Character Strengths and Resilience in Older Adults during the COVID-19 Pandemic

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Résumé

Au cours de la pandémie, les personnes âgées étaient perçues comme un groupe vulnérable sans que leurs diverses forces soient prises en compte. Cette étude a exploré les liens entre les forces de caractère et la résilience, et vérifié si certaines forces pouvaient prédire la résilience pendant la pandémie de COVID-19. Un échantillon de 92 participants (femmes = 79,1%) âgés de 70 ans et plus (M = 75,6 ans) ont rempli la version en ligne de l'inventaire (VIA-IS-P) des 24 forces de caractère (regroupées sous six vertus), créé par l'Institut VIA. Les participants ont aussi rempli le questionnaire de l'échelle de résilience de Connor et Davidson. Les résultats ont montré que 20 des 24 forces étaient corrélées positivement et significativement avec la résilience. Une analyse de régression multiple a révélé que les vertus de courage et de transcendance, ainsi que les attitudes envers le vieillissement prédisaient tout particulièrement le niveau de résilience. Des interventions devraient être mises au point pour améliorer certaines forces (p. ex., la créativité, la joie de vivre, l'espoir, l'humour et la curiosité), tout en réduisant l'âgisme, afin de promouvoir la résilience.

Abstract

During the pandemic, older adults were perceived as a vulnerable group without considering their various strengths. This study explored the associations between character strengths and resilience, and verified if some of these could predict resilience during the COVID-19 pandemic. A sample of 92 participants (women = 79.1%), ≥ 70 years of age (mean = 75.6 years), completed an online version of the Values in Action Inventory of Strengths – Positively keyed (VIA-IS-P) to assess 24 character strengths (grouped under six virtues) and the Connor and Davidson Resilience Scale. Results showed that 20 of the 24 strengths correlated positively and significantly with resilience. A multiple regression analysis revealed that the virtues of courage and transcendence, as well as attitudes toward aging, uniquely predicted the level of resilience. Interventions should be developed to improve certain strengths (e.g., creativity, zest, hope, humor, and curiosity), while reducing ageism, in order to promote resilience.

The COVID-19 pandemic has had enormous consequences worldwide for socio-economic aspects of life (Nicola et al., 2020) and mental health (Xiong et al., 2020). As the situation evolved, researchers were noting increasing symptoms of anxiety, stress, depression, and post-traumatic stress in the general population of many countries (Xiong et al., 2020) and reduced well-being in various groups of individuals (Javed, Sarwer, Soto, & Mashwani, 2020; Saladino, Algeri, & Auriemma, 2020).

In the province of Québec (Canada), 91% of those who died from COVID-19 were 70 years old or older (Institut national de santé publique du Québec, 2021). Being more vulnerable to the complications of COVID-19, numerous sanitary measures were imposed on adults 70 years and older to protect them from infection and to reduce the pressure of hospitalizations on the health care system. For example, on March 14th 2020, the prime minister of Québec specifically told seniors over the age of 70 to remain in confinement and avoid leaving the house, except in case of necessity (CBC news, 2020). Older adults felt discriminated against by these announcements (Barth et al., 2021) and people aged 70 years and older were even subjected to bursts of verbal aggression by live broadcasters, or looks of disapproval from clients or business owners, when they dared to go to their market for food (Dufour, 2020). Moreover, since the start of the pandemic, the media have spoken profusely about the vulnerability of seniors, while assuming that this characteristic applies to the entire age group (Ayalon, 2020). This acted in ways that reinforced ageism toward the elderly (Apriceno, Lytle, Monahan, Macdonald, & Levy, 2021; Ayalon, 2020; Barth et al., 2021; Fraser et al., 2020; Lagacé, Doucet, Dangoisse, & Bergeron, 2021; Monahan, Macdonald, Lytle, Apriceno, & Levy, 2020) who, as a social group, are frequently reduced to negative stereotypes (slow, sick, confused, dependent, incompetent) that devalue

them socially (Adam et al., 2017; North & Fiske, 2012), even when the intentions are benevolent and protective (Apriceno et al., 2021; Lagacé et al., 2021). In addition, public health policies placed older adults in involuntary social isolation, which could have increased loneliness and depression (Brooks et al., 2020; Chen, 2020; Flett & Heisel, 2020; Plagg, Engl, Piccoliori, & Eisendle, 2020; Wand, Zhong, Chiu, Draper, & De Leo, 2020). Then again, the majority of older adults generally enjoy good health, live in private homes (as opposed to institutions), and are socially engaged (Gouvernement du Québec, 2018; Srugo, Jiang, & de Groh, 2020).

According to research on stereotypes in the Canadian newspapers, the media discourse shapes and normalizes beliefs and attitudes about older adults (Fraser, Kenyon, Lagacé, Wittich, & Southall, 2016). Based on stereotype embodiment theory (Levy, 2009), researchers have shown that ageist stereotypes negatively influence older adults' attitudes toward their own aging, daily functioning, and physical and mental health (Ayalon, 2020; Brothers, Kornadt, Nehrkorn-Bailey, Wahl, & Diehl, 2021; Chang et al., 2020; Levy, Chang, Lowe, Provolo, & Slade, 2021), reduce their ability to adapt to and engage in life (Kunuroglu & Vural Yuzbasi, 2021), and lead them to believe that their lives do not matter (Flett & Heisel, 2020; Flett & Zangeneh, 2020; Wister & Speechley, 2020). On the other hand, positive perceptions of aging were significantly related to strengths use in older adults (Baumann & Eiroa-Orosa, 2016), while self-rated successful aging was a strong predictor of resilience (Lamond et al., 2008).

Although recent studies indicated that older adults were at potential risk for psychological distress during the pandemic (Brooks et al., 2020; Chen, 2020; Monahan et al., 2020; Plagg et al., 2020), new observations also confirm the resiliency of this heterogeneous group and suggest that they could act as valuable social anchors (Igarashi et al., 2021; Sterina, Hermida, Gerberi, & Lapid, 2021). Similarly, Fuller and Huseth-Zosel (2021) identified adaptive coping strategies in older adults during the pandemic. The most frequently reported strategies were staying busy (engagement in projects, maintaining a routine, regular activities), seeking social support (keeping in touch with family and friends, adapting to new technologies to maintain communication with others), and having a positive mindset (accepting the situation, remaining optimistic, keeping faith). The foregoing observations shed doubt on whether older adults are as vulnerable and disadvantaged as portrayed by the media and governments. Hence, it would be important to start to investigate character strengths and see if they promote competencies that help older adults cope with adverse situations (Amieva & Pech, 2020; Flett & Heisel, 2020).

Character Strengths

Drawing on positive psychology (Gable & Haidt, 2005), research on character strengths and virtues provided information on universally recognized and valued traits that are held by religious philosophies and civilizations as essential features for a life well-lived (Niemiec, 2019, 2020; Peterson & Seligman, 2004; Ruch & Proyer, 2015). Most studies on character strengths examined their associations with various dimensions of well-being (Littman-Ovadia, Dubreuil, Meyers, & Freidlin, 2021). Consistently, results have shown that character strengths are correlated to higher scores on all dimensions of flourishing and well-being, such as life satisfaction, positive emotions, positive relationships, engagement, meaning, and accomplishment (Baumann, Ruch, Margelisch, Gander, & Wagner, 2020; Harzer, 2016; Wagner, Gander, Proyer, & Ruch,

2020; Wagner, Pindeus, & Ruch, 2021). Some studies also highlight that certain combinations or patterns of strengths are consistently associated with well-being (Hausler et al., 2017; Littman-Ovadia, Lavy, & Boiman-Meshita, 2016).

Character strengths are present to varying degrees in individuals who use them more or less adequately according to the situation (Niemiec, 2019). Strengths have different functions that enable individuals to handle, prevent, reappraise, and bounce back from life's adversities and setbacks (Niemiec, 2020). Peterson and Seligman (2004) undertook the task to classify and measure these traits (see Table 1 for a complete list), which resulted in the identification of 24 character strengths (e.g., creativity, gratitude) that fall under six core virtues (e.g., wisdom, humanity).

Studies that explicitly examined character strengths in older populations are rare. Nonetheless, a few studies assessed their associations with age or described changes in strength profiles across the lifespan. For example, Wagner et al. (2020) indicated that 14 strengths were positively correlated with age in a sample of 5,521 participants between 18 and 86 years of age (mean = 45.5). The strongest correlations with age (> 0.12) were observed for curiosity, love of learning, self-regulation, gratitude, and spirituality. Likewise, with a large database of 15,598 participants, between 46 and 93 years of age (mean = 53.4), Baumann et al. (2020) found positive associations with age for 18 character strengths. The highest correlations (> 0.09) were for curiosity, humility, self-regulation, gratitude, and beauty (i.e. appreciation of beauty and excellence).

To our knowledge, only Heintz and Ruch (2021) really investigated changes in strength profiles across the lifespan. They conducted five meta-analyses to examine differences across five age stages (early adolescence, late-adolescence, young adulthood, middle adulthood, and late adulthood). However, each meta-analysis only compared adjacent age groups. The meta-analysis (13 cross-sectional studies) that examined the changes from middle adulthood (55–64 years) to late adulthood (≥ 65 years) showed that four strengths were significantly higher in participants 65 years and older: zest, self-regulation, hope, and humor, compared with those 55–64 years. Another meta-analysis indicated that participants between 55 and 64 years of age had significantly higher levels of 17 strengths than those between 45 and 54. The levels of many of these strengths (such as curiosity, love of learning, and gratitude) remained unchanged in adults 65 years and older. Heintz and Ruch (2021) concluded that most strengths showed higher levels with age and that age differences were most pronounced in middle adulthood.

In a study interested in the relationship between character strengths and well-being across the adult lifespan (*n* = 945), three strengths (zest, hope, and humor) were generally correlated with life satisfaction and positive affect in the entire sample, but some other strengths occupy dominant positions in their associations with well-being in specific age groups: kindness in the 27–36 year group; love, perseverance, and leadership in the 37–46 year group; and gratitude and love of learning in the 47–57 year group (Martínez-Martí & Ruch, 2014). This suggests that certain strengths could be more relevant at certain stages of life and that their relative importance is reflected in their associations with well-being. Baumann et al. (2020) examined whether strengths varied according to life situations (e.g., retirement or living alone) in late adulthood. Results showed lower scores on most strengths for retired compared with employed individuals, with the exception of higher scores for humility and prudence. Moreover, certain strengths (creativity, bravery, and appreciation of beauty) were

Table 1. Mean scores for virtues and character strengths and Pearson's correlations with age, resilience, and attitude toward aging (*n* = 92)

Virtues and Strengths	M/5	SD	Correlations		
			Age	Resilience	Attitudes to Aging
Wisdom and knowledge	4.14	0.35	−0.16	0.50***	0.26**
Creativity	3.87	0.57	−0.15	0.51***	0.15
Curiosity	**4.29**	0.44	−0.14	0.42***	0.29**
Open-mindedness	4.08	0.49	−0.18	0.33**	0.20
Love of learning	**4.37**	0.51	0.06	0.17	0.03
Perspective	4.05	0.48	−0.13	0.36***	0.27**
Courage	3.87	0.42	−0.29**	0.55***	0.25*
Bravery	3.70	0.59	−0.07	0.40***	0.03
Perseverance	3.76	0.73	−0.28**	0.33**	0.08
Honesty	**4.34**	0.40	−0.24*	0.33**	−0.01
Zest	3.70	0.61	−0.23*	0.52***	0.56***
Humanity	3.98	0.45	−0.15	0.36***	0.29**
Love	3.99	0.61	−0.14	0.24**	0.27**
Kindness	**4.16**	0.46	−0.01	0.46***	0.29**
Social intelligence	3.78	0.55	−0.21*	0.27**	0.17
Justice	3.80	0.55	−0.05	0.33**	0.30**
Teamwork	3.89	0.65	−0.05	0.31**	0.30**
Fairness	3.82	0.60	0.03	0.24**	0.25*
Leadership	3.69	0.82	−0.09	0.33**	0.17
Temperance	3.66	0.38	−0.16	0.28*	0.26**
Forgiveness	3.82	0.61	0.21*	0.24**	0.37***
Humility	3.59	0.55	−0.04	0.06	0.01
Prudence	3.64	0.60	−0.24*	0.13	0.09
Self-regulation	3.59	0.62	−0.33***	0.35***	0.19
Transcendence	3.93	0.41	−0.01	0.58***	0.49***
Beauty	**4.22**	0.57	0.01	0.38***	0.26*
Gratitude	**4.13**	0.58	0.04	0.29**	0.25*
Hope	4.05	0.51	−0.04	0.73***	0.49***
Humor	3.71	0.71	−0.09	0.45***	0.37***
Spirituality	3.53	0.90	0.04	0.17	0.23*

Note. Bold numbers = Six strengths with the highest scores.
Beauty = appreciation of beauty and excellence.
*p < 0.05; **p < 0.01; ***p < 0.001.

higher for older adults living alone than for those living with a partner. It therefore appears that strengths may differ across life situations. Furthermore, results also showed that the associations of several strengths with life satisfaction were stronger in the retired group (vs. the employed group): curiosity, humility, prudence, self-regulation, and appreciation of beauty, as well as certain interpersonal strengths such as kindness, teamwork, and gratitude. According to the authors, strengths that contribute to meaningful engagement and social participation appear to play an important role in the life satisfaction of retired individuals. As for living arrangements, 14 strengths were more strongly associated with life satisfaction in those who lived alone than in those who lived with a partner; most of them were intrapersonal strengths such as

creativity, curiosity, love of learning, bravery, zest, appreciation of beauty, gratitude, hope, humor, and spirituality (Baumann et al., 2020).

The abovementioned findings indicate that strength profiles vary across the lifespan and with life situations. Research also consistently showed the benefits of character strengths for well-being and life satisfaction. However, hardly any research examined the relationships between strengths and resilience. It would be particularly interesting to look at this association in people 70 years of age and older who had to cope with ageism and involuntary isolation resulting from government directives, as chronological age was used to identify them as vulnerable people (Ayalon, 2020; Flett & Heisel, 2020; Silva et al., 2021).

Resilience

Resilience is defined as the ability to adapt and thrive in the face of adversity (Bolton, Praetorius, & Smith-Osborne, 2016). In studies with older adults, numerous dimensions have been identified as factors fostering resilience: interpersonal relationships, spirituality (or meaning of life), courage and perseverance (or grit), hopefulness (or a positive perspective on life), previous experience with hardship, healthy life choices (or self-care), altruism, decisional autonomy (or independence), flexibility, and self-efficacy, as well as acceptance of oneself, life, and the aging process (Bolton et al., 2016; Laird et al., 2019; Polson, Gillespie, & Myers, 2018).

One study explored the incremental value of character strengths in the prediction of resilience (measured with the 10-item version of the Connor-Davidson scale) in a sample of 363 adults (mean = 28.3 years) between 18 and 73 years of age (Martínez-Martí & Ruch, 2017). In order to make the data more manageable, the researchers conducted a principal component analysis yielding five strength factors interpreted as interpersonal, emotional, intellectual, and theological strengths, and strengths of restraint. These factors overlap the original virtues, but are not identical. Results showed that all strength factors, except theological strengths, yielded significant positive correlations with resilience. The five individual strengths showing the highest correlations with resilience ($r = 0.51$–0.66) were, in decreasing order, hope, zest, bravery, curiosity, and perseverance. In a regression analysis, strengths predicted an additional 3% of the variance in resilience over and above other resilience-related factors, such as positive affect, self-efficacy, optimism, social support, self-esteem, life satisfaction, and socio-demographic variables. When all variables were included simultaneously in the model, emotional strengths (i.e., zest, love, social intelligence, hope, and humor) and strengths of restraint (i.e., open-mindedness, perspective, perseverance, prudence, and self-regulation) were significant predictors of resilience. According to the authors, emotional strengths might provide individuals with the energy, optimism, and social connectedness necessary to face adversities, whereas strengths of restraint might encourage resilience by maintaining the will to accomplish goals in difficult situations, regulating emotions and behaviors, and making choices that are more adaptive (Martínez-Martí & Ruch, 2017).

Given the well-established finding that character strengths are associated with mental well-being and life satisfaction (Baumann et al., 2020; Harzer, 2016; Hausler et al., 2017; Littman-Ovadia et al., 2016; Littman-Ovadia et al., 2021; Wagner et al., 2020, 2021), it would be worthwhile to investigate their relationships with resilience, especially in adults 70 years of age and over, as this age group has been targeted and subjected to ageism, in Québec, during the pandemic, but has also seemed to have found ways to cope with adversity (Fuller & Huseth-Zosel, 2021; López et al., 2020; Sterina et al., 2021).

Objective and Hypotheses

The main objective of this study was to investigate the relationships between character strengths and resilience in older adults while taking into account their attitude toward aging. More precisely, we sought to identify older adults' strength profile and to determine if some of these strengths or virtues could have predicted resilience during the COVID-19 pandemic. Based on the literature review, we formulated the following hypotheses.

Hypothesis 1 expects that character strengths will be positively and significantly associated with resilience. Hypothesis 2 proposes that participants' attitudes toward aging will be associated with resilience, because ageist stereotype embodiment influences older adults' mental health and their ability to adapt to difficulties. Hypothesis 3 posits that some strengths or virtues will be better predictors of resilience when taking into account attitudes toward aging and certain variables related to the COVID-19 pandemic, such as stress, isolation, and perception of vulnerability to the virus.

Method

Procedure

This study used a convenience sampling method. Participants were recruited via public announcements posted on social networks and on Internet sites of the Golden Age Federation of Québec (FADOQ), the University of the Third Age, and the regional newspaper. Participants had to be 70 years of age or older, live at home (not in a retirement complex), and have access to an Internet connection and a digital device (e.g., computer or tablet) so that they could complete the online questionnaires. Individuals who were interested in the study contacted the research laboratory to get information about the study's objectives and procedures and the nature of their participation. They were then provided with a hyperlink to complete the consent form and access the questionnaires. Participation was voluntary and not financially compensated. Appropriate ethical clearance was sought and obtained from the Research Ethics Committee. All statistical analyses were done using SPSS 27.

Participants

In all, 114 individuals completed the consent form. Of these, 17 were withdrawn from the sample for not responding to parts of the questionnaires. Another five were excluded from the analysis for being younger than 70. The final sample comprised 92 participants: 19 men (20.9%) and 72 women (79.1%). Age varied from 70 to 92 years (mean = 75.6 years, SD = 4.7). Participants had completed an average of 17 years of education (SD = 3.3); in the general older population, only 17.6% have a university degree (CIRANO, 2020). The majority (69.7%) owned their own home, which is a little higher than the percentage of 64.3%, assessed in 2016, among the $\geq$ 65 population (Gouvernement du Québec, 2018), and 50% of the sample lived alone. With respect to their personal situation, the vast majority reported being satisfied (56.5%) or very satisfied (40.2%) with their financial situation, and 94.5% rated their health as good, very good, or excellent. Therefore, the socio-demographic data indicate a relatively healthy and highly educated sample.

Measures

Participants completed online four questionnaires, which took approximately 30 min. The first questionnaire contained 12 questions (see Appendix) designed to gather the usual socio-demographic data as well as information about the participants' experience during the COVID-19 pandemic. For example, they indicated their perception of their vulnerability to the virus, their degree of stress and isolation, the quality of their relationships with others, and their loss of activities as a result of the confinement. Participants responded to the items by selecting the response that best represented their situation according to the presented choices (e.g., Yes/No, Likert scale rating).

The second questionnaire assessed the 24 character strengths (grouped under six virtues; see Table 1) using the French translation of the Values in Action Inventory of Strengths – Positively keyed (VIA-IS-P; McGrath, 2019). This short version contains 96 items rated on a Likert scale from 1 (*Very much unlike me*) to 5 (*Very much like me*). Example of items include: "I always treat people fairly whether I like them or not." or "I always examine both sides of an issue." VIA-IS-P offers a score for each strength and each virtue. In the present study, the internal consistency coefficients (Cronbach alpha) for the six virtues are very good: 0.83 for Wisdom, 0.82 for Courage, 0.87 for Humanity, 0.88 for Justice, 0.76 for Temperance, and 0.79 for Transcendence.

The third questionnaire assessed participants' level of resilience using the Connor–Davidson Resilience Scale (CD-RISC-25). This self-rated scale assesses the capacity to bounce back from adversity and the ability to tolerate experiences such as change, personal problems, illness, pressure, failure, and painful feelings (Fisher & Law, 2021). It contains 25 items such as, "I am able to adapt when changes occur." Participants responded on a 5-point Likert scale from 0 (*Not true at all*) to 4 (*True nearly all the time*). A French version was available from the authors of the original version (Connor & Davidson, 2003). Participants were asked to respond to each statement with reference to the actions that they had taken during the previous month. This provided resilience scores that were specific to the pandemic rather than assessing the participants' general disposition for resilience. The CD-RISC-25 was tested by Lamond et al. (2008) with 1,395 community-dwelling American women 60 years of age and older (mean = 72.7 years) who obtained a mean total resiliency score of 75.7 (SD = 13). The scale showed high internal consistency (alpha = 0.92). The coefficient in the present study is 0.86. Exploratory factor analysis yielded four factors: (1) personal control and goal orientation, (2) adaptation and tolerance for negative affect, (3) leadership and trust in instincts, and (4) spiritual coping (Lamond et al., 2008).

The fourth questionnaire was the Attitudes to Ageing Questionnaire (Laidlaw, Power, & Schmidt, 2007) translated into French and validated by Marquet et al. (2016). Considered an effective tool to assess the attitudes of older adults toward aging, it contains 24 items, focusing on three different aspects: perceptions of physical change, psychological growth, and psychosocial loss. In a sample of 238 French-speaking Belgians 60 years of age and older, the Cronbach alpha was 0.81 (Marquet et al., 2016). The questionnaire has two sections. First, participants indicated their degree of agreement with items 1–7, describing their general attitude toward aging (e.g., "Old age is a time of loneliness") on a Likert scale from 1 (Strongly disagree) to 5 (Strongly agree). The Cronbach alpha for the general attitude is 0.67. Second, participants indicated the degree to which the items 8–24 were true in their own case (e.g., "I am losing my physical independence as I get older") on a Likert scale from 1 (Not at all true) to 5 (Completely true). The Cronbach alpha for the attitude toward one's aging is 0.77. A higher overall score indicates a positive attitude toward aging.

Results

Statistical Analyses

Before conducting the analyses that tested the hypotheses, descriptive statistics were used to provide some information about the sample's experience with the pandemic, as well as an account of the relationships between socio-demographic variables (e.g., age, gender, education) and resilience. Descriptive statistics also presented

the sample's strength profile, because previous research indicated that profiles vary across participants' situations. Second, correlation analyses were performed to test Hypothesis 1 on the associations between character strengths and resilience, and Hypothesis 2 on the relationship between attitudes toward aging and resilience. Finally, given the large number of strengths and the limited number of participants, a multiple linear regression was conducted, using only the six virtues, in order to assess whether they could predict resilience, while controlling for attitudes toward aging and variables related to the experience with the pandemic.

Descriptive Analyses

As mentioned, the sample was relatively healthy and highly educated. With respect to their experience of the pandemic, 80.5% felt vulnerable to the COVID-19 virus (6.5% very vulnerable, 45.7% moderately vulnerable, and 28.3% somewhat vulnerable), whereas 19.6% felt slightly vulnerable or not at all. One third of the sample had a family member or friend who had contracted the virus, and 5.4% were mourning someone who had died from COVID-19. Among the changes brought by the pandemic, 42.4% of participants felt "much more isolated than before the pandemic" and 50% felt "slightly more isolated." Nevertheless, the degree of isolation did not appear to be very high (mean = 5.56). Moreover, although 55% had to cancel all or most of their favorite activities, 88% said that they had social contacts on whom they could count in case they needed help (e.g., for shopping, appointments). Furthermore, the level of stress was low (mean = 4.70). Finally, it should be noted that one third of the participants (31.5%) reported witnessing ageist comments or behaviors during the pandemic, and 64.1% perceived the media coverage about older adults to be negative. Table 2 presents the correlations among the pandemic-related variables, attitudes toward aging, and resilience. It is important to note that resilience correlated positively with financial satisfaction, quality of relationships with others, and having sources of pleasure in life. Surprisingly, resilience did not show a significant relationship with perceived level of stress or degree of isolation, probably because the latter were relatively low in this sample.

The mean score for attitudes toward aging is 3.78 (SD = 0.44), whereas the mean score for resilience is 3.05 (SD = 0.37), or 75.9 (SD = 9.29), which is almost identical to the resilience score (75.7, SD = 13) obtained by Lamond et al. (2008) with older American women. Further preliminary analyses showed that resilience was

Table 2. Correlations among variables related to personal experience of the pandemic, attitude toward aging, and resilience (*n* = 92)

Variables Related to the Pandemic	Positive Attitude toward Aging	Resilience
Self-perceptions of health	0.39***	0.18 (*p* = 0.09)
Financial satisfaction	0.24*	0.29**
Quality of relationships	0.37***	0.31**
Pleasure in life	0.48***	0.27*
Vulnerability to COVID-19	−0.25*	−0.15
Isolation	−0.23*	−0.04
Stress	−0.33***	−0.15
Witness to ageism	0.19 (*p* = 0.07)	0.14
Positive media coverage	0.07	0.00

Note: *p < 0.05; **p < 0.01; ***p < 0.001.

not significantly associated with age ($r = -0.13$, $p = 0.22$) or education level ($r = 0.04$, $p = 0.68$). Moreover, no difference in resilience was found between men and women ($t[89] = 0.62$, $p = 0.54$), nor between participants who lived alone and those who lived with a partner ($t[90] = 0.97$, $p = 0.34$). However, a difference in resilience was found according to the presence or absence of instrumental support, namely the ability to count on others for help ($t[90] = 1.95$, $p = 0.05$). People with support had higher scores of resilience.

Descriptive statistics (means and SD) revealed the sample's profile of strengths (see Table 1). The six strengths with the highest scores were love of learning (mean = 4.37), honesty (mean = 4.33), curiosity (mean = 4.29), appreciation of beauty and excellence (mean = 4.22), kindness (mean = 4.16), and gratitude (mean = 4.13). Curiosity and love of learning are classified under the virtue of *wisdom*, whereas beauty and gratitude are classified under the virtue of *transcendence*.

Correlational Analyses

Pearson's correlations were then performed to test the associations between each character strength with age, resilience, and attitudes toward aging. As shown in Table 1, Hypothesis 1 is mostly confirmed: 20 of the 24 strengths correlated positively and significantly with resilience, with the exception of spirituality, love of learning, humility, and prudence. The strengths of hope, zest, and creativity yielded the highest positive correlations with resilience (between 0.51 and 0.73). It is important to note that resilience correlated significantly with positive attitudes toward aging ($r = 0.52$, $p < 0.001$), confirming Hypothesis 2. The results also indicated that 13 of the 24 strengths correlated significantly with attitudes toward aging, whereas only 7 strengths correlated with age, most of them negatively. The only exception is forgiveness, which showed a higher score with increasing age. Five strengths showed significant gender differences. Women scored significantly higher than men on perspective, teamwork, appreciation of beauty, and spirituality (moderate to large effect sizes: Cohen's *d* between 0.47 to 0.87), whereas men scored higher on perseverance (Cohen's *d* = 0.73).

Regression Analysis

Finally, given the large number of strengths and the limited number of participants ($n = 92$), a multiple linear regression was conducted using only the six virtues in order to verify Hypothesis 3, whereby certain virtues would be stronger predictors of resilience. Three other independent variables could be added to the model according to a power analysis that indicated that a minimum sample size of 49 was required to detect a large effect of 0.35 ($p < 0.05$, and a power of 0.80) while a sample of 100 was required for a medium effect of 0.15. Therefore, the other variables retained in the model were those that correlated with resilience in the previous analyses (financial satisfaction, quality of relationships, and attitudes toward aging). The independent variables were introduced in four blocks to estimate their unique contribution to resilience and to verify whether they retained their significance in the full model. Financial satisfaction (which correlated with education level, $r = 0.26$, $p < 0.013$) was introduced first, being the only socio-demographic variable associated with resilience that adequately characterizes this highly educated sample. In the second block, quality of relationships with others during the pandemic was introduced, because interpersonal relationships are generally considered to be a resilience factor in older adults. Attitudes toward aging was introduced

Table 3. Multiple hierarchical regression for independent variables on resilience ($n = 91$)

Variables	Block 1	Block 2	Block 3	Block 4
			β	
Financial satisfaction	0.29**	0.27**	0.18*[0.053]	0.10
Quality of relationships		0.29**	0.14	0.07
Attitude toward aging			0.43***	0.27**
Wisdom				0.11
Courage				0.34**
Humanity				−0.08
Justice				0.02
Temperance				−0.09
Transcendence				0.26*
Δ R^2	0.09**	0.08**	0.15***	0.23***
Adjusted R^2	0.08	0.15	0.30	0.49
F for each model	8.37**	9.00***	13.67***	10.89***

Note: Full model $R^2 = 0.54$ ($p < 0.001$).
*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

in the third block, whereas the six virtues were introduced in the fourth block. Results (see Table 3) showed that the full model explained 54% ($p < 0.001$) of the variance in resilience. Each block made a significant additional contribution to the prediction of resilience. Hence, financial satisfaction explained 9% of the variance in resilience, whereas quality of relationships and attitudes toward aging respectively explained an additional 8% and 15%, respectively. Finally, the virtues contributed an additional 23% to the explanation of the variance.

In the full model, three of the nine variables contributed independently and significantly to predict resilience: attitudes toward aging, and the virtues of courage and transcendence. The virtue of courage comprises four strengths: bravery, perseverance, honesty, and zest. The virtue of transcendence comprises five strengths: appreciation of beauty and excellence, gratitude, hope, humor, and spirituality. Three times as many participants with a positive attitude toward aging or who described themselves with the virtue of courage reported being resilient (twice as many participants with the virtue of transcendence reported being resilient).

Discussion

The main objective of this study was to examine the relationships between character strengths and resilience in adults 70 years of age and older, who had to cope with the confinement that was imposed on them, because of their age, during the pandemic of COVID-19. As expected, results revealed significant positive associations between resilience and 20 out of the 24 character strengths. As in related studies on the association between older adults' strengths and their psychological well-being, a combination of strengths was associated with resilience (Baumann et al., 2020; Martínez-Martí & Ruch, 2014). The strengths that yielded the highest positive correlations (> 0.40) with resilience were, in deceasing order, hope, zest, creativity, kindness, humor, curiosity, and bravery. Therefore, older adults who were expecting that the situation would get better soon and who still approached life with excitement and energy, who thought of novel and productive ways to do things, who were

doing favors and good deeds for others, who could laugh and joke about the situation, who were open to various life experiences, and who did not withdraw from the challenge or difficulty, were more resilient.

Unfortunately, because of the limited number of independent variables that could be introduced into the linear regression, it was impossible to precisely identify the strengths that predicted resilience. Nevertheless, the strengths grouped under the virtues of courage (bravery, perseverance, honesty, zest) and transcendence (beauty, gratitude, hope, humor, and spirituality) contributed to explain half (23%) of the variance in resilience (full model = 54%). These combinations of strengths refer to some dimensions that were mentioned in previous articles as fostering resilience in older adults, mainly hopefulness, courage or grit, flexibility, spirituality, and interpersonal relationships (Bolton et al., 2016; Laird et al., 2019; Polson et al., 2018). These strengths probably enable individuals to adapt and thrive in the face of adversity (Niemiec, 2020) and develop positive strategies to adjust to the confinement (Fuller & Huseth-Zosel, 2021). Nonetheless, these results are different, but fairly consistent, with the strength factors that Martínez-Martí and Ruch (2017) found to predict resilience in a sample of younger adults (mean = 28.3 years): emotional strengths (i.e., zest, love, social intelligence, hope, and humor) and strengths of restraint (i.e., open-mindedness, perspective, perseverance, prudence, self-regulation). As suggested by Lamond et al. (2008), the difference in the resilience predictors could be partly explained by the difference in the nature of life events encountered by older adults, who tend to face more chronic and uncontrollable challenges than do younger adults, as this was the case during the pandemic when people 70 years of age and older were placed in involuntary social isolation (Flett & Heisel, 2020). Moreover, it is also possible that certain strengths could be more relevant at certain stages of psychosocial development (Martínez-Martí & Ruch, 2014), and that their relative importance is reflected in their associations with resilience.

Furthermore, our results are supported by a recent study that tested the role of character strengths in predicting resilience (operationalized as stable or higher mental health and subjective well-being despite an adverse event) over a period of 1 month during the COVID-19 pandemic lockdown in Spain (Martínez-Martí, Theirs, Pascual, & Corradi, 2020). The sample included 348 adults (mean = 43.2 years; range 19–82). Their results showed that all five character strength factors (i.e., fortitude strengths, goodness strengths, intellectual strengths, strengths of restraint, and interpersonal strengths), derived empirically using a principal component analysis of the 24 strengths, predicted an increase in mental health at Time 2. However, there are no specific results for older adults.

Participants' mean total score for resilience (mean = 75.9) was almost identical to that of Lamond et al.'s (2008) sample of community-dwelling older American women (mean = 75.7 years) of similar age and education level. Therefore, if older adults were as vulnerable or incompetent as the media and governments have assumed, their level of resilience should have been lower during the pandemic. It is important to challenge the credibility of this assumption about the vulnerability of seniors, as it can wield major impacts on their health and well-being (Barth et al., 2021; Lagacé et al., 2021; Levy, 2009; Levy et al., 2021; Levy, Slade, & Lampert, 2019).

As previous research has indicated, the strength profile varies across the lifespan and life situations (Baumann et al., 2020; Martínez-Martí & Ruch, 2014). In our sample of highly educated older adults 70 years of age and older, the six strengths with the highest scores were curiosity, love of learning, honesty, kindness, appreciation of beauty and excellence, and gratitude. Other studies have indicated that these strengths seem to increase with age (Baumann et al., 2020; Heintz & Ruch, 2021; Wagner et al., 2020). It would be interesting to see if this particular profile is specific to the latest stage of life, providing support for gerotranscendence, a theory of positive aging, which associates well-being and resilience in old age to a specific way of experiencing and perceiving life (Washburn & Williams, 2020).

Finally, results also indicated that attitudes toward aging are a predictor of resilience. This observation adds support to the extensive data, that Levy et al. (2021) have published in the last 30 years, on the effect of age stereotypes' embodiment on older individuals' mental health, and to a few studies that showed the important role of seniors' perceptions of aging on strengths use and resilience (Baumann & Eiroa-Orosa, 2016; Bolton et al., 2016; Lamond et al., 2008). On the other hand, a study by Brothers et al. (2021) made the distinction between age stereotypes and self-perceptions of aging. They found that general views on aging (i.e., age stereotypes) predicted self-perceptions of aging and that the latter mediated the effect on physical and mental health. Since the Attitudes to Ageing Questionnaire (Laidlaw et al., 2007), which was used in the present study, also assess these two dimensions, we did a supplementary multiple regression linear analysis (see online supplementary Tables 4 and 5) in which the following independent variables were introduced in three blocks: (1) financial situation, (2) general views on aging and attitudes toward their own aging process, and (3) the six virtues. Interestingly, only attitudes about one's own aging (and not the general views on aging) was predicting resilience, whereas results for financial situation and virtues remained the same. This observation partly supports the studies from Chang et al. (2020) and Levy et al. (2021) who found that detrimental effects of ageism on health appeared when older persons embodied these stereotypes as self-definitions. Recently, interventions to reduce ageism by means of education on aging and positive intergenerational contacts appear to have positive effects on young adults' attitudes (Burnes et al., 2019). Can such interventions affect public ageism (Fraser et al., 2020) and benevolent ageism (Apriceno et al., 2021), which influence older peoples' self-definitions (Levy, 2009)?

Limitations and Strengths

First, this study adds to existing knowledge on optimal aging, because there is a lack of research on seniors' character strengths. Investigations of their associations with resilience in older adults are also rare. The COVID-19 pandemic gave researchers the opportunity to examine the level of coping of people 70 years of age and older and the predicting effects of strengths and ageism on resilience (Wister & Speechley, 2020). Our results underscore the diversity of character strengths shown by highly educated adults 70 years of age and older during the pandemic, strengths that probably enabled them to cope with the crisis.

This study contains certain limitations that should be noted. First, the socio-demographic data indicate a highly educated sample of people who are generally satisfied with their financial situation and health. Even though both latter characteristics are representative of this population, the high level of education of this convenience sample is not. There might be significant sampling bias, because the participants had to possess the necessary tools to answer the questionnaires online and feel at ease taking

part in a research project from the university. Therefore, the results cannot be generalized to the 70 years and older population of Québec. In addition, even though the quality of interpersonal relationships did not independently predict the level of resilience in the full model, this sample had access to communication technologies that could have promoted social connectedness and the feeling of mattering to others (Francis, Rikard, Cotton, & Kadylak, 2019).

A second limitation relates to the measure of resilience, even if the CD-RISC-25 (Connor & Davidson, 2003) is considered a well-established scale, which has been used repeatedly in last 20 years with various populations. According to a recent article by Fisher and Law (2021), existing measures of resilience include disparate content, based on different conceptualizations of the construct. This creates confusion about the scales that are most appropriate to use. Fisher and Law (2021) tried to classify the content of each measure into one of three broad categories: attribute/resource-focused, process-focused, or outcome-focused, according to the perception of experts about the dimensions that were assessed by the questionnaires. They rated the brief CD-RISC-10 (not the CD-RISC-25) as being majorly focused on the attribute/resource category (70% of experts agreeing with the classification of items), considering that it mostly refers to abilities that are helpful in the face of hardship and adversity. Fisher and Law (2021) stated that attribute/resource focused measurements mostly reflect conditions that are conducive to resilience, but do not necessarily assess its actual occurrence. Therefore, it would be wise to consider other measures of resilience, especially those that are outcome-focused and that claim to assess how well someone has been able to overcome adversity. The framework used by Fisher and Law to clarify the measurements of resilience could suggest that the CD-RISC-25 is assessing some strengths, traits, and resources that are useful for resilience. It is impossible to reject this possibility, and the reader should keep this limitation in mind. Nonetheless, the instructions given to the participants before they completed the CD-RISC-25 advised them to think about the "actions" they took during the previous month, increasing the process-focused conceptualization rather than the evaluation of their general disposition.

A third limitation concerns the VIA-IS-P (McGrath, 2019), which is a self-administered questionnaire. Even if all previous studies have relied on self-reports (Wagner et al., 2020), our results are susceptible to common method bias. In addition, the VIA-IS-P was used to assess participants' character strengths, but not necessarily their actual use during the pandemic. It is therefore impossible to determine whether our results accurately represent the strengths that the participants made use of to get through the pandemic. To overcome this limitation, future studies should also ask participants to indicate the degree to which they enacted their strengths in daily life and for which functions (Gander, Wagner, Amann, & Ruch, 2021; Niemiec, 2020).

It is important to mention that some studies have evaluated the relevance of the classification of the strengths under the original six core virtues (Peterson & Seligman, 2004). Although most of the factorial analysis results converge with the theoretical model, some authors have proposed various adjustments to the classification, including reassigning and redistributing the strengths under the virtues, and redefining some strengths so that they fall under only one virtue (Ruch, Gander, Wagner, & Giuliani, 2021; Ruch & Proyer, 2015). These suggestions should be considered in future studies, particularly when the virtues are considered.

Further Research

Future studies should use a larger sample to examine more diversified populations in order to analyze the results in terms of gender, socio-economic status, and health. Furthermore, it would be interesting to add questionnaires that measure other conceptualizations of resilience (such as the outcome-focused Brief Resilience Scale, Smith et al., 2008), as well as scales that consider all three dimensions of ageism (stereotypes, prejudice, and discrimination; Ayalon et al., 2019). The latter must include self-perceptions about one's own aging process, as previous research (Brothers et al., 2021) showed that the relations between age stereotypes and physical and mental health are mediated by self-perceptions of aging, confirming Levy's (2009) stereotype embodiment theory.

Future research should try to evaluate a causal model of resilience that would integrate, in addition to the attitude toward aging and the character strengths' profile, other variables of interest such as strength use, underuse, or overuse (Littman-Ovadia & Freidlin, 2020), various dimensions of psychological well-being (Martínez-Martí & Ruch, 2017), other resilience promoting factors (Bolton et al., 2016), and the concept of mattering (feeling valued and significant to other people). The latter was considered by Flett and Heisel (2020) to be an important protective variable that could promote resilience, especially during crises, as previous research has shown that mattering is associated with less depression and loneliness, and greater well-being.

Finally, as Chmitorz et al. (2018) stated, existing concepts, methods, and designs are still of limited use in current resilience intervention studies and should be improved. Nonetheless, recent studies suggest that underused strengths can be improved, and that such efforts can contribute to greater well-being and life satisfaction (Ghielen, van Woerkom, & Meyers, 2018; Littman-Ovadia et al., 2016; Rust, Diessner, & Reade, 2009). However, to our knowledge, no study has yet attempted to develop character strengths in older adults in order to promote resilience and adaptation to adversity.

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Appendix. Questions on Participants' Experience of the Pandemic

1. Do you currently have sources of pleasure in your life?
None at all – Only a few – Some – A lot

2. In your opinion, what has the media coverage of older adults been like since the start of the pandemic?
Extremely negative – Very negative – Negative – Positive – Very positive – Extremely positive

3. Since the start of the pandemic, have you witnessed any ageist behaviors or comments (acts or opinions that suggest stereotypes or prejudices about old age)? Yes – No

4. How would you rate your degree of vulnerability to the COVID-19 virus?
Very vulnerable – Moderately vulnerable – Somewhat vulnerable – Slightly vulnerable – Not at all vulnerable

5. At this moment, how would you rate your degree of isolation or solitude on a scale from 0 to 10? (0 = Not at all alone/isolated to 10 = Extremely alone/isolated): _____

6. At this moment, would you say that you feel …
Much more isolated than before the pandemic – Somewhat more isolated than before the pandemic – Neither more nor less isolated than before the pandemic – Less isolated than before the pandemic – Much more isolated than before the pandemic.

7. At this moment, how would you rate your level of stress on a scale from 0 to 10? 0 = Not at all stressed to 10 = Extremely stressed: _____

8. Have you been prevented from doing any leisure activities because of the pandemic?
All my activities have been cancelled – Many of my favorite activities have been cancelled – I've been able to keep doing some of my favorite activities – I've been able to keep doing some activities, but they're not my favorite ones – I've had to stop doing some activities, but I've found new ones – None of my activities have been cancelled

9. At this moment, do you have any family, friends, or acquaintances that you can count on when you need help (for example, for shopping, appointments, household chores)? Yes – No

10. How would you rate the quality of the relationship with people outside your family?
Very bad – Bad – Tenuous – Good – Very good – Excellent

11. Since the start of the pandemic, has anyone close to you (family or friends) contracted the COVID-19 virus? Yes – No

12. Has anyone close to you died from COVID-19? Yes – No