



Aquichan

ISSN: 1657-5997

ISSN: 2027-5374

Universidad de La Sabana

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Successful Aging and Personal Well-Being Among the Chilean Indigenous and Non-Indigenous Elderly\*  
Aquichan, vol. 19, no. 3, e1939, 2019, July-September  
Universidad de La Sabana

DOI: <https://doi.org/10.5294/aqui.2019.19.3.9>

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# Successful Aging and Personal Well-Being Among the Chilean Indigenous and Non-Indigenous Elderly\*

**Theme:** Promotion and prevention.

**Contribution to the discipline:** From the perspective of health and social sciences, it is necessary to conduct studies that incorporate diversity into an analysis of the aging process. In this regard, this study contributes to knowledge of the aging process among Latin American indigenous ethnic minorities (Aymara and Mapuche). It is important to emphasise the scarce research analysing the aging process among native indigenous peoples in Latin America, taking into account that these ethnic groups tend to be in positions of inequality and/or exclusion in comparison with the general population. Results of this research can also be applied to intercultural intervention in socio-healthcare areas, particularly in healthcare devices that are used daily in working with the indigenous elderly.

## ABSTRACT

**Objective:** The aim of this research was to analyse the association between successful aging (SA) and subjective well-being (SWB) in different domains. **Method:** The study is quantitative and cross-sectional, with a sample consisting of 800 older people, including 569 indigenous (Aymara and Mapuche) participants living in northern and southern Chile. **Results:** Domains associated with SA are satisfaction with health, satisfaction with social relationships, satisfaction with future security, and satisfaction with spiritual and religious experiences. SA is also positively associated with being a woman, being young, and not being indigenous. **Conclusion:** The research has two main practical implications. First, SWB domains may be incorporated into socio-health interventions as they relate to elements that can be changed or improved (health, social inclusion, security, and beliefs). Second, this study suggests a situation of risk among older indigenous Chileans, confirming the premise that the life paths of indigenous Chileans at social risk give rise to a more socially unequal old age with; therefore, it is important to analyse positive aspects that promote better old age.

**KEYWORDS** (SOURCE: DeCS):

Aging; health of the elderly; healthy aging; successful aging; subjective well-being; intercultural health; indigenous groups; health of indigenous people; Chile.

**DOI:** 10.5294/aqui.2019.19.3.9

**Para citar este artículo / Para citar este artículo / To cite this article**

Gallardo-Peralta LP, Sánchez-Moreno E. Successful Aging and Personal Well-Being Among the Chilean Indigenous and Non-Indigenous Elderly. *Aquichan* 2019; 19(3): e1939. DOI: <https://doi.org/10.5294/aqui.2019.19.3.9>

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\* This work was supported by the Government of Chile (FONDECYT project 1170493).

Received: 09/03/2019  
Sent to peers: 02/04/2019  
Approved by peers: 24/05/2019  
Accepted: 28/05/2019

# *Envejecimiento exitoso y bienestar personal en adultos mayores chilenos indígenas y no indígenas\**

## RESUMEN

**Objetivo:** el objetivo de esta investigación consistió en analizar la asociación entre envejecimiento exitoso (SA) y bienestar subjetivo (SWB) en sus diferentes dominios. **Metodología:** se trata de un diseño cuantitativo y transversal, con una muestra compuesta por 800 adultos mayores, incluidos 569 indígenas (aymaras y mapuches), que viven en el norte y sur de Chile. **Resultados:** muestran que los dominios asociados con la SA son satisfacción con la salud, satisfacción con las relaciones sociales, satisfacción con la seguridad futura y satisfacción con las experiencias espirituales y religiosas. La SA también se asocia positivamente con ser mujer, ser joven y no ser indígena. **Conclusión:** la investigación tiene dos implicaciones prácticas principales. Primero, estos dominios del SWB pueden incorporarse a las intervenciones sociosanitarias, ya que se relacionan con elementos que se pueden cambiar o mejorar (salud, inclusión social, seguridad y creencias). En segundo lugar, este estudio sugiere una situación de riesgo entre los chilenos indígenas mayores, lo que confirma la premisa de que las trayectorias de vida de los indígenas chilenos que han enfrentado más riesgo social dan lugar a una vejez con más desigualdad social, por lo que es importante analizar aspectos positivos que promuevan un mejor envejecimiento.

## PALABRAS CLAVE (FUENTE: DECS)

Envejecimiento; salud del anciano; envejecimiento saludable; envejecimiento exitoso; bienestar subjetivo; salud intercultural; grupos indígenas; salud de poblaciones indígenas.

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\* Este artículo fue financiado por el gobierno de Chile (proyecto FONDECYT 1170493).

# Envelhecimento bem-sucedido e bem-estar pessoal em idosos chilenos indígenas e não indígenas\*

## RESUMO

**Objetivo:** analisar a associação entre envelhecimento bem-sucedido e bem-estar subjetivo em seus diferentes domínios. **Método:** trata-se de um desenho quantitativo e transversal, com uma amostra composta por 800 idosos, incluídos 569 indígenas (aymaras e mapuches), que habitam no norte e no sul do Chile. **Resultados:** os domínios associados com o envelhecimento bem-sucedido são satisfação com a saúde, satisfação com as relações sociais, satisfação com a segurança futura e satisfação com as experiências espirituais e religiosas. Além disso, associa-se de forma positiva com ser mulher, jovem e não indígena. **Conclusão:** esta pesquisa tem duas implicações práticas principais. Na primeira, esses domínios do bem-estar subjetivo podem ser incorporados às intervenções sociossanitárias, já que estão relacionados com elementos que podem ser mudados ou melhorados (saúde, inclusão social, segurança e crenças). Em segundo lugar, este estudo sugere uma situação de risco entre os idosos chilenos indígenas, o que confirma a hipótese de que as trajetórias de vida dos indígenas chilenos que enfrentaram mais risco social levam a uma velhice com mais desigualdade social, razão pela qual é importante analisar aspectos positivos que promovam um melhor envelhecimento.

## PALAVRAS-CHAVE (FONTE: DECS)

Envelhecimento; saúde do idoso; envelhecimento saudável; envelhecimento bem sucedido; bem-estar subjetivo; saúde intercultural; grupos indígenas; saúde de populações indígenas.

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\* Este artigo foi financiado pelo governo do Chile (projeto FONDECYT 1170493).

## Introduction

In Chile the gradual growth of the population aged over 60 has given rise to an increase in research activity focusing on this age segment. Of note are the social science initiatives that have sought to analyse the variables and dimensions that promote aging in a manner that maintains well-being (1) with quality of life (2) or with success (3). In this regard, the promotion of good aging is a development strategy (4) that would improve well-being among the population at an advanced age. This study intends to contribute to an understanding of the dimensions associated with good aging. Specifically, this research analyses how subjective well-being (SWB) is associated with successful aging (SA) among the indigenous and non-indigenous elderly.

### ***Conceptual and theoretical foundations: Models for understanding successful aging and subjective well-being***

The SA model has its origins in Rowe and Khan's proposal (5, 6), for whom SA was related to a low probability of disease and disease-related disability, high physical and cognitive functional capacity, and active engagement with life in terms of both interpersonal relations and productive activity. This model focuses on functionality (physical, psychological and social) and how this enables older people to adapt to the new conditions that are the outcome of the aging process. Fundamental aspects for the consideration of SA have recently been added, including cognitive and psychological functionality (7). In broader terms, we currently find various multidimensional proposals whose bases transcend physical functionality and extend to the incorporation of areas such as gerotranscendence and spirituality (8, 9).

Therefore, the SA model does not consider aging exclusively as a stage of decline or of progressive and irreversible loss of capacities; rather, there is an emphasis on the possibility of aging with optimal physical, cognitive, psychological and social functioning. People can participate in actions to improve, change or transform their lifestyles, avoiding illnesses and thus increasing their prospects of better aging (10).

In this study, we take as our basis the SA model proposed by Troutman (formerly Flood), who defines SA "as an individual's perception of a favourable outcome in adapting to the cumulative physiological and functional alterations associated with the pas-

sage of time, while experiencing spiritual connectedness and a sense of meaning and purpose in life" (11).

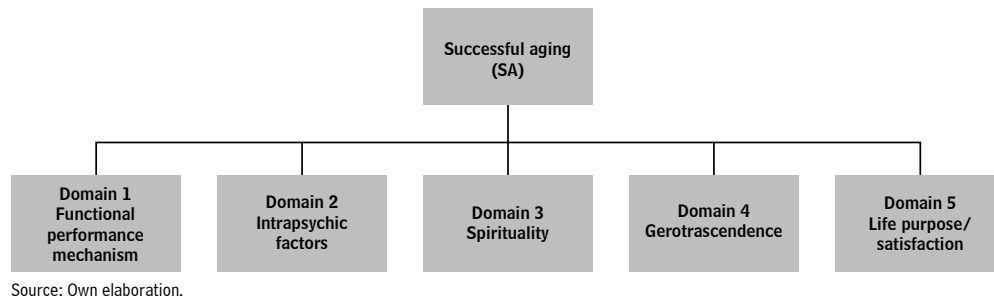
### ***About successful aging: Models and previous research***

It should be noted that empirical evidence regarding SA in Latin American contexts shows that the theoretical models applied are based on the tenets originally proposed by the Rowe and Kahn' model (5), focused on an individual process and assessing physical, cognitive and social functionality. Also of note are two lines of research.

First are those studies that evaluate SA as a dichotomous variable: a person ages successfully or unsuccessfully. In this regard, research conducted by Arias-Merino et al. (12) with the Mexican population indicated that 12.6% of the population under study would be classified as aging successfully, which means older people who do not report significant illnesses, do not have disabilities for purposes of basic and fundamental activities in daily life, have no more than one difficulty in their physical and cognitive functioning, and participate actively in their social environment.

Second, we found studies that evaluate this process in a multidimensional manner, and above all as a process of subjective assessment. In this regard, one may note the study carried out by Olivera and Tounier (13) among the Peruvian elderly (aged between 65 and 80), which proposed a regression model for SA with the following predictive variables: being male, being young, being literate, being at work, having high levels of food security, being well-nourished, having normal arterial blood pressure, absence of disability, not smoking, empowerment, having good self-esteem, and enjoying regular contact with social networks. However, a specific SA model has not been developed in Latin America that would consider the cultural, historical and social aspects of the region. This is because we are faced with a paradigm that has recently emerged in the region and remains in an initial phase of development.

The SA model below has five domains (see Figure 1), which evaluate various areas of the process of successful adaptation during aging. Domain 1 (functional performance mechanisms) evaluates the older person's awareness and choice capacity as an adaptive response to the physiological and physical losses resulting from aging. Domain 2 (intrapsychic factors) notes the older persons capacity to adapt to changes and resolve problems inherent to aging. Domain 3 (spirituality) evaluates the older person's metaperspec-

**Figure 1.** Model of Successful Aging

tive; that is, the degree to which they revolve around an existential or transcendental worldview. Religious actions carried out by the older person are included in Domain 4 (gerotranscendence). Finally, Domain 5 (life purpose/satisfaction) emphasises the areas of well-being among the elderly such as having a purpose in life, concern for other generations, and life satisfaction (14).

There is a medical context to the origins of the Troutman's model, whose field of specialisation is nursing. However, it is essential to note that the model emerges in this context with the objective of providing an alternative to the specific emphasis placed by previous models on the biomedical factors of SA. Troutman's proposal incorporates psychosocial processes as characteristic elements of good aging.

### ***Subjective well-being and aging: Models and empirical evidence***

Furthermore, the term subjective well-being (SWB) is associated with a state of being happy, healthy and prosperous (15). SWB is made up of at least three interrelated dimensions: positive affect, negative affect and satisfaction. It is possible to add a fourth dimension, defined by the existence of a state of happiness (16). The concept of SWB "explores the evaluations, both positive and negative, of how people experience their lives. This subjective appraisal includes a cognitive and an affective dimension" (17).

From a psychosociological viewpoint, it is particularly important to analyse SWB with the aim of identifying what the strengths are that lead a person to feel happy and satisfied with their life. What is certain is that SWB is a measure of the general well-being of an individual, which permits its use as a global indicator of various areas that affect people (18). We can also note that there are three broad approaches to the measurement of SWB: eude-

monic, evaluative, and affective (4). This study takes an evaluative approach, implying the assessment of SWB as a construct that examines the feeling of well-being among the elderly in various domains of their lives including standard of living, state of health, life achievements, personal relationships, feeling of safety, feeling of community connectedness, future security, and spiritual life/religious beliefs (19, 20).

SWB among the elderly is generally analysed as a dependent variable. Available evidence shows that SWB is positively associated with perceived health and generativity (21), participation in social activities (22), religiousness and spirituality (23), autonomy in activities of daily living (ADL) (24), giving and receiving social support (25), and the structure of a diverse social support network, that is, one made up of family and non-family members (26). Particularly, social networks made up of friends are associated with more happiness (27) and social support from friends is associated with more emotional well-being (28).

Specifically, in Chile, life satisfaction is positively associated with financial income (among men), level of education (among women), social support, positive self-reporting of health and memory, being the head of the household, and not living alone. Life satisfaction is also negatively associated with the diagnosis of chronic diseases such as diabetes and hypertension (29, 30). In the specific case of psychological well-being, there are also positive associations with social support, being a man, and being married or having a partner (31).

### ***How is successful aging associated with well-being and feeling happy?***

Considering that aging is a psychosocial and heterogeneous process, there are various ways of aging successfully. If we focus

only on the psychological and/or social domains, each older adult can make use of their own compensatory mechanisms (such as coping, adaptation, resilience and spirituality) that help them to foster and maintain a feeling of quality of life, personal realisation and well-being; in other words, successful aging (32).

Hence, SA and SWB are related constructs; it could even be affirmed that they are inseparably associated. In fact, we can see that studies prior to the formulation of contemporary SA models, such as that conducted by Palmore (33), concluded that the best predictors of successful aging were initial health and happiness, which together correctly predicted the success status of 74% of the sample. Along these lines, Fisher (34) states that life satisfaction is a precursor to SA. The comprehensive review carried out by Cosco et al. (8) also shows that for operational definitions of SA, 48.6% (equivalent to 51 of the articles analysed by the author) include constructs of SWB, by reference to affective status or life-satisfaction/well-being.

Studies conducted in various cultural contexts show how well-being may be considered as a determinant of SA; for example, quantitative research by Iwamasa and Iwasaki (35) carried out with Japanese-American older people states that one of the sub-categories in the conceptualisation of SA is defined by positive affect and attitudes (“being happy”; “you’ve got to smile all the time and laugh”; “being optimistic”; “not to complain all the time”). Similarly, a study conducted in two cultural contexts (Germany and the United States) indicates that well-being occupies fifth position in assessing well-being, behind health (81.7%), social resources (65.7%), activities and interests (55.9%), and virtues/attitudes/beliefs (51%). This study found that “well-being” was cited as a determinant for SA in 49.3% of cases, by reference to the following terms: feeling good, being/remaining happy, satisfied with one’s life, having fun, living fully, and having a calm, stress-free life (36).

In terms of research with the indigenous elderly, it is worth clarifying that there are few studies with indigenous ethnic minorities and even fewer if we restrict the scope to health/well-being in old age (37). We may highlight the current studies being conducted among indigenous populations in North America (38), and some research among indigenous Brazilian (39) and Chilean (40) populations. However, the empirical evidence that predominates about ethnic minorities tends to deal with migratory processes; that is, how migrant minorities age in developed countries (35, 37, 41).

In general, this research warns us of processes involving social risk for ethnic minority groups (42). Yet, when research is focused on ethnic minorities that have become “minorities” in their natural geographic environment, the results tend to be paradoxical in that various protective factors are observed (healthy lifestyles, positive coping through religious/spiritual practices, a system for family/community organisation, among others) that may improve certain aspects of physical health among the indigenous elderly (43).

## ***Present research***

This study analyses the association between various domains of SWB and SA in a sample of Chilean indigenous and non-indigenous older people. The empirical evidence suggests that the elderly who positively evaluate their capacity to adapt to the process of aging well (SA) also provide a positive subjective evaluation of their well-being (SWB) (44). But there is also a lack of research assessing the potential differences between aging as an indigenous person (native Latin American ethnicities) and as a non-indigenous person (mestizo or Caucasian). In Chile, 9% of the population is indigenous; this amounts to 1,585,680 people, with the two most populous indigenous ethnicities being Mapuche (83.8%) and Aymara (6.8%) (45).

In this context, studies are required regarding the differentiated aging processes for indigenous and non-indigenous older people. It is necessary to highlight the importance of conducting research into indigenous cultural practices and their implications for the aging process (40). Although this study is focused on two Chilean indigenous ethnic groups, we hope it can be used as a point of reference by other Latin American countries whose indigenous populations are experiencing very similar social processes to the Chilean case. In this respect, some native indigenous groups in Latin America—such as the Aymara and Mapuche in Chile—have in recent decades become ethnic minorities, whether due to the low rates of demographic renewal among indigenous peoples, low inter-ethnic cultural transmission (language, religiousness, worldview, and so on), increased processes of ethnic intermarrying and reproduction, assimilation into the dominant culture (Chilean) or acculturation, and even changes in interethnic relations (46).

It is difficult to formulate a specific hypothesis since, as previously stated, there is little available literature offering a specific

analysis of the relationship between the different dimensions of SWB and SA, especially in the Chilean multi-ethnic context. Undoubtedly, and within the scope of our aim, the only hypotheses that can be clearly formulated are related with demographic and socioeconomic variables. The association between social resources and SA is difficult to adjust to a classical hypothesis in the context of our aims. This is due to the characteristic family dynamics of multi-ethnic rural environments in Chile that are increasingly putting the elderly in situations of solitude, which permits to assume that other dimensions are becoming progressively more significant for SA. As such, it is possible to hypothesise a lack of association between social resources (structural social support) and SA, especially when statistical models include variables such as satisfaction with social relationships or with community and psychosocial dimensions of SWB. The latter, especially the dimensions that comprise it, causes the greatest difficulties for the formulation of hypotheses.

There is a lack of prior empirical evidence, especially in terms of samples similar to that examined in this study. There are no pre-existing frames of reference for multi-ethnic samples that are characterised by the presence of indigenous ethnicities with notably divergent cultural features in comparison with those that are characteristic of the society in which they are located, as in this case. The fundamental aim of this study is precisely to contribute

to creating this type of knowledge, through results that permit the identification of SWB that are most sensitive to ethnic diversity.

## Methods

### *Characteristics of participants and selection*

The study followed a quantitative and transversal approach with a sample consisting of 800 older people living in northern and southern Chile. A sample stratified by sex, ethnicity and place of residence (municipal or rural areas) was used to ensure representativeness in each of these territories. The fundamental features of the sample are set forth in Table 1. It is appropriate to highlight average age (72.07 years; SD=7.81) and that 71 % of the sample stated that they were indigenous (35 % Aymara and 65 % Mapuche).

Trained professionals administered the face-to-face questionnaire as interviews between August and October 2017. Spanish was the main language used for the scale. The native population uses Spanish on a daily basis, as it is the main language in Chilean society. The Ethics Committee of University of Tarapacá and the National Council for Science and Technology of Chile approved and monitored the ethical aspects of the study.

**Table 1.** Characteristics of participants

Variable	Categories	Non-Indigenous (n=231)	Aymara (n=201)	Mapuche (n=368)	n (%)
			n (%)		
Gender	Women	107 (46%)	106 (53 %)	180 (49 %)	393 (49 %)
	Men	124 (54 %)	95 (47 %)	188 (51 %)	407 (51 %)
Age groups	60 – 69 years	82 (35 %)	97 (48 %)	162 (44 %)	341 (43 %)
	70 – 79 years	102 (44 %)	75 (37 %)	134 (36 %)	311 (39 %)
	80 + years	47 (21 %)	29 (15 %)	72 (20 %)	148 (18 %)
	Married or cohabiting	112 (48 %)ª	120 (60 %)ᶜ	202 (55 %)	434 (54 %)
Marital status	Single	47 (20 %)ª	23 (11 %)ᶜ	54 (15 %)	124 (15 %)
	Widow(er)	49 (21 %)	45 (22 %)	96 (26 %)	190 (24 %)
	Divorced, separated	23 (11 %)ᵇ	13 (7 %)	16 (4 %)ᶜ	52 (7 %)



Variable	Categories	Non-Indigenous (n=231)	Aymara (n=201)	Mapuche (n=368)	n (%)
Residence	North (region of Arica y Parinacota)	110 (48 %)	201 (100 %)	0	311 (39 %)
	South (region of the Araucanía)	121 (52 %)	0	368 (100 %)	489 (61 %)
Education	Primary school incomplete	56 (24 %) <sup>a,b</sup>	127 (63 %) <sup>c</sup>	250 (68 %) <sup>c</sup>	433 (54 %)
	Primary school	120 (52 %) <sup>a,b</sup>	4-9 (24 %) <sup>c</sup>	76 (21 %) <sup>c</sup>	245 (31 %)
	High school or vocational education	48 (21 %) <sup>a,b</sup>	21 (10 %) <sup>c</sup>	39 (10 %) <sup>c</sup>	108 (13 %)
	Higher education	7 (3 %) <sup>b</sup>	4 (3 %)	3 (1 %) <sup>c</sup>	14 (2 %)

Note. <sup>a</sup> Different from Aymara ( $p < .05$ ); <sup>b</sup> Different from Mapuche ( $p < .05$ ); <sup>c</sup> Different from non-indigenous ( $p < .05$ )

Source: Own elaboration.

## Measures

**Successful aging.** The Successful Aging Inventory (SAI) was used (11). This is made up of 20 items, divided into five dimensions: mechanisms of functional performance, intrapsychic factors, gerotranscendence, spirituality, and life purpose/satisfaction. This inventory has been validated in Chilean indigenous and non-indigenous older people, proving to be a reliable and adequate instrument for this population (14).

**Subjective well-being.** The Personal Well-Being Index (PWI) was created from the Comprehensive Quality of Life Scale (47). A nine-item scale was used to evaluate satisfaction across the following factors: standard of living, health, achieving in life, relationships, safety, community-connectedness, future security, and spirituality/religion, with a question also included on the ninth item of overall life satisfaction. This questionnaire has been validated in the Chilean population, including the indigenous elderly (20).

**Social resources.** Having a partner (0=without partner, 1=with partner), living accompanied (0=living alone, 1=living accompanied) and number of cohabitants.

**Control variables.** Sex (0=man, 1=woman), age, ethnicity (0=non-indigenous, 1=indigenous), literacy (0=illiterate, 1=literate).

## Data analysis

To fulfil the study aims, data analysis was completed in two phases. First, descriptive analyses were performed for the study

variables, together with the bivariate correlations among the main study variables. Second, a hierarchical regression analysis was carried out for the SA variable, entailing the production of three models. Model 1 included control variables. Model 2 included social resources. Model 3 incorporated the nine dimensions of SWB: overall life satisfaction, standard of living, health, achieving in life, relationships, safety, community-connectedness, future security, and spirituality/religion. Version 23 of the IBM-SPSS programme was used to conduct the analyses.

## Results

Pursuing the logic proposed in the foregoing paragraph, our results are grouped into two main blocks. The first, supported by Tables 2 and 3, offers the results of the descriptive analysis conducted. The second block, supported by Table 4, engages in a detailed multivariate analysis to test the proposed hypotheses.

Table 2 shows internal consistency indices (Cronbach's alpha), which are acceptable for both measures from .90 to .93, the total number of items per construct and ranges (potential and actual). Table 3 sets forth the descriptive statistics and correlations of the main study variables. Specifically, the results show a statistically significant association between SA and overall life satisfaction ( $r = .39$ ;  $p < .01$ ), standard of living ( $r = .35$ ;  $p < .01$ ), health ( $r = .36$ ;  $p < .01$ ), achieving in life ( $r = .42$ ;  $p < .01$ ), relationships ( $r = .45$ ;  $p < .01$ ), safety ( $r = .44$ ;  $p < .01$ ), community-connectedness ( $r = .41$ ;  $p < .01$ ), future security ( $r = .40$ ;  $p < .01$ ), and spirituality/religion ( $r = .37$ ;  $p < .01$ ).

**Table 2.** Reliability, Number of Items, and Range of Study Variables

Variable	$\alpha$	Total number of items	Range	
			Potential	Actual
Successful aging	.90	20	0-80	8-80
Subjective well-being	.93	8	0-10	1-10

Source: Own elaboration.

**Table 3.** Mean, Standard Deviations, and Correlations among Study Variables

	1	2	3	4	5	6	7	8	9	10	M	SD
1. Successful aging	-										64.18	10.680
2. Overall life satisfaction	.386**	-									7.41	1.882
3. Satisfaction with standard of living	.346**	.850**	-								7.31	1.968
4. Satisfaction with health	.360**	.488**	.502**	-							6.37	2.316
5. Satisfaction with achieving in life	.422**	.689**	.712**	.540**	-						7.34	1.982
6. Satisfaction with relationships	.449**	.652**	.686**	.488**	.805**	-					7.40	2.013
7. Satisfaction with safety	.438**	.593**	.604**	.486**	.712**	.727**	-				7.08	2.050
8. Satisfaction with community-connectedness	.411**	.630**	.666**	.496**	.726**	.795**	.697**	-			7.33	2.091
9. Satisfaction with future security	.398**	.562**	.537**	.426**	.561**	.551**	.767**	.538**	-		6.85	2.115
10. Satisfaction with spirituality/religion	.367**	.487**	.486**	.355**	.589**	.594**	.571**	.592**	.508**	-	7.60	2.248

Note. M stands for mean. SD stands for standard deviation. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ 

Source: Own elaboration.

Table 4 presents the regression model for SA. Included in model 1 (control variables) are sex ( $\beta = .096$ ;  $p < .01$ ), age ( $\beta = -.177$ ;  $p < .001$ ), and ethnicity ( $\beta = -.094$ ;  $p < .01$ ). Model 2 (social resources) contains sex ( $\beta = .105$ ;  $p < .01$ ), age ( $\beta = -.167$ ;  $p < .001$ ), and ethnicity ( $\beta = -.085$ ;  $p < .01$ ). However, the variables of social resources included do not show an association with SA. Finally, Model 3 again incorporates the control variables of sex ( $\beta = .096$ ;  $p < .05$ ), age ( $\beta = -.136$ ;  $p < .001$ ), and ethnicity ( $\beta = -.077$ ;  $p < .01$ ), but it also adds satisfaction with health ( $\beta = .072$ ;  $p < .05$ ), satisfaction with relationships ( $\beta = .193$ ;  $p < .01$ ), satisfaction with

future security ( $\beta = .137$ ;  $p < .01$ ), and satisfaction with religion/spirituality ( $\beta = .098$ ;  $p < .01$ ). In accordance with the hypotheses subject to examination, the inclusion of the various SWB domains (Model 3) notably increased the explanatory power as regards SA, with 29.4 % of explained variance.

In summary, SA is positively associated with being a woman, satisfaction with health, satisfaction with relationships, satisfaction with future security, and satisfaction with religion/spirituality. In contrast, it is negatively associated with age and being indigenous.

**Table 4.** Hierarchical Regression Analyses for Successful Aging

Variable	Model 1 B	Model 2 $\beta$	Model 3 $\beta$
<b>Step 1. Control variable</b>			
Sex (1=female)	.096**	.105**	.069*
Age	-.177***	-.167***	-.136***
Ethnicity (1=native)	-.094**	-.085**	-.077**
Literacy (1=literate)	.064	.060	.056
<b>Step 2. Social resources</b>			
Having a partner		.051	.038
Living with someone else		.070	.027
Number of cohabitants		.021	.024
<b>Step 3. Subjective well-being</b>			
Overall life satisfaction			.064
Satisfaction with standard of living			.032
Satisfaction with health			.072*
Satisfaction with achieving in life			.054
Satisfaction with relationships			.193**
Satisfaction with safety			.059
Satisfaction with community-connectedness			.063
Satisfaction with future security			.137**
Satisfaction with spirituality/religion			.098**
F	13.296***	2.550*	30.817***
R <sup>2</sup>	.063	.072	.294

Note. \*p<.05, \*\*p<.01, \*\*\*p<.001

Source: Own elaboration.

## Discussion

The following study is intended to offer a contribution to knowledge regarding the relationship between subjective well-being and successful aging. The most significant aspect of this contribution is the sample from which the data were obtained, which included population from indigenous ethnicities living in an indigenous environment in Chile. The results partially confirm the proposed hypotheses.

The discussion of findings will be divided into three main blocks: (1) demographic and socioeconomic variables and their association with SA; (2) absence of association between the variables relating to social resources and SA; and (3) relationship between subjective well-being and successful aging.

First, the sociodemographic variables that were analysed and are positively associated with SA are being a woman, being young, and not being indigenous. For the latter two, our results

corroborate the results of previous studies with older people (9, 28, 42). Our study therefore adds empirical evidence to the patterns of association that have been established in existing literature. In this regard, as aging takes place, the decline in physical and cognitive functions begins to negatively affect the capacity to adapt to the changes that come with it. Additionally, belonging to an indigenous ethnicity that also constitutes an ethnic minority implies the accumulation of various situations of risk that result in a higher-risk old age. Given the importance of this point, there will be a subsequent detailed discussion of its research implications and the impact of our results in this respect.

### ***Successful aging, gender and social resources: The key role of indigenous communities***

Unexpectedly, women showed a positive association with successful aging. Our results underline Depp and Jeste's arguments (48) that the effect of gender on SA is confusing. The meta-analysis conducted by these authors revealed that 50% of the longitudinal studies reviewed found that women were more likely to experience successful aging than men. Additionally, this study could not corroborate the association between level of literacy (knowing how to read and write) and successful aging, despite the empirical evidence showing that SA is more likely at higher levels of educational qualification (9).

Second, the variables establishing availability of "social resources" (having a partner, not living alone, and number of co-habitants) did not show a statistically significant association with SA, though various studies indicate otherwise (49); for example, Strawbridge, Cohen, Shema, and Kaplan's research (50) showed how having five or more close personal contacts increased the likelihood of SA. These findings prompt a more specific analysis concerning the influence of having a partner and living alone (or otherwise) on the well-being of Chilean older people, particularly when changes in terms of demography and family structures mean that a high number of people will live alone in their old age.

This study focused on rural and indigenous areas experiencing transformations in family structure due to migration from rural environments to cities. In highland areas where members of the Aymara community live, there has been a change in household structure with a trend toward childless households and single-person homes, due to an accelerated process of depopulation of many communities because of the migration of younger people.

In the case of Mapuche communities, a characteristic process is marked by the presence of households made up of grandparents caring for their grandchildren, while their adult children live in the city. These processes give rise to common aspects of community development in the rural areas of northern and southern Chile, increasing the importance of community in the lives of the elderly.

Of key importance as support figures in the community are neighbours and the neighbourhood. In daily life, these sources of support help to resolve practical problems but also offer a source of emotional support and advice. In these community relationships, social, religious, cultural and indigenous groups stand out as a source of social support and, at the same time, a mechanism for social integration. This centrality of the community to the lives of indigenous older people in Chile could contribute to explaining the importance of the relational and spiritual/religious dimensions of successful aging in subjective well-being.

### ***Subjective well-being and successful aging: Exploring the role of satisfaction with health, social relationships, future security, and spiritual experiences***

Though the bivariate correlations statistically show significant associations between the various domains of subjective well-being and successful aging, only four dimensions were predictive of SA in the multivariate analyses (health, social relationships, future security and protection, and religion/spirituality). This demonstrates the specificity of the successful aging process to the cultural context that is subject to analysis (51).

As expected, the perception of being satisfied with one's state of health has a positive influence on SA. In this respect, as Whitely, Popham, and Benzeval (52) argue, positive self-perception and satisfaction with health are associated with increased levels of SA, even among those older persons who have diseases or some level of disability. In other words, the capacity to adapt to and cope positively with adverse health conditions inherent to old age will be determinants of SA (9).

A positive association was also hypothesised between satisfaction with social relationships and SA. This study confirms that key domains of subjective well-being are positively associated with successful aging. In this regard, various studies verify

the potential value of social relationships in fostering good aging (49, 53), with the assumption of social support mobilisation in situations of need. In the specific case of Chile, one of the most important social relationships is with family, and in this regard a study carried out by Gallardo-Peralta, Barrón López de Roda, Molina, and Schettini (54) showed how the quality of family relationships (satisfaction with family relationships) was associated with increased well-being. This result, moreover, helps to explain the lack of a statistically significant association between available social resources and SA. In line with previous research, functional social support and satisfaction with social relationships—and not the structure or structural aspects of the network—define the range of sociocultural variables that are related with the SA process (32, 35).

Another dimension that is positively associated with SA is satisfaction with future security and protection. Though a very general evaluation of security, being able to perceive that one will have access to financial and non-financial resources arouses a feeling of well-being. Along these lines, one of the areas of security with the greatest impact on SA is financial security (55), since it allows older people independence in having and using a certain amount of stable financial resources that are sufficient to ensure a good standard of living.

Finally, satisfaction with spiritual experiences and religious beliefs is positively associated with successful aging. In this respect, numerous studies confirm that religious and spiritual experiences produce a positive impact on adaptation to and coping with the various aging processes (8, 56). In other words, religion and spirituality offer the elderly guidelines, principles or strategies to cope with the various difficulties inherent to aging, such as deteriorations in health and declining functionality, losses in terms of roles and social networks and in cognitive functions, deteriorations in economic status, and experiencing feelings of loneliness, sadness or hopelessness (57).

## Limitations

Certain limitations must be taken into account with relation to this research. First, the study design is cross-sectional. This invites a cautious interpretation of the potential existence of causal relationships. The interest of our analytical framework was to explore the potential impact of subjective well-being on successful aging, but to be able to identify the existence and direction of causal relationships, it is necessary to design longitudinal research. Qualitative methodologies would also be useful for an in-depth examination of the potential associations between the SA process and the availability of social resources; of particular use would be participative methodologies, which would guide us on the specificity of these relationships in ethnically diverse populations. Second, although the sample was representative for the regions in the north (Arica and Parinacota) and south (Araucanía) of Chile, it is not a national sample. The results cannot therefore be generalised for all Chilean older people and should be understood/applied in the specific geographical context in which they were collected. However, the sample design does suggest that the results are representative of the two above-mentioned regions, as well as that the sample structure is a faithful reflection of the multi-ethnic character of the Chilean older population.

In summary, evaluating successful aging is a multidimensional process subject to life paths and cultural contexts. Subjective well-being is a central element in understanding it. Along these lines and as proposed by Kahana and Kahana (58), SA is a process composed of social and psychological resources, preventive and corrective adaptations, psychological, existential, and social well-being. Well-being is one of the constituents of successful aging, and in this study, we have confirmed that among Chilean older people, SA is principally associated with well-being or satisfaction with health conditions, social relationships, future security and protection, and religion/spirituality.

**Conflict of interest:** None declared.

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