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Effects of frailty status on happiness and life satisfaction: The mediating role of self-perceived health

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Abstract During the past decade, the frail syndrome has acquired great importance due to its detrimental social and psychological consequences. In the present study, we investigate the association between frailty status and well-being (happiness and life satisfaction) among older adults, and we test the role of self-perceived health as potential mediator in such relations. We recruited 1205 older Chilean adults who responded to measures about their objective health status (frailty-related indicators), well-being, and self-perceived health. Overall, path analyses showed that frailty status is negatively associated to life satisfaction and happiness, and that self-perceived health works as a mediator for such relations. The social and psychological consequences of the frail syndrome in older adults are discussed.

Efectos del estado de fragilidad en la felicidad y la satisfacción con la vida: el papel mediador de la salud autopercibida

PALABRAS CLAVE
Adultos mayores,
fragilidad,
felicidad,
satisfacción vital,
salud autopercibida

Resumen Durante la última década, el síndrome de fragilidad ha adquirido gran importancia debido a sus consecuencias sociales y psicológicas perjudiciales. En el presente estudio, investigamos la asociación entre el estado de fragilidad y el bienestar (felicidad y satisfacción con la vida) en los adultos mayores, y evaluamos el papel de la salud autopercibida como potencial mediador de dichas relaciones. Reclutamos a 1205 adultos mayores chilenos que respondieron preguntas acerca de su estado de salud objetivo (indicadores relacionados con el estado de fragilidad), bienestar y autopercepción de salud. En términos generales, los análisis mostraron que el estado de fragilidad se asocia negativamente con la satisfacción vital y la felicidad, y que la salud autopercibida tiene un papel mediador en tales relaciones. Se discuten las consecuencias sociales y psicológicas del síndrome de fragilidad en adultos mayores.

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Aging population and frail syndrome

The global population is growing at an unprecedented speed, and estimates indicate that this trend is unlikely to change during the current century (Gerland et al., 2014). In this context, figures show that by the year 2050, people over 65 years old will represent the largest population cohort and account for approximately 17% of the world total (Camici & Liberale, 2017). Such demographic projections entail the need for drastic modifications to social and public health policies, due to the increase of chronic and acute diseases that are highly prevalent within this age group (Beard & Bloom, 2015; Palomo et al., 2019; Samper-Ternent, Reyes-Ortiz, Ottenbacher, & Cano, 2017). In this sense, a focus on how to improve the well-being of aging adults could cushion the (expected) burden on the health system and promote healthy aging.

During the past decade, frail syndrome has acquired great importance, primarily because it is intrinsically related to the development of dependence among older people (Buckinx et al., 2015). Frail syndrome produces a decrease in the reserve capacity of the physiological systems, increasing the risk of disability and death (Fried et al., 2001). Thus, frailty status is a clinically recognizable state characterized by a decline in function of multiple physiologic systems, resulting in physical and biomedical deterioration, and an overall increased vulnerability (Xue, 2011).

Frail syndrome and well-being

Physiological vulnerability is not the only consequence of frailty status among older adults. Functional and physical impairment are factors believed to also lead to decreased well-being (i.e. life satisfaction, happiness, and psychological well-being) among older adults (Andrew, Fisk, & Rockwood, 2012; Hubbard, Goodwin, Llewellyn, Warmoth, & Lang, 2014). Early meta-analytical evidence has shown that healthier older adults are usually more satisfied with their life (Okun, Stock, Haring, & Witter, 1984), and a more recent revision corroborates this idea (Diener, Oishi, & Tay, 2018). Indeed, research shows that frailty status is negatively related to perceived general health but also to indicators of well-being such as quality of life (Sentandreu-Mañó et al. 2019). This is why, in recent years, studies about older adults' happiness and life satisfaction and the relationship with health variables have become more relevant. For instance, Hubbard et al. (2014) reported a negative association between the frailty index and a measure of well-being based on Maslow's hierarchy of needs. Similarly, Andrew et al. (2012) analysed the effects of health deficits associated with frailty on different dimensions of psychological well-being. They reported that—even after controlling for potential confounding variables such as age, sex, and mental health—the older adults who experienced more frailty-related health deficits reported less well-being. In a similar vein, some literature has also suggested that the negative effects of frailty status can also be observed on the overall cognitive evaluation of one's life (i.e. life satisfaction–as opposed to the subjective expression of personal well-being that includes an evaluation of one's emotional state: happiness) (Yang, Gu, & Mitnitski, 2016).

Thus, overall, literature suggests that the effects of frail syndrome can, and do, go beyond the physiological sphere by also having negative psychological consequences, such as reduced happiness, and life satisfaction. Broadly speaking, the idea that diseases that disrupt daily functioning are negatively related with happiness (and other well-being-related measures), is a relatively well-accepted hypothesis within the fields of health psychology and the study of happiness (Angner, Ghandhi, Purvis, Amante, & Allison, 2013). However, the reason for this association is less clear.

Objective health status, self-perceived health, and well-being

Even though the above-mentioned studies indicate that objective deterioration of health is linked with less life satisfaction and happiness, this association seems to be rather weak. Because of this, it has been suggested that the experiential or subjective dimensions of health (i.e. self-perceived health) might be more closely related to well-being measures than actual health status (Berg, Hassing, Nilsson, & Johansson, 2009). Self-perceived health (also called self-rated health) is being long used in social sciences as a subjective indicator strongly associated with health-related outcomes such as mortality (Mossey & Shapiro, 1982; Pfeiffer, 1970). Indeed, Jylha, Guralnik, Ferrucci, Jokela, and Heikkinen (1998) reported that self-perceived health, when controlling for age, significantly predicted mortality in two different cultures (Finish and Italian). In addition, other literature has shown that self-perceived health continues to be a significant predictor of mortality even after controlling for common health-related biomarkers (Jylhä, Volpato, & Guralnik, 2006). Regarding outcomes associated to well-being, research has also shown that the mere self-rated health status of older people is able to influence perceptions of happiness (Lobos, Lapo, & Schnettler, 2016). Importantly, other research has shown that the effect of objective health status on well-being might be explained, indirectly, by a lower self-perceived health. For instance, Cornelisse-Vermaat, Antonides, Van Ophem, and Van Den Brink (2006) showed that, while body mass index (BMI) was only weakly (and negatively) associated with happiness, it had a strong negative effect on perceived health, which indirectly led to less happiness. Similarly, a study among Brazilian older adults showed that self-rated health mediated the relationship between different objective health indicators (e.g. number of diseases experienced during the past year, depressive symptoms, etc.) and life satisfaction (Pinto, Fontaine, & Neri, 2016).

Taking into consideration the overall state of physiological vulnerability produced by frail syndrome, it is not surprising that frail older adults may perceive their health as deteriorating, and, therefore, experience less well-being. However, given that self-perceived health is not only influenced by objective health status, but also by how disease-derived symptoms affect an individual's daily functioning (Leinonen, Heikkinen, & Jylha, 2002; Winter, Lawton, Langston, Ruckdeschel, & Sando, 2007), environmental improvements aimed to minimize the burden of physical and psychological impairments that frail older adults experience daily have the potential to reduce the negative impact of objective health status on well-being among older adults. Therefore, exploring the role of self-perceived health in the association between objective health status and

well-being may be of great interest for health-related policy making. Importantly, given that—to our knowledge—most of the previous literature investigated this idea using only partial indicators of objective health status (e.g. BMI, number of diseases experienced during the past year) (Cornelisse-Vermaat et al., 2006; Pinto et al. 2016), the use of a more comprehensive measure of objective health (i.e. frailty status) could help to better understand the relations between the targeted constructs. Similarly, previous research (e.g. Cornelisse-Vermaat et al., 2006; Lobos et al., 2016; Pinto et al., 2016) has generally focused on exploring the effect of objective, and self-rated health status using a single measure of well-being (that could be either cognitive or affective based). Therefore, the inclusion of measures of well-being that capture more than just one of its dimensions would allow us to test whether objective, and self-rated health status differentially affect the various aspects of a person's well-being.

In summary, in this paper, we explore (1) the associations of frailty status with two well-being measures—happiness and life satisfaction—among older adults, and (2) the role of self-perceived health as a potential mediator of such relations. A plethora of research suggests that life satisfaction and happiness are constructs that—while related to a certain extent (Moyano-Díaz, 2016) are still conceptually different—where the former is mostly a cognitive evaluation, whereas the latter is mostly an affective one (Diener, Emmons, Larsen, & Griffin, 1985; Lyubomirsky & Lepper, 1999), here we separately explore the association between frailty status, life satisfaction, and happiness. We expect frailty status to be negatively related to both measures of well-being and self-perceived health to be a mediator of such relations. Importantly, our hypotheses are not intended to exclude the possibility that psychosomatic factors (e.g., reduced well-being) might negatively affect objective health status. Indeed, previous research suggests that depression among older adults tends to aggravate the outcomes of many medical disorders (Alexopoulos, 2005).[1]

Method

Participants

To achieve a sample representative of Chilean older adults in terms of frailty prevalence, an a priori power analysis was conducted. Using an alpha of .05, a power of .80, a relative prevalence of frailty syndrome of 22.3% (Chile) (Alvarado, Zunzunegui, Beland, & Bamvita, 2008), and 20% of loss tracking rate, the power analysis suggested a sample size of N = 1420 participants. As inclusion criteria, we determined that participants had to be (1) older than 65, and (2) self-reliant enough to perform all the tasks associated to the frailty evaluation. Such assessment of self-reliance was based on the "Functional Examination of the Elderly" (EFAM, MINSAL). Data was collected in a central region (Maule) of Chile. To assure that the sample was representative of the older adults of the above-mentioned region, participants from the four provincial capitals of the region were recruited, and within each province, we also recruited participants from two rural municipalities (selected randomly from the official list of municipalities of each province). The number of participants recruited from the capital provinces and rural municipalities, as well as the percentage of men and women, were proportional to the number of older adults living in each specific area and to the sex distribution of the area (based on the data from the survey "National Socioeconomic Characterization", CASEN, in 2013) (Ministerio de Desarrollo Social, 2015). Finally, within each area, public healthcare centres were randomly and sequentially picked (information available at Servicio de Salud del Maule, www.ssmaule.cl), and approached until we achieved the aimed sample size for the area (accounting for the expected 20% loss in tracking rate). Thus, between September 2016 and October 2017, we recruited a sample of 1205 consenting older adults. Of this number, 67.6% were females, and 77.4% indicated that they live in an urban area. The age range varied from 65 to 92 (M = 73.30, SD = 5.89). Table 1 presents further sociodemographic information for the sample.

Procedure

Instruments

This study is part of a project conducted by the Interdisciplinary Excellence Research Program on Healthy Aging (PIEI-ES) that aims to carry out an interdisciplinary study on aging process, generating basic and applied knowledge that contributes to improving people's quality of life. For the present study however, only some of the variables measured in the context of the PIEI-ES were used, namely those

Table 1 Distribution of relevant sociodemographic characteristics of the sample

Characteristic	Total (n = 1205)	No frailty (n = 440)	Pre-frailty (n = 469)	Frailty (n = 296)
Sex (%)				
Male	32.3	36.3	33.0	25.3
Female	67.7	63.7	67.0	74.7
Age ($M \pm SD$)	73.3 ± 5.9	72.0 ± 5.0	73.5 ± 6.1	74.9 ± 6.4
Residential area (%)				
Urban	77.4	75.0	78.0	80.1
Rural	22.6	25.0	22.0	19.9
Years of education ($M \pm SD$)	7.2 ± 4.4	7.9 ± 4.5	7.3 ± 4.4	6.1 ± 4.0

that allow the construction and categorization of the elder people's frailty index (Fried et al., 2001), and psychological measures of happiness and life satisfaction, as well as one item of self-perceived health. It is worth noting that the PIEI-ES project was approved by the Research Ethics Committee at the Universidad de Talca. Data (anonymized) for the current study is publicly available and can be found at https://doi.org/10.17632/ghrvvdf6bs.1.

Subjective Happiness Scale. Participants' happiness was measured using an adapted Chilean version (Moyano-Díaz, 2010) of the Subjetive Happiness Scale by Lyubomirsky and Lepper (1999). The scale is formed by four semantic differential 7-point items (one reversed coded). Higher scores indicate more happiness. Previous studies have reported that the scale presents adequate reliability, both when applied to the general Chilean population (α = .78) (Vera-Villarroel, Celis-Atenas, & Córdova-Rubio, 2011) as well as when applied to older Chilean adults (α = .74) (Lobos, Grunert, Bustamante & Schnettler, 2016). In this study, the scale also showed adequate reliability (α = .80).

Life Satisfaction. An adapted Chilean version (Moyano-Díaz, 2010) of the Satisfaction With Life Scale by Diener et al. (1985) was used. The scale contains five Likert-type items (where *1 = strongly disagree, and 6 = strongly agree*). Higher scores indicate that a person is more satisfied with his/her life. When applied to the general Chilean population (α = .82) (Vera-Villarroel, Urzúa, Pavez, Celis-Atenas, & Silva, 2012), as well as when applied to older Chilean adults (α= .83) (Schnettler, Miranda-Zapata, et al., 2017), the scale has presented adequate reliability in past research. In this study, the scale also showed adequate reliability (α = .84). Moreover, the scale has been also showed to be positively related to alternative measures of life satisfaction validated for Chilean samples (Schnettler, Orellana, et al., 2017).

Self-perceived health. One Likert-type item assessing overall self-perceived health (where *1* = very bad, and *5* = excellent) of the four-item Health-Related-Quality of Life scale (HRQoL) by Hennessy, Moriarty, Zack, Scherr, and Brackbill (1994) was used. The remaining items on the HRQoL scale assess the number of days that an individual has spent being physically and emotionally impaired during the last month due to illness. Given that our focus here is self-perceived health, rather than actual health status, these items were not used in for the present study. It is worth noting that self-perceived health is commonly measured by a single question with a Likert-type answer (Jylhä, 2011).

Along with the above-mentioned measures, participants were also asked to provide some sociodemographic information including age, sex, level of education, and residency area (urban or rural).

Diagnosis of frailty syndrome

Frailty syndrome was established following the Fried criteria (Fried et al., 2001; Palomo et al., 2019): (i) weakness (women ≤ 18 kg, men ≤ 26 kg), measuring strength with a Camry Electronic Handgrip Dynamometer; (ii) increased exhaustion, determined by a positive answer to any of the following two slightly modified questions from the Center for Epidemiological Studies Depression Scale: "I felt that anything I did was a big effort" and "I felt that I could not keep on doing things" at least three to four days a week"; (iii) slow walking speed, using a three-meter walking test (usual place) with a cut-off of <0.8 m/s, adjusted for sex and height, following the Short Physical Performance Battery standards; (iv) low physical activity, defined as the worse quintile in the Physical Activity Scale for the Elderly scores; and (v) self-reported unintentional loss weight (≥ 4.5 kg in the last year). Then, following Fried et al. (2001), the subjects were classified as frail (three or more positive criteria), pre-frail (one or two positive criteria), and non-frail or robust (zero positive criteria).

Analytical strategy

First, we reported descriptive statistics for frailty syndrome as well as the associations between the constructs of interest. After that, a series of path analyses (using the macro PROCESS for SPSS) (Hayes, 2012) were conducted to test our main hypotheses: whether pre-frailty and frailty status relate to happiness and life satisfaction among older adults, and whether self-perceived health indirectly explain such relations. We followed Hayes and Preacher's recommendations on how to conduct path analyses with multicategorical independent variables (Hayes & Preacher, 2014). When working with multicategorical independent variables in mediation models, different types of coding can be defined depending on specific contrasts needed. We used indicator coding, meaning that we used robust participants (i.e. non-frail) as our reference category. In other words, all the comparisons are made against the non-frail group. The decision to follow this analytical strategy regarding the reference group is based on the fact that previous literature on the effects frailty status has on well-being usually finds differences between relatively healthy individuals and frail ones, but the literature is not consistent enough to derive strong expectations regarding differences between pre-frailty and frailty individuals. Moreover, comparing individuals that qualitatively vary in fragility (i.e., comparisons between frailty categories: non-frail, pre-frailty, and frailty) is a commonly used approach in frailty research (cf. de Andrade, Lebrão, Santos, & de Oliveira, 2013; Fang, Chau, Wong, Fung, & Woo, 2018; Wilhelmson, Fritzell, Eklund, & Dahlin-Ivanoff, 2013).

Finally, a plethora of research has shown that a number of sociodemographic factors such as age (Abizanda et al., 2014), sex (Puts, Lips, & Deeg, 2005), education level (Hoogendijk et al., 2014), and area of residence (rural or urban) Song, MacKnight, Latta, Mitnitski, and Rockwood, 2007) are associated with experiencing frail syndrome and are associated with individuals' well-being (Chopik, Newton, Ryan, Kashdan, & Jarden, 2019; Jebb, Tay, Diener, & Oishi, 2018; Okulicz-Kozaryn, & Mazelis, 2016; Soysa & Wilcomb, 2015). Because of this, we controlled for all of them in a second pair of path analyses. Results controlling for these variables are presented in Figure S1 in the supplemental material. They do not differ from the those presented in this article.

Results

Descriptive statistics and associations between constructs of interest

24.6% (74.7% women, and the rest, men) of the sample met the criteria to be classified in the frailty group. 38.9% (67% women, and the rest, men) fell into the pre-frail group,

and the remaining 36.5% (63.7% women, and the rest, men) were considered to be robust participants (Table 1). As it can be observed in Table 2, self-perceived health was positively related to both happiness and life satisfaction to the same degree, and these latter two measures showed also a (higher) positive association in the total sample, as well as in each frailty category.

Direct and indirect effects of frailty status on happiness and life satisfaction

As can be observed in Figure 1, both pre-frailty and frailty status, compared to our reference category (i.e. the non-frail group), negatively influenced participants' self-perceived health. This relation, however, was stronger when comparing frailty participants against the non-frail ones than it was when comparing the pre-frailty group against the robust group. Self-perceived health, in turn, positively influenced both happiness and life satisfaction to a similar extent. Regarding total and direct effects, while the frailty group showed negative total and direct effects on both measures of well-being, the pre-frailty one showed negative total and direct effects on happiness but it did not influence life satisfaction. Finally, all the comparisons for each model showed negative indirect effects through self-perceived health, and the ones related to the frailty participants were greater. In other words, the negative relation between objective health status and happiness and life satisfaction was partially explained by participant's self-perceived health, which supported our predictions.

Discussion

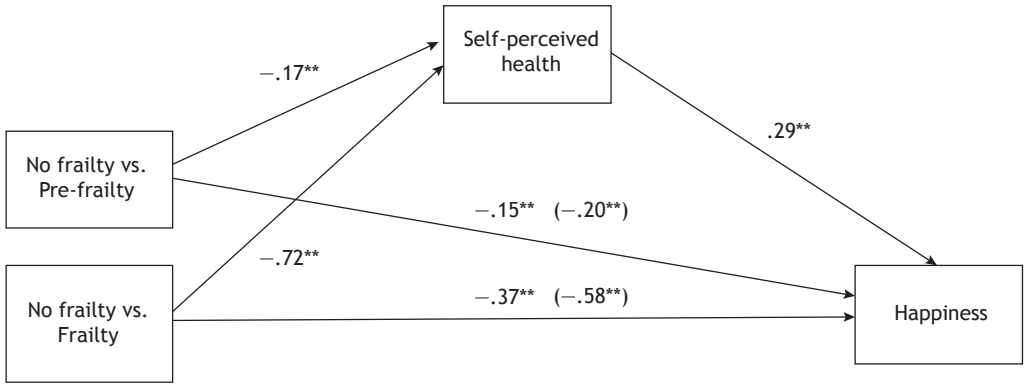
The world population is aging, and estimates suggest that this trend will not change anytime soon (Camici & Liberale 2017; Gerland et al., 2014). Public health policy makers should not only focus on promoting healthy aging from a solely physiological and biomedical viewpoint, but should also ensure that the psychological needs (i.e. well-being) of senior citizens are met. In the present study, we investigated the role of self-perceived health in the relationship between frail syndrome and well-being. In particular, we explored the association between frailty status and two distinct measures of well-being (happiness and life satisfaction). Furthermore, taking into consideration that past literature shows that the negative influence of objective health status on measures of well-being might be better understood by individuals' perceptions about their health (Berg et al., 2009), we also investigated whether certain experiential consequences of fragility—reduced self-perceived health—could partly explain the above-mentioned relations.

First, correlation analyses showed the expected pattern, and the two measures of well-being were more associated

Table 2 Descriptive statistics and correlations between self-perceived health, happiness, and life satisfaction for the total sample and for each frailty category

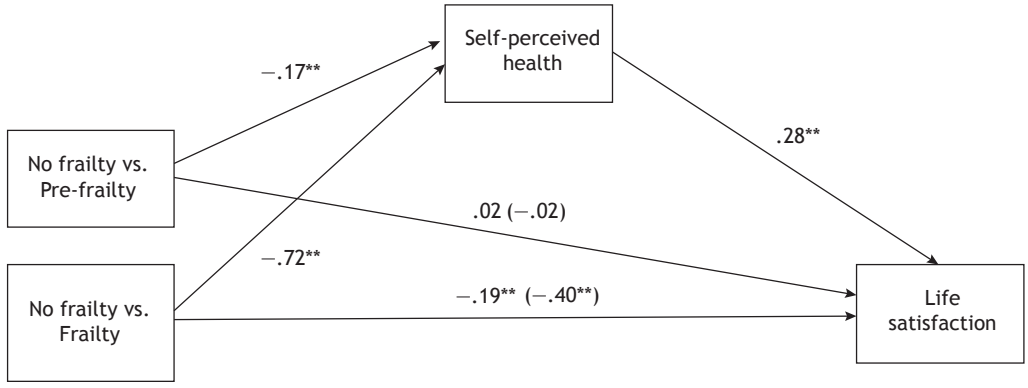
	Measure	1	2	3
Total sample	1. Self-perceived health	-	.28**	.28**
	2. Happiness	-	-	.49**
	3. Life satisfaction	-	-	-
	M	2.67	5.7	4.44
	SD	.84	1.04	.95
No frailty (*N* = 440)	1. Self-perceived health	-	.24**	.26**
	2. Happiness	-		.40**
	3. Life satisfaction	-	-	-
	M	2.92	5.93	4.55
	SD	.80	.85	.88
Pre-frailty (*N* = 469)	1. Self-perceived health	-	.23**	.23**
	2. Happiness	-	-	.53**
	3. Life satisfaction	-	-	-
	M	2.75	5.72	4.53
	SD	.81	1.05	.94
Frailty (*N* = 296)	1. Self-perceived health	-	.20**	.21**
	2. Happiness	-	-	.49**
	3. Life satisfaction	-	-	-
	M	2.20	5.34	4.15
	SD	.75	1.17	1.01

Note: ** $p < .001$



Full model: $F(3, 1200) = 42.74$, p .001, $R^2 = .09$
Indirect effects through selfperceived health:
No frailty vs. Pre-frailty: $b = -.04$, $SE = .01$, 95% CI [−.08, −.01]
No frailty vs. Frailty: b = −.21, SE = .03, 95% CI [−.27, −.014]

Model 2



Full model: $F(3, 1200) = 37.94$, p .001, $R^2 = .08$
Indirect effects through selfperceived health:
No frailty vs. Pre-frailty: $b = -.04$, $SE = .01$, 95% CI [−.08, −.01]
No frailty vs. Frailty: b = −.20, SE = .03, 95% CI [−.26, −.015]

Note: Bootstrapping fixed to 5000 re-samples, bias-corrected; * = CIs does not include zero. Total effects in Model 1 and Model 2 are presented between parenthesis, next to the direct ones.

Figure 1. Effects that frailty and pre-frailty status have on happiness and life satisfaction through self-perceived health.

to each other than to the measure of self-perceived health. These differential associations support the idea that, at least from a patients' perspective, well-being and self-perceived health status are distinct constructs–the first one is more closely linked to mental health, and the second is more associated to physical functioning (Smith, Avis, & Assmann, 1999). Regarding the direct effects of frail syndrome on happiness and life satisfaction, the results confirmed our hypotheses: frail older adults, compared to non-frail ones, reported being less happy and less satisfied with their life. These results (conceptually) replicated previous work showing that frailty status is negatively associated with measures of subjective and psychological well-being (Andrew et al., 2012; Hubbard et al., 2014), and that it can also be associated with more cognitive-based evaluations of one's own life (Yang et al., 2016). Importantly, our results pointed to potential specific differences among the frailty groups (i.e. non-frail, pre-frailty, and frailty) in terms of their associations to life satisfaction and happiness. That is, frailty status differentially influenced the two well-being constructs, suggesting that the common focus on single measures of well-being seen in past research (Cornelisse-Vermaat et al., 2006; Lobos et al., 2016; Pinto et al., 2016) is probably limited in scope. In particular, while those in the frailty category showed less life satisfaction when compared with the non-frail ones, those categorized as pre-frail did not show any differences with the robust group. This is different to what we observed for happiness: elder people in both frail groups (pre-frailty and frail) reported less happiness than those in the non-frail group. It might be that a measure of life satisfaction is a cognitive-based evaluation that requires overall life to be evaluated in different dimensions (Diener et al., 1985) and allows for more perspective-taking, in which things other than just health-related issues are taken into consideration. As such, a pre-frailty elder might see him or herself in a relatively vulnerable state, but still be able to reach a positive conclusion when evaluating his or her life.

Regarding whether self-perceived health could explain the negative relationship between fragility and well-being, overall results supported our predictions. Both the pre-frailty

and frailty individuals rated their self-perceived health as being worse than those in the robust group, and this, in turn, partially explained the relations between fragility and the two well-being measures. These results are aligned with previous work showing that objective heath status can indirectly impact people's well-being through self-rated health (Cornelisse-Vermaat et al., 2006). Indeed, we successfully replicated the findings reported by Pinto et al. (2016) on the effect frailty status has on life satisfaction, and we extended them to the research of happiness. Importantly, we also observed the mediating role of self-perceived health in the relationship between the pre-frailty group (compared to the robust one) and life satisfaction, even though this relationship did not reach the significant threshold as a direct path. It might be that even if the objective health status of an pre-frail individual do not significantly differ from the one of a heathy person, the daily functioning impairment derived from a condition of reduced health may still decrease his/her self-perceived health, thus causing less life satisfaction (Leinonen et al., 2002; Winter et al., 2007).

Limitations and future directions

Our investigation is not exempt of limitations. First, although overall our results showed that self-perceived health and measures of well-being varied as a function of older adults' fragility, given that this was a cross-sectional study and we measured both set of variables at the same time, we cannot fully argue that it is self-perceived health ratings that fully influences well-being (or vice versa). Indeed, some research has shown that persistent well-being levels do predict subjective health (Ryff, Radler, & Friedman, 2015). That being said, our models, and previous literature, seem to suggest that the directional path tested in the current study is theoretically, and empirically, feasible (Okun et al., 1984; Diener, et al., 2018). Secondly, although we used well-known measures of life satisfaction (Diener et al., 1985), and happiness (Lyubomirsky & Lepper, 1999), our measure of self-perceived health was based on a single item. Future developments should explore the tested relationships using more comprehensive measures of health self-perception, and thus ensure the validity of the measurement itself. Finally, the present study only measured self-perceived health, but did not directly look into self-perceived illness, a construct that might relate differently with frailty status and well-being measures. Indeed, some theoretical claims have indicated that, during older adulthood, perceptions of healthiness and unhealthiness (or perceived illness) are likely to work as two separate dimensions of our health psychology instead of two endpoints of a continuum (for a review see Rakowski, 1984). Thus, future studies should build on the present results by measuring and testing the mediating role of perceived unhealthiness—as an independent construct—in the relation between fragility and well-being.

Overall, our results show that fragility among older adults is negatively related to both, happiness, and life satisfaction. This negative relation between frailty status and well-being measures is partly explained by the fact that frailty status tends to decrease participants' self-perceived health, which negatively influences happiness and life satisfaction.

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