed to verify the mediation effect and significance of self-efficacy and social support (Table 5). Between depression and psychological well-being, self-efficacy (Z = −4.07, p < 0.001) and social support (Z = −2.85, p < 0.001) had a statistically significant mediating role. Self-efficacy (Z = 2.48, p = 0.013) mediated the relationship between ADLs and psychological well-being, and social support (Z = 3.69, p < 0.001) mediated the relationship between self-efficacy and psychological well-being.

TABLE 2

Descriptive statistics of the measured variables (n = 350)

Variables	N (%) or Mean ± SD	Skewness	Kurtosis	FL	Cronbach α
Psychological well-being	190.97 ± 27.20	0.567	−0.031		0.91
Autonomy	31.33 ± 5.12	0.483	0.444	0.55	0.57
Environmental mastery	32.99 ± 5.45	0.460	−0.149	0.83	0.64
Personal growth	30.94 ± 5.96	0.492	0.050	0.69	0.65
Positive relations with others	35.23 ± 5.90	0.201	−0.672	0.77	0.74
Purpose in life	28.86 ± 5.71	0.226	−0.374	0.85	0.76
Self-acceptance	31.62 ± 6.10	0.286	0.216	0.79	0.74
Social support	70.28 ± 12.88	−0.350	0.161		0.95
Emotional/information support	29.51 ± 6.38	−0.599	0.363	0.68	0.94
Tangible support	14.51 ± 3.20	−0.312	0.053	0.62	0.83
Affectionate support	11.26 ± 2.51	−0.488	0.257	0.86	0.86
Positive social interaction	15.01 ± 3.22	−0.304	−0.108	0.95	0.93
Self-efficacy	47.18 ± 6.10	0.139	0.002		0.83
Activities of daily living	59.14 ± 1.78	−2.675	7.229		0.75
Depression	2.54 ± 2.67	1.409	2.330		0.76

TABLE 3

Correlations among constructs and validation of the fit hypothesis model

	1	2	3	4	5
1. Depression	1				
2. Activities of daily living	−0.24**	1			
3. Self-efficacy	−0.28**	0.20**	1		
4. Social support	−0.26**	0.11*	0.30**	1	
5. Psychological well-being	0.45**	−0.20**	−0.56**	−0.52**	1

Model fit index	χ^2 (p)	χ^2/df	GFI	AGFI	CFI	NFI	TLI	RMSEA	SRMR
Hypothetical model	131.50 (<0.001)	2.35	0.95	0.91	0.97	0.94	0.95	0.06	0.05

Note: *$p < 0.05$, **$p < 0.01$, df = Degree of freedom, GFI = Goodness of fit index, AGFI = Adjusted goodness of fit index, CFI = Comparative fit index, NFI = Normed fit index, TLI = Tucker-lewis index, RMSEA = Root-mean-square error of approximation, SRMR = Standardized Root Mean square Residual.

TABLE 4

Parameter estimates for hypothetical structural model and standardized direct, indirect, and total effect

Endogenous variables	Exogenous variables	ß	C.R.	p	NSRW (S.E)	SMC	Direct ß(p)	Indirect ß(p)	Total ß(p)
Self-efficacy	Depression	−0.26	−4.88	<0.001	−0.58 (0.12)	0.101	−0.26* (0.012)	–	−0.26* (0.012)
	Activities of daily living	0.14	2.64	0.008	0.47 (0.18)		0.14** (0.007)	–	0.14** (0.007)
Social support	Depression	−0.18	−3.21	0.001	−0.32 (0.10)	0.130	−0.18** (0.004)	−0.07* (0.007)	−0.25** (0.008)
	Activities of daily living	0.02	0.44	0.659	0.06 (0.15)		0.02 (0.756)	0.04** (0.005)	0.06 (0.440)
	Self-efficacy	0.26	4.54	<0.001	0.20 (0.04)		0.26* (0.026)	–	0.26* (0.026)

Table 4 (continued)

Endogenous variables	Exogenous variables	ß	C.R.	*p*	NSRW (S.E)	SMC	Direct ß(*p*)	Indirect ß(*p*)	Total ß(*p*)
Psychological well-being	Depression	−0.27	−5.61	<0.001	−0.28 (0.05)	0.569	−0.27* (0.010)	−0.19** (0.005)	−0.46* (0.013)
	Activities of daily living	0.03	0.71	0.480	0.05 (0.07)		0.03 (0.450)	0.08* (0.039)	0.10* (0.026)
	Self-efficacy	0.40	7.24	<0.001	0.18 (0.02)		0.40* (0.021)	0.09** (0.010)	0.49* (0.032)
	Social support	0.35	6.26	<0.001	0.20 (0.03)		0.35** (0.005)	–	0.35** (0.005)

Note: NSRW = Non-standardized regression weight; S.E = Standard error; C.R. = Critical ratio; SMC = Squared multiple correlation, – = Not available.

Discussion

Based on the successful aging model of Rowe et al. [5] and previous studies, this study attempted to establish a predictive model for the psychological well-being of older adults and verify the mediating effects of self-efficacy and social support on psychological well-being. In this section, we discuss the factors that affect the psychological well-being of older adults, as shown in the study results.

The findings showed that depression in older adults directly affected psychological well-being. This is consistent with the results of previous studies that reported that, among older adults, psychological well-being was low when depression was high [19,22]. Leisure life has been reported to lower depression and increase psychological well-being [18]. In this study, 44% of the participants said they were satisfied with their leisure life; therefore, it is necessary to establish social systems or welfare programs to encourage participation in leisure activities as a means of addressing depression and promoting psychological well-being among older adults.

Contrary to the results of a previous study [28] that reported that older adults' psychological well-being was low when their ability to engage in ADLs was low, this study

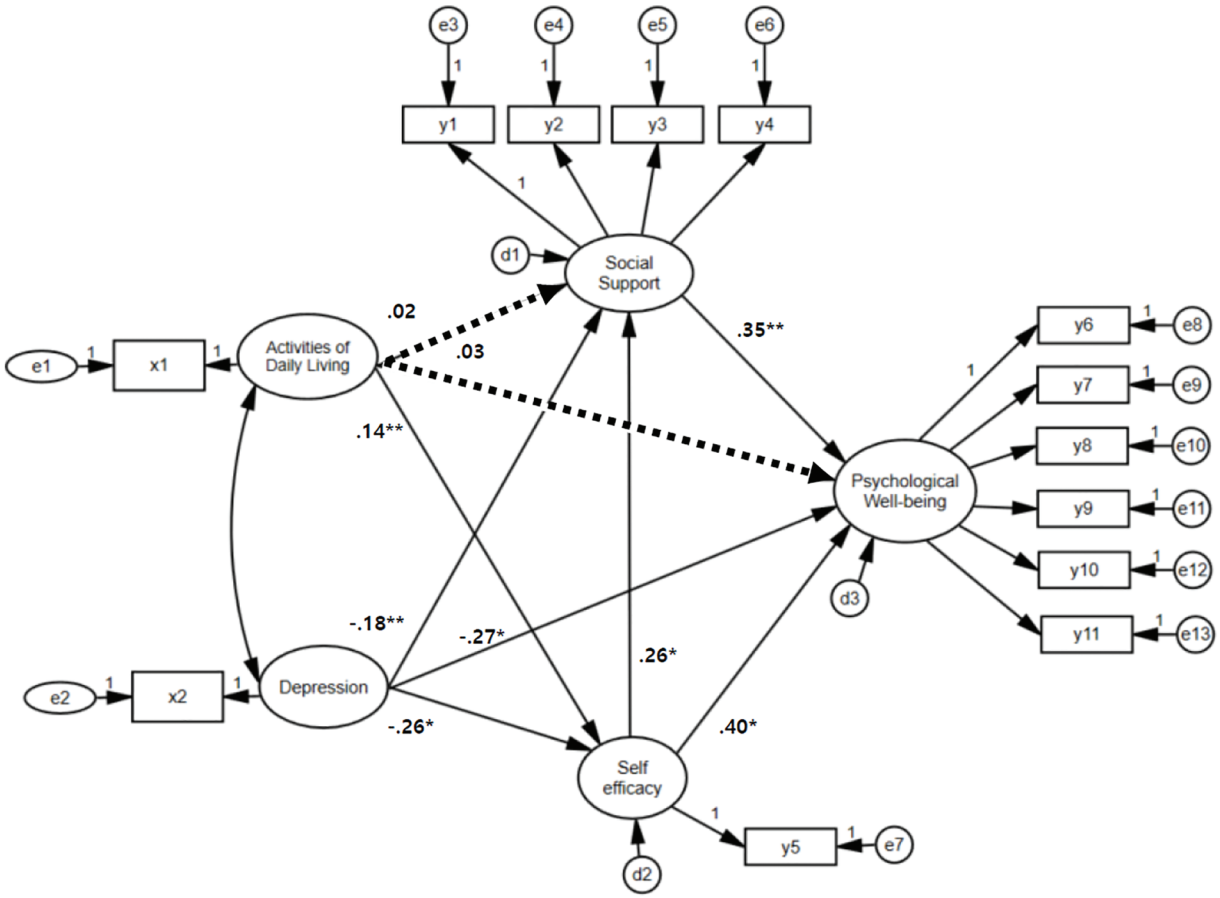

FIGURE 2. Path diagram for the hypothetical model. Note: **p* < 0.05, ***p* < 0.01, x1 = Activities of daily living, x2 = Depression, y1 = Emotional/information support, y2 = Tangible support, y3 = Affectionate support, y4 = Positive social interaction, y5 = Self-efficacy, y6 = Autonomy, y7 = Environmental mastery, y8 = Personal growth, y9 = Positive relations with others, y10 = Purpose in life, y11 = Self-acceptance.

TABLE 5

Result of the mediating effect of the hypothetical structural model

Path	Z	*p*
1. Depression → Self-efficacy → Psychological well-being	−4.07***	$p < 0.001$
2. Activities of daily living → Self-efficacy → Psychological well-being	2.48*	$p = 0.013$
3. Depression → Social support → Psychological well-being	−2.85***	$p < 0.001$
4. Self-efficacy → Social support → Psychological well-being	3.69***	$p < 0.001$

Note: *$p < 0.05$, ***$p < 0.001$.

found that ADLs did not directly affect psychological well-being. Row and Kahn's successful aging model [5] suggests that cognition and physical function are the main factors affecting successful aging. Therefore, it was expected that there would be a direct effect. However, this study found that the mediating effect of self-efficacy was stronger than its direct effect. Nevertheless, 91.2% of the study participants perceived their health status as above average, and the average ADLs score was also very high, which may be the result of reflecting these characteristics.

In this study, self-efficacy was found to have a direct effect on psychological well-being. Several studies have reported that the higher the self-efficacy of older adults, the higher their psychological well-being [14,18,23,24]. Self-efficacy is the belief that one can solve problems and achieve goals by using one's abilities well; improving it can enhance positive experiences in various aspects of daily life, thereby increasing psychological well-being. Further, self-efficacy was found to have a mediating effect on depression, ADLs, and psychological well-being. That is, psychological well-being was affected when depression was low and self-efficacy was high, and when both the level of ADLs and self-efficacy were high. Only a few studies have verified the mediating effect of self-efficacy between depression and psychological well-being, ADLs, and psychological well-being. Therefore, it is difficult to directly compare the results of this study with those of other studies. However, self-efficacy is a factor that influences depression and ADLs [25,42] and has been reported to affect psychological well-being [16,18,24,29]. Therefore, it is necessary to develop and implement programs to enhance self-efficacy among older adults in order to improve their psychological well-being and promote successful aging.

Social support was found to have a direct effect on psychological well-being. It improves psychological well-being because having meaningful relationships with people one can rely on, trust, and care makes one feel valued [30,38]. Previous research also shows that the higher the social support, the higher the psychological well-being [15,17,21]. Therefore, social support is a major factor in improving the psychological well-being of older adults. Additionally, social support was found to have a mediating effect on depression, self-efficacy, and psychological well-being. This is consistent with the finding that social support has a moderating effect between depression and psychological well-being [20] and that the higher the social support, the greater the influence on the improvement of self-efficacy [43]. Leisure and physical activities can improve social support among older adults [17,44]. However, there is little research in South Korea on programs aiming to improve social support among older adults. Therefore, to improve older adults' psychological well-being, it is necessary to identify the degree of depression and self-efficacy and develop and implement programs for improving social support that older adults can easily access and participate in.

The present results showed that self-efficacy and social support had a mediating effect between depression and psychological well-being, and self-efficacy had a mediating effect between ADLs and psychological well-being. In other words, self-efficacy and social support have the potential to play a protective role in offsetting or mediating the negative influence of depression, which lowers psychological well-being. It is noteworthy that self-efficacy may be a protective factor that can improve psychological well-being by positively affecting ADLs, thereby expanding the theoretical basis for improving older adults' psychological well-being and potentially contribute to the development of effective programs.

Nevertheless, this study has some limitations. Its results are not generalizable to all older adults because it targeted older adults in South Korea using convenience sampling. Furthermore, disease and disability status, which are important factors in the successful aging model of Rowe et al. [5], were not specifically measured, presented, or identified in this study. The study participants engaged in a high level of everyday life activities. This limitation can be interpreted as a consequence of the fact that most of the study participants were active in senior citizens' centers, welfare centers, and local communities, and had above average health [27]. Therefore, an empirical study that incorporates older adult's disease and disability status should be conducted. Finally, the effects of ADLs, self-efficacy, and social support were not analyzed according to the six categories of psychological well-being. In this study, psychological well-being consisted of autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Future studies should analyze psychological well-being in terms of these categories to be able to more specifically help older adults age successfully.

Conclusion

This study was conducted to provide data for the development of effective nursing interventions to improve the psychological well-being of older adults by verifying the factors affecting their psychological well-being and establishing a predictive model for psychological well-being.

Based on the results, the following suggestions for follow-up research are proposed. First, because this study was conducted among South Korean older adults, it is necessary to verify the predictive model among older adults in other countries. Second, further research is needed to expand and verify the model, including factors such as disease and disability status and productive activity, as suggested in the successful aging model of Rowe et al. Based on the main results of this study, the implications for the psychological well-being of older adults are as follows. First, depression in older adults is an important factor influencing decrease in psychological well-being. Therefore, it is necessary to prepare leisure policies and activities aiming to address depression by considering the characteristics of South Korean older adults. Moreover, in order to enhance psychological well-being, it is important to develop and implement programs that include productive, social, and physical activities for older adults that can help alleviate depression and improve self-efficacy and social support. Consequently, older adults will be able to spend happier lives, resulting in high psychological well-being and successful aging.

Acknowledgement: The authors thank research participants for their participation in this study.

Funding Statement: This study was conducted with support from the National Research Foundation of Korea (NRF-2017R1C1B5076621).

Author Contributions: Conceptualization and design, S. Y. Y.; data collection and organization, S. Y. Y.; data analysis and interpretation, S. Y. Y., H. P. and H. J.; writing—original draft preparation, S. Y. Y. and H. P.; writing—review and editing, S. Y. Y., H. P. and H. J. All authors have read and agreed to the published version of the manuscript.

Availability of Data and Materials: None.

Ethics Approval: The institutional review board of Kyungil University approved this study (No. 1041459-201808-HR-018-01).

Conflicts of Interest: No potential or existing conflict of interest relevant to this article was reported.

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