

“The Pandemic has Aged Me”:

The Impact of Blocked Goals on Subjective Age

by

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Statement of Contributions

The hypothesis, study design, and analysis plan were developed by me in collaboration with Richard Eibach and Steven Mock. The statistical analyses were conducted by me with support from Steven Mock. The results were interpreted by me in collaboration with Richard Eibach and Steven Mock.

Abstract

Many individuals report feeling aged by the COVID-19 pandemic, a sentiment widely expressed across social media and journalism. This study investigates what it means to feel aged by a life experience, integrating theories of subjective aging and adult development. I developed a novel self-report measure to assess perceptions of being aged by the pandemic and examined its relation to blocked personal goals. Results from the first wave of a longitudinal study (n=234) supported the validity of this measure, showing that participants who experienced greater goal disruption during the pandemic were more likely to report feeling aged. Furthermore, participants who felt aged, particularly those classified as languishing rather than flourishing, reported lower life satisfaction. These findings suggest that feeling aged by hardship may indicate not just stress but a more lasting shift, with significant implications for subjective aging and overall well-being.

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CHAPTER ONE: INTRODUCTION

“I feel like I’ve aged significantly since the pandemic.”, a title from a reddit thread with over 110 comments. This discussion continues, “Oh yeah I feel like I’ve physically aged 10 years since 2022. These past 5 years have been some of the worst and most stressful for me.” (reddit, 2025). Feeling aged by an experience has been a common sentiment expressed on social media and journalism since the Coronavirus 2019 (COVID-19) pandemic. Publications such as *The New York Times*, *Vogue*, and the *National Post* have several published articles including pieces published in response to readers’ letters explaining that many individuals feel older than their actual age since the COVID-19 pandemic. Statements such as ‘that experience gave me grey hairs’, ‘I aged 10 years experiencing that’, ‘that took years off my life’, and ‘I feel so old after that’ are common colloquial phrases that individuals use to explain how a hardship, like the pandemic, can make them feel older than their actual age.

What does it mean to say that one has been aged by an experience? I hypothesize that these statements are more than just another way of saying that the experience was especially stressful or difficult. I integrate insights from the literatures on subjective age and adult development to explore the hypothesis that when a person feels aged by a hardship, such as the pandemic, this indicates that the experience has changed them in a deeper, more lasting way by disrupting their sense of identity continuity and selfhood.

1.1 Subjective Age

When a person feels older or younger than their chronological age, this is called a person’s subjective age (Westerhof et al., 2023). Subjective aging captures the psychological and social meanings an individual attaches to experiences they see as defining their age (Kotter-

Gruhn et al., 2016). The feeling of being aged does not arise in isolation; an individual forms their subjective age by incorporating several factors including life satisfaction, signs or symptoms of aging such as physical and cognitive aging, and their own beliefs and fears about the aging process (Montepare & Lachman, 1989).

Older adults, on average, report feeling 20% younger than their chronological age (Rubin & Bertsen, 2006). In old age, discrepancies between chronological age and perceived age are often larger than in earlier life (Goldsmith & Heiens, 1996, Montepare & Lachman, 1989).

While most people in midlife and older adulthood report feeling younger than their chronological age there is variation between people and within person across situations in how much younger or older they feel relative to their chronological age. It is thus interesting to explore experiences that may influence these feelings of subjective age.

Attributions refer to the explanations people generate to understand their own experiences and behaviours (Heider, 1958). By exploring the attributions underlying feelings of being aged, we can gain insight into how social and psychological processes influence self-perceptions of aging beyond biological decline. Attribution theory can provide a foundation for why individuals may experience subjective aging. When individuals seek to find causal explanations for their experiences, they often distinguish between internal and external causes (Heider, 1958). Individuals may attribute positive or negative events to why they feel aged. When attribution theory is applied to subjective aging, people may attribute negative experiences such as physical experiences (fatigue, illness, etc.), cognitive experiences (memory lapses, etc.), social experiences (societal messages, cultural expectations, etc.) to the aging process (Rothermund et al, 2021). If the experience is externally caused and temporary, such as a missed opportunity, the sense of aging may lessen when circumstances change. If an individual believes

that the experience was internally caused or has lasting effects on their life, this may leave the individual feeling that their aging is irreversible with a reduced sense of personal control (Rothermund et al., 2021).

Along with attribution theory, an individual's formation of their subjective age can often be shaped by internalized cultural stereotypes, according to stereotype embodiment theory (Levy, 2009). In western culture we are bombarded with stereotypes in the media about what it means to be old. These stereotypes can be found in magazines, movie and TV characters, marketing campaigns such as television advertisements, clothing advertisements, and birthday cards (Gullette, 1998, Ellis & Morrison, 2005). When older adults apply negative stereotypes to themselves it can accelerate health and cognitive decline (Levy & Leifheit-Limson, 2009), which can further shape their beliefs about their subjective age (Levy, 2003).

Hughes and Lachman (2016) found that individuals use social comparison as a mechanism to monitor how they are aging in comparison to their peers. Social comparison theory states that individuals evaluate themselves by comparing their abilities, achievements, and appearance to others (Festinger, 1954). When older adults see themselves performing worse than others, they attribute the difference to age, reinforcing feelings of being old (Hughes & Lachman, 2016). These comparisons can occur with peers of the same age, but also younger and older adults (Staudinger, 2015). Research has shown that when older adults receive feedback suggesting that they perform better than individuals of a similar age, they report a younger subjective age. If older adults' performance is evaluated against younger, higher-performing groups, this leads them to feeling subjectively older and less capable (Weiss & Lang, 2012). These findings highlight that subjective aging is not merely a private self-assessment but is

actively constructed in relation to others, embedded within daily social interactions, feedback contexts, and social comparison.

Cultural stereotypes often frame youth as a period of growth, progress, and possibility, while aging is associated with stagnation, decline, and reduced opportunities (Diehl et al., 2020; Levy & Banaji, 2004; Lindland et al., 2015). Within this framework, ageist beliefs frequently portray adults as having diminished agency or vitality once they are perceived to have ‘passed their prime’ (Cuddy & Fiske, 2002; Kite et al., 2005). These cultural narratives are not merely abstract; they shape how individuals interpret their own developmental trajectories. For example, in interviews on aging in America, one participant described the stereotype of stagnation by remarking: “It just goes stagnant ... and then, you are who you are. It grows, grows, grows, then you get to where — and I think it probably happens in your 30s and 40s, where you’re kind of — that is probably who you’re going to be, you know?” (Lindland et al., 2015, p. 20). Another participant captured the theme of decline by stating: “You’re on the downhill slope. That’s just the fact of life. You can only do so much” (Lindland et al., 2015, p. 18). Hardships and setbacks that prevent people from progressing towards important personal goals may contribute to a sense of stagnation or decline that they may stereotypically interpret as evidence that they are aging.

1.2 Experiences of Personal Hardship and Unattainable Goals

Throughout our lives we have experiences that can derail us from our expected personal trajectory or timeline. A hardship in life is a situation that is particularly difficult, stressful, and unpleasant. These situations can cause an individual to experience distress, emotional pain, or financial difficulties. Hardships can arise from various factors, including financial instability, job loss, global pandemics, or personal loss. An individual’s ability to imagine one’s future may become difficult and goal setting, planning or achieving may stop (Li, 2020). Through personal

hardship, achievement goals can become unattainable (Wrosch et al., 2003). An achievement goal is a future oriented aspiration of desired outcomes (Hulleman et al., 2010). When personal achievement goals become no longer attainable, anticipated gains are threatened. The decision to abandon personal goals can signal failure (Carver & Scheier, 1990).

Disruptions in achievement goals may not be experienced as temporary obstacles, but instead as signs of permanent stagnation or decline, when associated with stereotypic cultural narratives of the aging process. From this perspective, unattainable or blocked goals can feel like evidence that one's growth has ended, which may heighten feelings of being prematurely aged by challenging experiences. For middle-aged and older adults in particular, the salience of blocked goals is compounded by an awareness of time limits. As socioemotional selectivity theory suggests, aging is often linked to a foreshortened future time horizon, in which individuals become increasingly aware of the limited time they have to pursue important goals (Cartstensen & Reynolds, 2023). Consequently, when goals are obstructed, this may not only evoke frustration but also intensify the perception of 'running out of time,' amplifying the sense of aging.

I theorize that when taken together, cultural stereotypes of stagnation, decline, and reduced agency intersect with the lived reality of blocked goals to reinforce a subjective sense of aging. Middle-aged and older adults may therefore interpret major life disruptions not merely as setbacks but as symbolic markers of their own aging process. The dynamic may help to explain why individuals describe hardships that may block goals as making them feel older than their chronological age.

1.3 Subjective Aging and Wellbeing

To the extent that people feel aged by hardships that block their progress towards personal goals, this may have impacts on their overall well-being. Research consistently shows that perceiving oneself as younger than one's chronological age is linked to higher levels of psychological well-being. A younger subjective age predicts greater positive affect (Uotinen, 1998), higher life satisfaction (Teuscher, 2009; Westerhof & Barrett, 2005), stronger self-esteem (Montepare, 1996), and enhanced self-efficacy (Boehmer, 2007). It is also related to reduced reliance on avoidance-focused coping strategies (Boehmer, 2007), lower pessimism (Schafer & Shippee, 2009), and greater feelings of purpose in life (Keyes & Westerhof, 2021).

1.3.1 Flourishing Typology

Keyes (2002) argued that a combination of emotional, psychological, and social well-being to be considered mentally healthy. The concept of flourishing conceptualizes mental health along a continuum that includes flourishing, moderate, and languishing. Flourishing represents a state of combined high level of subjective well-being with an optimal level of psychological and social functioning. Languishing refers to a state where low level of subjective well-being is combined with low levels of psychological and social well-being. Keyes (2002), work illustrated that languishing individuals experience similar to what is experienced in diagnosed depression. Individuals that are languishing may experience greater limitations in daily activities and productivity losses (Keyes, 2002). Further expansions of this framework emphasize continuity across the states and highlight that many individuals that are flourishing may lead a fulfilling, meaningful, and socially integrated lives (Keyes, 2007)

Mock and Smale (2023) extended this framework by directly linking flourishing typology and subjective well-being to patterns of leisure participation. Using single-item measure of life

satisfaction (subjective well-being), worthwhileness (psychological well-being) and belonging (social well-being), they categorized participants as flourishing, moderately mentally healthy, or languishing. Their finding demonstrated that flourishing individuals engaged more frequently in cultural, social, physically active and home-based leisure activities. The leisure activities provided opportunities for positive affect, self-expression, and meaningful social connection (Mock & Smale, 2023). Conversely, individuals classified as languishing were more likely to rely on media-based leisure such as television viewing and computer gaming, activities that tend to offer limited contributions to subjective well-being (Mock & Smale, 2023; Kuper et al., 2022). This integration of leisure with flourishing typology underscores that subject well-being is not only a psychological evaluation but also intertwined with behavioral choices and lifestyle.

1.4 Present Work

The primary aim of this research is to make a novel contribution to understanding subjective aging by investigating people's beliefs that a particular life experience has aged them. To our knowledge there has not been systematic research directly measuring and assessing people's self-perceptions that they have been aged by personal hardships, even though in everyday life people commonly talk as though they have been aged by challenging life experiences. To provide insights into this phenomenon we investigated middle-aged and older adults' self-perceptions of feeling aged in the context of a widely experienced hardship – the COVID-19 pandemic.

I developed face-valid, self-report assessments of people's beliefs that they were aged by the pandemic. Using these measures, I tested our novel hypothesis that the disruption of important life goals during the pandemic contributed to people's feeling aged by this experience. Specifically, I hypothesized that people would report feeling more aged by the pandemic to the

extent that their goals were blocked by this disruptive life event (*Hypothesis 1*). I tested this hypothesis by examining the association between participants' reports of how much their goals had been blocked by the pandemic and their direct reports of how much they felt aged by the experience. I also tested this hypothesis by examining the association between their reports of blocked goals and their reports of feeling an older age after the pandemic compared to before the pandemic.

I further hypothesized that feeling aged by the pandemic would have distinctive implications for people's life-satisfaction and well-being (*Hypothesis 2*). This hypothesis is grounded in the assumption that perceiving oneself as aged by a hardship experience will capture a person's belief that the personal impact of the experience has changed them in a lasting way that will be hard to undo or overcome. I thus predicted that feeling more aged by the pandemic, and reporting an older subjective age following the pandemic, would each be associated with experiencing reduced life satisfaction. Furthermore, I predicted that these relationships with life satisfaction would remain significant even if I statistically controlled for more traditional measures of how stressed and challenged, they were by that experience.

CHAPTER TWO: METHOD

2.1 Participants

I was able to recruit 243 participants through Prolific; over the age of 50, living in the United States of America (USA). After removing incomplete or duplicated responses, there were 234 participants. When participants sign up for Prolific, they complete a pre-screen survey which includes demographic questions such as their age, location, ethnicity, and language. Participants were paid £6.00 an hour pro-rated upon completion of the survey. The median completion length was approximately 24 minutes.

The participants' ages ranged from 50 to 94 years old ($M = 59.5$, $SD = 7.6$). All the participants recruited reside in the USA, with highest percentage, 10% ($n = 23$), living in the state of California, followed by 9% ($n = 21$) residing in Florida state, and 6% ($n = 21$) in New York state. The majority of participants identified as women, 55% ($n = 129$), and 31% ($n = 73$) identified as men, and 13% ($n = 32$) identified as other which includes genderfluid, genderqueer, non-binary and trans. Most of the participants (71%, $n = 167$) identified as White (e.g. North American, European descent), 8% ($n = 19$) identified as Black (e.g. African, Afro-Caribbean, African American descent). The rest of the participants identified with other groups (e.g., Indigenous, East Asian, Southeast Asian, Middle Eastern, Latinx).

2.2 Procedure and Materials

A custom pre-screen of the participants was created to ensure eligibility for the study. Participants were required to be between the age of 50 – 100, reside in the USA, and be fluent in English. When a participant met the eligibility requirements, they were either invited to participate through email or the Prolific application, or the survey appeared on their studies page.

Participants signed up for the study titled, “Impact of the COVID pandemic on personal goals.” Participants were informed that the study will ask various questions about their personal goals and how they have been impacted by the COVID pandemic. They will also be asked questions about their experience of aging, along with how the pandemic affected their well-being and satisfaction with life. After choosing to participate in the survey, participants used a link that took them to the survey that is hosted on Qualtrics. The Prolific ID was recorded in the Qualtrics data automatically through the external link provided to the participants.

Upon beginning the study, participants were asked to review the information letter that explained the study procedure, that after successful completion of this study they be invited back after approximately four weeks to complete for a follow-up study. After reviewing the information letter, participants were asked if they consented to participate in the study. All participants completed the same study, with the questions appearing in the same order.

Before responding to any questions, participants read a statement informing them that when we refer to the COVID-19 pandemic situation we mean not just the spread of the virus itself but also the multiple ways that the pandemic impacted people’s everyday lives over a 2-year period from March 2020 due to nationwide lockdowns, physical distancing requirements, masking, travel restrictions, vaccination protocols, self-isolation, etc. The first 5 sets of questions pertained to the participant’s goals that may have been blocked by the COVID-19 pandemic. Each set of questions was focused on one goal domain; Self Improvement, Leisure, Fitness, Financial, and Social. Each question set began with a brief definition of the goal (see Appendix A). The participants were then asked to describe a goal that they have set for themselves. Note: there was an error in the study set-up, the participants description of their Self Improvement goals was not recorded. After describing their goal, they were asked follow up questions about

how the COVID-19 pandemic impacted these goals. They repeated the process of describing a goal followed by questions about the impact of COVID-19 for each goal domain.

After completing questions about their impacted goals, participants read instructions and a brief definition about being aged by the pandemic (see Appendix A). They answered questions on how the COVID-19 pandemic aged them physically, cognitively, their outlook and worldview, social life, and lifestyle and activities.

The next section consisted of a series of scales in which participants reported how the pandemic has impacted their life satisfaction and psychological well-being. This included an adapted version of the Psychological Well-being scales (Ryff & Keyes, 1995). Using the Stress Appraisal Measure (Peacock & Wong, 1990), participants reported the stress they experienced during COVID-19 and their perceived ability to cope with these stressors. Participants were then asked about their specific experience during the COVID-19 pandemic, followed by demographic questions. The demographic questions include their actual age, race, sex, gender, work status, etc. Finally, participants read a debriefing form which explained more about our study, thanked them for their participation, and redirected them to Prolific to submit their assignment and receive payment for their participation.

2.3 Measures

The primary measures used to analyze the hypotheses have been created for this study. All other additional measures included in the survey are shown in Appendix B. All definitions of terms in measures given to participants can be found in Appendix A.

2.3.1 Subjective Age

We asked participants a series of questions to assess their subjective age before the pandemic and after the pandemic. To assess their subjective age before the pandemic they were asked, “Thinking back to the Fall of 2019 before the COVID-19 pandemic began, what age would you say you felt most days during that period of time?”. The participants responded using a 7-point Likert scale (-3 = “I felt much younger than my actual age at that time”, 0 = “I felt my actual age at the time” 3 = “I felt much older than my actual age at that time”). We then asked the participant to type the approximate age (in years) that they felt most days during the Fall of 2019 before the COVID-19 pandemic began.

To assess their subjective age after the pandemic we asked the participants to reflect on their age now using a 7-point Likert scale (-3 = “I feel much younger than my current age” – 3 = “I feel much older than my current actual age”). Finally, we asked the participant to type the approximate numerical age that they feel on a typical day in their life now.

2.3.2 Aged by the Pandemic

Participants were informed that they will be asked if they felt aged by the COVID-19 pandemic in various ways. Feeling aged was defined to participants as not the passage of time but whether they felt older from the experience of the COVID-19 pandemic in comparison to how they would feel if they did not experience it. We asked if they felt aged in 5 domains of life: physically, cognitively, their outlook and worldview, social life, and their lifestyle and activities. For each area of life, we asked them to indicate how much they agreed with a statement that the pandemic had aged them in that domain, answering on a 6-point Likert scale (0 = “Does not describe me” – 5 = “Describes me extremely well”). For example, the statement for their social life was “Experiencing the COVID-19 pandemic has aged my social life”. The participants

responded using a 6-point Likert scale (0 = “Does not describe me” to 5 = “Describes me extremely well”). For each domain we also asked them to estimate how many years the pandemic had added to their lives. For example, in the domain of social life the question said, “Please type a number in the box below to represent approximately how many years you feel you have been aged in terms of your social life because of the experience of the COVID-19 pandemic”.

2.3.3 Blocked Goals

We examined 5 blocked goal domains using the blocked goal measures: Self Improvement, Leisure, Fitness, Financial, and Social. For each goal, we asked participants to describe a goal that they have set for themselves. Most participants wrote descriptive responses for each goal. There was an error in the survey, the participants’ reported goals for self-improvement were not recorded.

For each goal domain, after reading a definition of this goal domain, they were asked to report their personal goals in that domain. Participants were asked “In the space below, please describe, in your own words, any major goals that you have set for yourself during this period of your life.” After they have written their goals, participants were asked “How important are these goals to you?” using a 6-point Likert scale (0 = “Not at all Important” - 5 = “Extremely important”). Participants were then asked how the COVID-19 pandemic impacted their progress towards their goals in that domain using a 3-point Likert scale (1 = “the pandemic has set back my progress towards my goals”, 2 = “The pandemic has had no impact on my progress towards my goals, 3 = “The pandemic has enhanced my progress towards my goals”). If the participant chose “set back” or “progress”, another question would be displayed asking the participant how much the pandemic “enhanced” or “set back” their progress towards their goal, using a 4-point

Likert scale (0 = “a little” – 4 = “a great deal”). For the response ‘no impact’, a follow up question was not displayed. By combining the follow up questions with initial question, the responses were integrated into a 9-point Likert scale (-4 = ‘The pandemic has set back my progress towards my goals a great deal’, 0 = ‘The pandemic has had no impact on my progress towards my goal’, 4 = ‘The pandemic has enhanced by my progress towards my goals a great deal’)

2.3.4 Life Satisfaction and Well-Being

We asked participants to report how their life satisfaction had been impacted by the COVID-19 pandemic. First, participants chose one of the following options: “I am less satisfied with my life these days than I was with my life before the pandemic started”, “I am neither more nor less satisfied with my life these days than I was with my life before the pandemic started”, or “I am more satisfied with my life these days than I was with my life before the pandemic started”. If they chose, “less satisfied” or “more satisfied”, another question was displayed asking the participant how much “less satisfied” or “more satisfied” they felt using a 5-point Likert scale (0 = “a little” – 4 = “a great deal”). The initial question and follow up questions were integrated into a 9-point Likert scale (-4 = ‘I am much less less satisfied with my life these days than I was with my life before the COVID-19 pandemic start’ , 0 = ‘I am neither more nor less satisfied with my life these days than I was with my life before the pandemic started’, 4 = ‘I am much more satisfied with my life these days than I was with my life before the COVID-19 pandemic started).

To further assess the impact of the pandemic on participants’ well-being we administered an adapted version of the Psychological Well-being scales (Ryff & Keyes, 1995). The scale instructions and response options were modified to ask participants whether each wellbeing

statement was less true of them today, more true of them today, or neither more nor less true today compared to before the COVID-19 pandemic. They reported their responses to each statement on a 7-point scale (-3 = “much less true of me today”, 0= “neither more nor less true of me today”, +3= “much more true of me today”). In the analyses below we focused on the 7-item growth subscale (sample item: “*I think it is important to have new experiences that challenge how you think about yourself and the world*” ; $M = 4.6$, $SD = 0.8$; $\alpha = .70$)

2.3.5 Threat

To assess how stressful and threatening the pandemic experience was for participants we administered the Stress Appraisal Measure (Peacock & Wong, 1990) with items focused on the impact of the pandemic. Participants were presented with a list of statements describing thoughts and feelings and they reported the extent to which the statement described their thoughts and feelings during the COVID-19 pandemic on a 5-point scale ranging from “Not at all” (1) to “Extremely” (5). For an index of perceived threat from the pandemic we averaged together 4-items (sample item: “This situation was threatening to me”; $M = 2.9$, $SD = 1.1$; $\alpha = .84$) .

CHAPTER THREE: RESULTS

Although this study was set up as a longitudinal study with 2 waves, I will only be analyzing wave 1.

3.1 Subjective Age

3.1.1 Pre- and Post-COVID-19 Subjective Age Scale

Participants' mean pre-COVID-19 subjective age scale rating was -1.0 ($SD = 1.5$), which indicates that participants felt slightly younger than their chronological age before the pandemic. Participants' mean post-COVID-19 subjective age scale score was 0.02 ($SD=1.8$), which indicates that following the pandemic participants felt about the same age as their current chronological age. A paired sample t-test indicates that participants felt significantly older after the pandemic than before the pandemic, $t(209)=-7.76, p<0.001$. I created an index of change in participants' subjective age scale scores by subtracting their pre-COVID-19 subjective age scale score from their post-COVID-19 subjective age scale score. A positive value indicates a higher subjective age after the pandemic, $M=1.0, SD=1.9$.

3.1.2 Pre- and Post-COVID-19 Proportionate Subjective Age

To analyze participants' pre-COVID-19 proportionate subjective age, I used participants' estimates of how old, in years, they felt prior to the COVID-19 pandemic. To calculate their proportionate pre-COVID-19 subjective age, the participant's pre-COVID-19 chronological age was subtracted from their pre-COVID-19 subjective age, the difference was then divided by the participant's pre-COVID-19 chronological age. For example, if I was 60 years of age in the Fall of 2019 but I said that I felt 45 at the time the output would be -0.25 (i.e. $45-60/60 = -0.25$). As the output from the pre-COVID-19 subjective age measure increases or gets closer to 0 the closer

the person feels closer to their chronological age. Participants' mean pre-COVID-19 proportionate subjective age was -0.21 ($SD = 0.29$). Notably, this is very close to the typical report of feeling 20% younger than one's chronological age that has been reported by middle-aged and older adults in the previous literature (Rubin & Berntsen, 2006).

To analyze the participant's post-COVID-19 proportionate subjective age, I used participants' estimates of how old, in years, they felt after the COVID-19 pandemic. Similarly to the pre-COVID-19 subjective age, to determine their proportionate subjective age, the participant's post-COVID-19 chronological age was subtracted from their reported post-COVID-19 subjective age, and the difference was divided by the participant's post-COVID-19 chronological age. Participants reported a mean post-COVID-19 proportionate subjective age of -0.12 ($SD = 0.3$). A paired sample t-test indicated that participants felt significantly older after the pandemic than before the pandemic, $t(208)=-4.94$, $p<0.001$. So, as hypothesized, participants felt closer to their chronological age after the pandemic than before. Also, notably, participants' post-COVID-19 subjective age was much closer to their chronological age than the typical report of feeling 20% younger than one's actual age that has been reported by middle-aged and older adults in the previous literature (Rubin & Berntsen, 2006).

To further understand the change in a participant's proportionate subjective age, the difference was found by subtracting the pre-COVID-19 proportionate subjective age from the post-COVID-19 proportionate subjective age. A positive mean value on this index indicates a higher subjective age after the pandemic, $M=0.1$, $SD=0.3$.

Table 1*Descriptive statistics for subject age scale and proportionate subjective age.*

	<i>M</i>	<i>SD</i>
Pre-COVID-19 subjective age scale	-1.0	1.5
Post-COVID-19 subjective age scale	0.02	1.8
Subjective aging scale	1.0	1.9
Pre-COVID-19 proportionate subjective age	0.2	0.3
Post-COVID-19 proportionate subjective age	0.1	0.3
Proportionate subjective age change	0.1	0.3

Note. *M* indicates mean. *SD* indicates standard deviation**3.1.3 Relationship between Subjective Aging Scale and Proportionate Subjective Aging**

There was a significant positive correlation between participants' reported change on the subjective aging scale and their reported change on the proportionate subjective aging measure, $r(232) = 0.49, p < .001$.

3.2 Aged by the COVID-19 Pandemic

I next examined participants' reports of feeling aged by the pandemic. Descriptive statistics for participants' reports of feeling aged by the pandemic in each domain are summarized in Table 2. These results show that participants reported feeling aged to varying degrees in each of the domains that I assessed. Participants reported that their worldview and outlook was the domain in which they felt most aged by the COVID-19 pandemic experience,

and they reported that they felt the least aged in the cognitive domain, which we defined as including qualities such as memory, attention, and speed of thinking.

Table 2

Descriptive statistics for feeling aged by the COVID-19 pandemic in several domains.

	<i>M</i>	<i>SD</i>
Aged Physically	2.2	1.4
Aged Cognitively	1.9	2.2
Aged Worldview and Outlook	2.5	1.4
Aged Lifestyle	2.3	1.4
Aged Socially	2.2	1.4

Note. *M* indicates mean. *SD* indicates standard deviation

3.2.1 Relationship between Subjective Aging Scale, Proportionate Subjective Aging, and Feeling Aged by the COVID-19 pandemic.

I next assessed whether feeling aged by the COVID-19 pandemic in each domain was correlated with reports of feeling older on the subjective aging scale, and the proportionate subjective aging measure, see Table 3. Participants’ reports of feeling older on the proportionate subjective aging were significantly correlated with feeling aged by the pandemic in each of the domains. However, participants’ reports of feeling older on the subjective aging scale were only significantly correlated with feeling aged physically by the pandemic.

Table 3*Pearson correlations of aged by the COVID-19 pandemic and subjective aging.*

	<i>Subjective Aging Scale</i>	<i>Proportionate Subjective Age change</i>
Aged Physically	0.29***	0.49***
Aged Cognitively	0.08	0.31***
Aged Worldview and Outlook	-0.02	0.21*
Aged Lifestyle	0.12	0.27***
Aged Socially	-0.01	0.23***

Note. * $p < .05$, *** $p < .001$

3.3 Blocked Goals

I next examined participants' reports of how various personal goals had been impacted by the pandemic. Descriptive statistics for participants' report of goal impacts are reported in Table 4.

3.3.1 Leisure Goals

Leisure goals were defined to the participants as travelling, enjoyable activities, athletic pursuits, hobbies and entertainment. Several participants reported that their leisure goals were to travel, and they expressed that these goals were set back due to the COVID-19 pandemic. One participant reported, "When I retired one of my goals was to travel domestically more to visit family out of state. Those plans were definitely put on hold." Another reported, "Leisure goals came to a standstill at the height of the pandemic. I did not go fishing, to movies, or see friends

for a long period of time.” Some participants’ leisure goals were enhanced during the COVID-19 pandemic. A participant reported, “I love baking, cooking, reading, watching documentaries and films, and other solitary activities -- things one can do inside, for the most part. I want to feed my mind and to feel as though I have attained knowledge and practical skills.”

On average, participants reported a high level of setback, $M = -1.0$, $SD = 2.3$. Leisure goals, have the highest setback impact out of the 5 goal domains.

3.3.2 Financial Goals

Financial goals were defined to the participants as saving money, investing in new assets, reducing their debt, and increasing their income. There were a few common responses that participants recorded as their financial goal, such saving for retirement, getting out of debt, and increasing income. For example, a participant reported a goal setback, “I would loved to had gotten a small job to supplement our fixed income but couldn't do.” Another participant reported, “I want to earn more money but I see its harder to get promotion during these times.” Very few participants in the open-ended question reported an enhanced goal, although many participants also reported that they did not have any financial goals. One of the only enhanced goals reported by a participant was, “My husband and I always want to save more money. When Covid hit, we stopped going out and actually saved a lot of money.” The following was a very common response by participants with no financial goals, “I haven't set any financial goals because the pandemic and increase of cost to survive have skyrocketed, so I don't have money to invest in any goals. We are just surviving from paycheck to paycheck or lack of.” It is possible that participants assumed that goals were something aspirational rather than acknowledge the day-to-day goals. On average, participants reported some level of setback in their financial goals, $M = -0.6$, $SD = 2.4$.

3.3.3 Fitness Goals

Fitness goals were defined to the participants as eating a healthier diet, enhancing muscle tone, achieving their preferred body weight, and being physically active. Many participants reported that the COVID-19 pandemic allowed them to focus on their fitness goals. The common themes were that participants were able to be more physically active outside, have the time to be conscious about their diet, and maintain consistent fitness routines. One participant reported, “I did exercise more during the pandemic, because being outside was one thing you were allowed to do.” Although there were several reports of goals being enhanced, some participants also felt like their goals were set back. A participant stated, “I have lost some of my energy for working out because I've been too sedentary. I want to start working out more and get into better shape.” Another participant illustrated their goal setback with the following statement, “Stopped exercising, started drinking, obsessively sat on the internet watching the country apparently fall apart.” Overall, the common themes of their goals were to exercise, weight loss, and maintain a consistent fitness routine. On average, participants reported minimal level of setback, $M = -0.1$, $SD = 2.3$.

3.3.4 Self-Improvement Goals

Self-improvement goals were defined to the participants as acquiring a new skill, learning through reading or taking a course, and gaining new insights about themselves. Unfortunately, due to an error in the study set up, participants open-ended responses about their self-improvement goals were not recorded. On average, participants reported some level of enhancement in their self-improvement goals, $M = 0.5$, $SD = 2.2$.

3.3.5 Social Goals

Social goals were defined to the participants as maintain and strengthening their existing social ties, meeting new people, and forming new social ties. Many participants stated their main social goal was to maintain their relationships with family and close friends, some also mentioned wanting to form a stronger community for themselves or find a romantic partner. Many responses were similar to the following participants answer, “My social goals are to spend more time with family and friends and meet new people who share my interests.” On a whole, in their open-ended, participants did not mention whether their goals were enhanced or set back. A few participants did mention that for health reasons such as auto-immune disorders, they found it difficult to maintain social relationships beyond a virtual setting. One participant described their social goal set back as, “I have distanced myself a lot from people and social activities. I'm not really interested in any social goals at the present time.” On average, participants reported high level of setback in social goals, $M = -0.9$, $SD = 2.2$.

Table 4

Descriptive statistics for blocked goals impact scale.

	<i>M</i>	<i>SD</i>
Leisure	-1.0	2.3
Financial	-0.6	2.4
Social	-0.9	2.2
Fitness	-0.1	2.3
Self-Improvement	0.5	2.2

Note. *M* indicates mean. *SD* indicates standard deviation

3.3.6 Blocked Goals and Subjective Aging

Through assessing whether participants' reports of blocked goals were correlated with their reports of feeling older on the subjective aging scale and the proportionate subjective aging measure, see Table 5. Reports of feeling older on the subjective aging scale were negatively correlated with all blocked goals. Proportionate subjective aging was negatively correlated with leisure, fitness, and social goals.

Table 5*Pearson correlations of blocked goal impact scale and subjective aging measures.*

	Subjective Aging Scale	Proportionate Subjective Aging
Leisure	-0.36***	-0.16*
Financial	-0.34*	-0.13
Fitness	-0.48***	-0.28***
Social	-0.36*	-0.16*
Self- Improvement	-0.35*	-0.13

Note. * $p < .05$, *** $p < .001$

3.3.7 Blocked Goals and Aged by the COVID-19 Pandemic

Next analysis of whether participants' reports of blocked goals were correlated with their reports of feeling aged by the pandemic across various domains of functioning. The correlation coefficients are reported in Table 6. Negative correlation coefficients indicate that to the degree that participants feel their goal has been setback they report a higher feeling of being aged.

All blocked goal domains were significantly correlated with feeling aged physically by the pandemic. Fitness goals were significantly correlated with feeling aged in all domains. Leisure goals were also negatively correlated with feeling older in all domains except worldview/outlook. Social goals and self-improvement goals were negatively correlated with feeling older in all domains except feeling cognitively and in one's worldview/outlook.

Table 6*Pearson correlations of blocked goal impact scale and feeling aged across various domains.*

	Aged Physically	Aged Cognitively	Aged Worldview and Outlook	Aged Socially	Aged Lifestyle
Leisure	-0.25***	-0.14*	-0.17	-0.27***	-0.22***
Financial	-0.21*	-0.12	-0.13	-0.05	-0.11
Fitness	-0.35***	-0.28***	-0.22***	-0.18*	-0.33***
Social	-0.18*	-0.10	-0.10	-0.27***	-0.16*
Self- Improvement	-0.14*	0.12	0.07	-0.18*	-0.18*

Note. * $p < .05$, *** $p < .001$

3.4 Life Satisfaction and Growth

Participants reported overall that they were slightly less satisfied with their current life in comparison to their life before the pandemic, $M = -0.4$, $SD = 1.6$. Overall, participants reported minimal impact of the pandemic on their feelings of growth, $M = 0.6$, $SD = 1.0$.

Pearson correlations were calculated relating blocked goal domains with life satisfaction and growth, see Table 7. Life satisfaction was significantly positively correlated with all blocked goal domains. Positive correlations indicate that the higher the setback of the participant's goal, the lower their life satisfaction. Growth was only significantly positively correlated with fitness goals, and self-improvement goals.

Table 7

Pearson correlations of blocked goal impact scales with life satisfaction and growth.

Goals	Life Satisfaction	Growth
Leisure	0.40***	0.05
Financial	0.35***	0.08
Fitness	0.36***	0.22***
Social	0.40***	0.03
Self-Improvement	0.26*	0.14*

Note. * $p < .05$, *** $p < .001$

3.5 Controlling for Threat

I assessed whether feeling aged by the pandemic is associated with lower life satisfaction and growth, even after controlling for participants' general threat appraisals regarding the pandemic, see Table 8. Results showed that negative correlations between life satisfaction and feeling aged by the pandemic in each domain of functioning remained significant even when threat was controlled. Growth was only significantly correlated with feeling aged in lifestyle aging after controlling for threat.

The negative correlation between life satisfaction and subjective aging scale ratings remained significant even when threat was controlled, see Table 9. However, when threat was controlled subjective aging scale ratings were not significantly correlated with growth. When threat was controlled, proportionate subjective aging ratings also were not significantly correlated with life satisfaction or growth.

Table 8

Partial correlations of life satisfaction, growth and feeling aged across various domains, controlling for threat.

Aged by Domains	Life Satisfaction	Growth
Physically	-0.30***	-0.05
Socially	-0.15*	-0.008
Cognitively	-0.16*	-0.03
Worldview and Outlook	-0.26***	-0.06
Lifestyle	-0.26***	-0.15*

Note. * $p < .05$, *** $p < .001$

Table 9

Partial correlations of life satisfaction, growth and subjective aging measures, controlling for threat.

	Life Satisfaction	Growth
Subjective Aging Scale	-0.36***	-0.11
Proportionate Subjective Aging	-0.10	-0.14

Note. *** $p < .001$

3.6 Flourishing Typology

A flourishing typology was constructed by combining participants' reports of impacts of the pandemic across the five goal domains. There are three 'levels' to the flourishing typology, flourishing, neutral, and languishing. Each response was given a score from 1 – 3. If the value was less than -2, it was given a 1; if the value is greater than 2, it was given a 3; it was in between it is given a 2. The scores are then summed for a total between 5 – 15. A participant is assigned to be 'languishing' if their total score is less than or equal to 7, 'flourishing' if their total score is greater than or equal to 13, and 'neutral' if the score is between 7-13. 23% (n=49) of participants were languishing, 65% (n=137) of participants were neutral, and 11% (n=24) of participants were flourishing.

3.6.1 Level of flourishing correlations with aging and well-being measures

I assessed correlations between the overall level of flourishing, and the various aging and well-being measures, see Table 10. The level of flourishing was significantly negatively correlated with feeling aged in all domains, as well as with reports of feeling older on both the subjective age scale and the proportionate subjective age measure. The pattern of these correlations indicates that, to the extent that participants were flourishing, they felt less aged by the pandemic, and they reported relatively younger subjective ages. Flourishing was positively correlated with change in life satisfaction, but not with change in growth.

Table 10

Pearson Correlations of aged by pandemic experience, life satisfaction, growth, and subjective age measures by languishing, neutral, flourishing

	Level of Flourishing
Life Satisfaction	0.46***
Growth	0.09
Proportionate Subjective Aging	-0.18*
Subjective Aging Scale	-0.46***
Aged Physically	-0.30***
Aged Cognitively	-0.23***
Aged Worldview and Outlook	-0.16*
Aged Lifestyle	-0.30***
Aged Socially	-0.29***

Note. * $p < .05$, *** $p < .001$

3.6.2 Levels of flourishing group differences in aging and well-being measures

I next assessed differences in key measures across the three levels of flourishing. Table 11 shows mean scores of participants in the languishing, neutral, and flourish groups across the measures of feeling aged by the pandemic, subjective age scale, proportionate subjective age, life satisfaction, and growth.

Table 11

Comparison of means for aged by domains, life satisfaction, growth, and subjective age measures by languishing, neutral, flourishing

	Languishing	Neutral	Flourishing
	(n = 49)	(n = 137)	(n = 24)
	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>
Life Satisfaction	-1.61(1.37)	-0.20(1.49)	0.92(1.44)
Growth	0.41(1.18)	0.68(0.93)	0.67(0.97)
Proportionate Subjective Aging	0.15(0.22)	0.08(0.25)	-0.01(0.34)
Subjective Aging Scale			
Aged Physically	3.14(1.63)	1.61(0.98)	1.92(0.92)
Aged Cognitively	2.53(1.60)	1.92(1.30)	1.87(0.92)
Aged Worldview and Outlook	2.96(1.51)	2.42(1.38)	2.25(1.26)
Aged Lifestyle	3.31(1.46)	2.02(1.25)	2.21(1.10)
Aged Socially	3.10(1.52)	1.90(1.23)	2.04(1.00)

Note. *M* indicates mean. *SD* indicates standard deviation

A one-way analysis of variance (ANOVA) was conducted to examine differences across the levels of flourishing in subjective aging measures, life satisfaction, growth (see Table 12), and feeling aged by the COVID-19 pandemic (see Table 14). Post-hoc Tukey tests were examined to further understand the relationships (see Table 15).

Subjective aging scale scores differed significantly across the three levels of flourishing, $F(2,207) = 29.01, p < .001$. A post-hoc Tukey test showed that participants classified as languishing reported significantly higher subjective aging scale scores than those classified as neutral, $MD = -1.74, 95\% CI [-2.42, -1.07], p < .001$. Participants classified as flourishing reported significantly lower subjective aging scale scores than both languishing, $MD = -2.96, 95\% CI [-3.96, -1.96], p < .001$, and neutral $MD = -1.22, 95\% CI [-2.12, -0.33], p = .004$. Distributions of subjective aging scale across levels of flourishing can be seen in Figure 1.

Figure 1

A Distribution of subjective aging scale across levels of flourishing

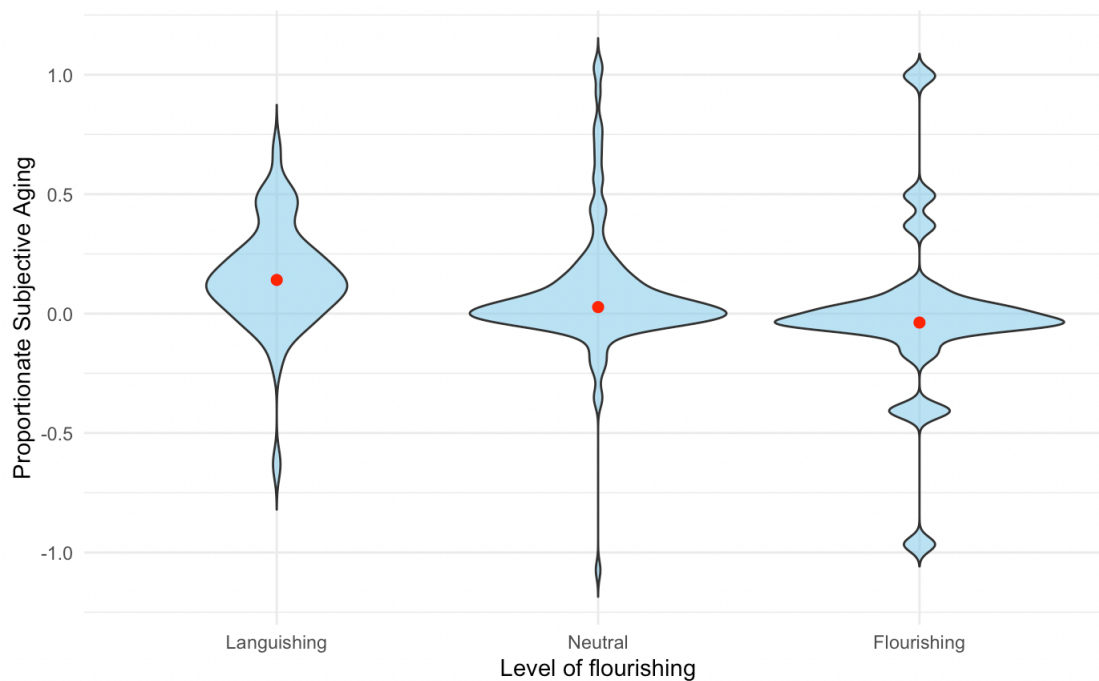


Proportionate subjective aging scores differed significantly across the three levels of flourishing, $F(2,207) = 3.39, p = .04$. A post-hoc Tukey test showed that participants classified as flourishing reported significantly lower proportionate subjective aging scores than those

classified as languishing, $MD = -0.16$, 95% $CI [-0.31, -0.01]$, $p = .03$. Distributions of proportionate subjective aging across levels of flourishing can be seen in Figure 2.

Figure 2

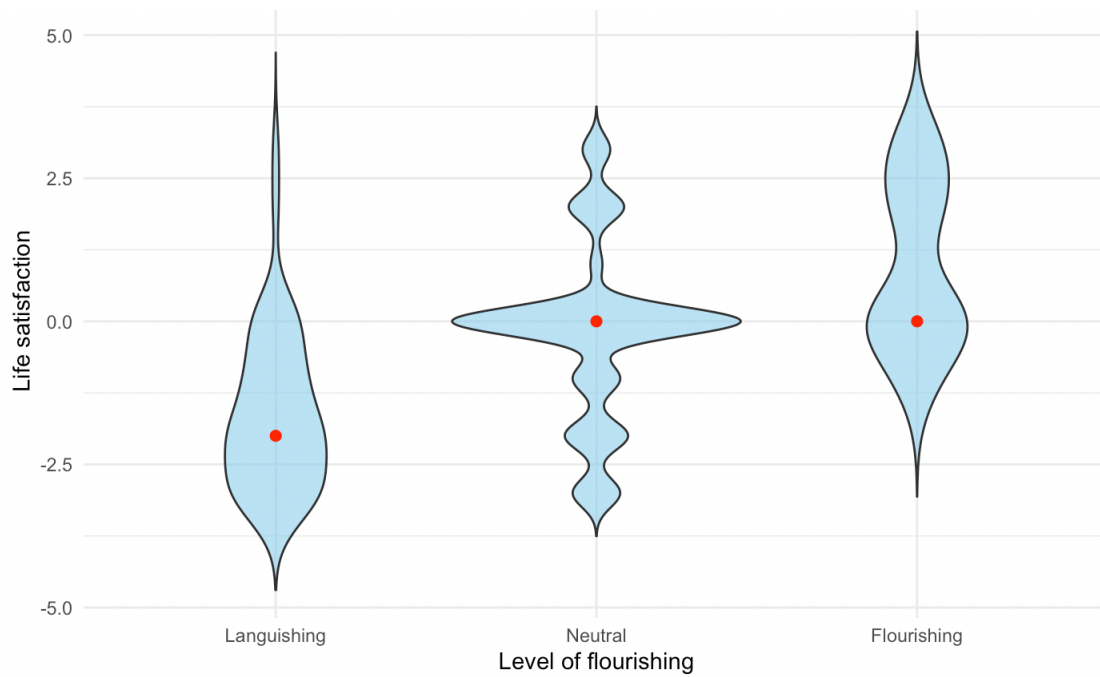
A Distribution of proportionate subjective aging across levels of flourishing



Life satisfaction change scores differed significantly across the three levels of flourishing, $F(2,207) = 28.10$, $p < .001$. A post-hoc Tukey test showed that participants classified as neutral reported significantly higher life satisfaction than those classified as languishing, $MD = 1.41$, 95% $CI [0.84, 1.98]$, $p < .001$. Participants classified as flourishing reported significantly higher life satisfaction scores than both languishing, $MD = 2.53$, 95% $CI [1.67, 3.38]$, $p < .001$, and neutral $MD = 1.12$, 95% $CI [0.36, 1.88]$, $p = .002$. Distributions of life satisfaction across levels of flourishing can be seen in Figure 3.

Figure 3

A Distribution of life satisfaction across levels of flourishing



Growth change scores did not differ significantly across the three levels of flourishing, $F(2,207) = 1.36, p = .26$. Distributions of growth across levels of flourishing can be seen in Figure 4.

Figure 4

A Distribution of growth across levels of flourishing



Table 12

One-way ANOVA of levels of flourishing and subjective aging scale, proportionate subjective aging, life satisfaction, and growth

	<i>F</i>
	(2, 207)
Subjective Aging Scale	29.01***
Proportionate Subjective Aging	3.40*
Life Satisfaction	28.10***
Growth	1.36

Note. * $p < .05$, *** $p < .001$

Table 13

Tukey HSD for levels of flourishing and subjective aging scale, proportionate subjective aging, life satisfaction, and growth.

	Level of Flourishing (1)	Level of Flourishing (2)	Mean Difference	Sig.	<u>95% Confidence Interval</u> Lower Bound Upper Bound	
Proportionate	Neutral	Languishing	-0.07	.07	-0.17	0.03
Subjective Aging	Flourishing	Languishing	-0.16*	.03	-0.31	-0.01
	Flourishing	Neutral	-0.09	.21	-0.23	0.04
Subjective Aging Scale	Neutral	Languishing	-1.74***	<.001	-2.42	-1.07
	Flourishing	Languishing	-2.97***	<.001	-3.98	-1.96
	Flourishing	Neutral	-1.22*	.004	-2.12	-0.33
Life Satisfaction	Neutral	Languishing	1.41***	<.001	0.84	1.98
	Flourishing	Languishing	2.53***	<.001	1.67	3.38
	Flourishing	Neutral	1.12*	.002	0.36	1.88
Growth	Neutral	Languishing	0.27	0.24	-0.12	0.66
	Flourishing	Languishing	0.25	0.58	-0.33	0.84
	Flourishing	Neutral	-0.02	1.00	-0.54	0.50

Note. * $p < .05$, *** $p < .001$

There is a significant effect of the level of flourishing on all items in the aged by the COVID-19 pandemic measure, see Table 14. A post-hoc Tukey test revealed that participants that were labelled as languishing reported higher levels of aging by the pandemic compared to neutral or flourishing in all aged by domains, except aged worldview and outlook, see Table 15. Significant differences were found between the flourishing and languishing levels for aged cognitively, lifestyle and socially, while aged physically was not significant. The relationship between participants labelled neutral and flourishing was not significant in all domains of aged by the pandemic.

Table 14

One-way ANOVA of levels of flourishing and aged by the COVID-19 pandemic.

	<i>F</i>
	(2, 207)
Aged Cognitively	15.48***
Aged Worldview and Outlook	3.18*
Aged Lifestyle	18.09***
Aged Socially	16.13***
Aged Physically	11.62***

Note. * $p = .04$, *** $p < .001$

Table 15*Tukey HSD of levels of flourishing and aged by the COVID-19 pandemic.*

	Level of	Level of	Mean	Sig.	<u>95% Confidence Interval</u>	
	Flourishing (1)	Flourishing (2)	Difference		Lower Bound	Upper Bound
Aged Physically	Neutral	Languishing	-0.92***	<.001	-1.38	0.0001
	Flourishing	Languishing	-0.66	.06	-1.35	0.06
	Flourishing	Neutral	-0.26	.57	-0.35	0.57
Aged Cognitively	Neutral	Languishing	-1.22***	<.001	-1.75	-0.69
	Flourishing	Languishing	-1.23***	<.001	-2.01	-0.43
	Flourishing	Neutral	-0.003	1.00	-0.71	-0.70
Aged Worldview and Outlook	Neutral	Languishing	-0.54	.06	-1.09	0.01
	Flourishing	Languishing	-0.71	.11	-1.53	0.11
	Flourishing	Neutral	-0.17	.84	-0.90	0.56
Aged Lifestyle	Neutral	Languishing	-1.28***	<.001	-1.79	-0.78
	Flourishing	Languishing	-1.09*	.002	-1.86	-0.34
	Flourishing	Neutral	0.19	0.79	-0.49	0.86
Aged Socially	Neutral	Languishing	-1.20***	<.001	-1.71	-0.70
	Flourishing	Languishing	-1.06*	.003	-1.81	-0.31
	Flourishing	Neutral	0.14	0.87	-0.53	-0.81

Note. * $p < .05$, *** $p < .001$

CHAPTER FOUR: DISCUSSION

Many individuals report that difficult life experiences, especially those marked with hardship and struggle, have left them feeling aged. To explore this phenomenon, I drew insights from the literature on subjective age and adult development and developed hypotheses about the kinds of experiences that people may feel have changed them in ways that they stereotypically associate with aging. I developed a new face valid, self-report measure to assess people's beliefs that they have been aged by a challenging experience and tested these measures in the context of coping with the COVID-19 pandemic. The pandemic was a suitable context to study the phenomenon since it was a shared event that disrupted the lives of many people unexpectedly in a sudden moment and for a prolonged period. Furthermore, one of the key challenges of the pandemic was that it forced people to put many of their routines and plans on hold. Due to the widespread nature of the effects of the COVID-19 pandemic, it was a relevant context to situate my hypothesis in. I hypothesize that people are particularly likely to feel aged by experiences that block their progress towards important life goals because ageist stereotypes associate getting older with stagnation and decline.

The findings of wave one of the longitudinal study support the validity of the feeling aged by the pandemic measure by showing that reports of feeling aged in specific ways (e.g., physically) are associated with reporting an older subjective age following the pandemic. Further, the results support my hypothesis about the key qualities (i.e. blocked goals) from the pandemic that would predict feeling aged by the experience. The blocked goal-subjective aging relationship was supported by the results showing that, to the extent that participants reported that their goals in various life domains were blocked during the pandemic they were more likely to report that they felt aged by the experience. Participants who reported that multiple goals were

blocked during the pandemic, who were classified as languishing, reported that they felt they had been more aged by the experience compared to those who reported that few or none of their goals had been blocked, who were classified as flourishing.

Additionally, participants reported a lower life satisfaction when they experienced greater subjective aging. This finding supports the second hypothesis, which predicted that feeling aged by the pandemic would negatively affect people's life satisfaction and overall well-being. Moreover, participants who were languishing due to blocked goals showed both reduced life satisfaction and more pronounced subjective aging. It is important to note that the relationship between life satisfaction and feeling aged by the pandemic was robust even when standard measures of feeling threatened by the pandemic were controlled. This indicates that feeling aged by an experience has incremental validity for predicting life satisfaction above other threat measures. This finding supports my interpretation that when people say that they feel aged by a hardship, such as the pandemic, this indicates that the experience has changed them in a deeper, more lasting way by disrupting their sense of identity continuity and selfhood.

4.1 Limitations

Although the present study provides novel insights into the relationship between blocked goals and an older subjective age in older adults, there were key limitations to acknowledge. First, the analysis of the study used only one wave from a longitudinal study, limiting the ability to draw causal conclusions. While blocked goals were associated with feeling aged, the directionality of the relationship cannot be confirmed. It is plausible that individuals who already felt older may have been more likely to perceive their goals as being blocked, rather than blocked goals independently influencing subjective aging. Further analysis of the second wave of the study will be needed to understand temporal ordering and causal mechanisms.

Secondly, the study relied exclusively on self-report measures, which may be subject to bias. Participants' interpretations of being aged by the COVID-19 pandemic were assessed through their subjective reports, which could be influenced by mood, personality traits, social desirability or other factors in their current life that could lead them to feeling aged. However, the anonymity of participants in online samples, like Prolific, demonstrate low levels of social desirability. To investigate the accuracy of the participants' self-report measures it would be useful to include more qualitative data about feeling aged.

Third, the sample was drawn from Prolific, which can be more diverse than traditional student samples, although it does not fully represent the broader population. Cultural, socioeconomic, and generational factors may factor into shaping subjective aging, which may not be represented in the sample. Additionally, participants from collectivist cultures, for example, may interpret hardships and blocked goals in a different way. They may interpret blocked goals as emphasizing resilience or interdependence rather than decline (Cheng et al., 2015). Future work could examine cross-cultural samples to understand how cultural narratives about aging moderate the relationship between blocked goals and subjective aging.

Finally, the reliance on experiences during the COVID-19 pandemic may limit generalizability. The COVID-19 pandemic represents a unique historical context in which hardships and blocked goals were widespread and often uncontrollable. While this context highlights the salience of the relationship between subjective aging and blocked goals, it may not fully reflect how hardships or blocked goals are interpreted in more typical life circumstances. Replication in different contexts will be essential for confirming the robustness of these findings.

4.2 Future Directions

To address the limitations, there are several avenues to explore in future research. First, analyzing the second wave of data collected five months after the first wave. The second wave of results will give us insight into the participants' perception of their age over time and if there are lasting changes related to their life satisfaction and well-being. Also, additional measures were added to the second study exploring a change in political views, which will further expand the domains of change examined.

Further longitudinal studies exploring a person's subjective age before and after experiencing a hardship in different contexts such as divorce, financial struggle, and job loss, would expand upon the generalizability of blocked goals impacting a persons' subjective age. Additionally, there is a need for cross-cultural comparisons to examine how cultural contexts shape interpretations hardship and aging. Cross-cultural work could identify whether hardship-linked aging is universally detrimental or whether culture frameworks buffer its impact.

Exploring the mechanisms underlying the hardship-subjective age relationship, could provide insight into deepen theoretical understanding and inform intervention design. Potential mediators and moderators to explore are time perspective (Carstensen et al., 1999), perceived control (Lachman & Weaver, 1998), and social comparison processes (Wills, 1981). Clarifying pathways that may lead to hardship-induced aging could aid in buffering the effects through social programs, health promotion, and anti-ageism campaigns to support population well-being.

While the COVID-19 pandemic provided a large-scale disruption that made feeling of being 'aged by the experience' highly salient, the concept of the 'pandemic skip' was also experienced, particularly by young adults. The pandemic skip is the phenomenon of feeling that your chronological age is older than your subjective age as a result of missing out on significant

life experiences and developmental milestones during the COVID-19 pandemic. Future studies examining the effects of blocked goals on different age groups could add valuable contributions to subjective aging literature.

4.3 Conclusion

The present study demonstrates that the feeling of being aged by a hardship is more than just a routine expression of stress, rather it is a deeper process of changing self-perception that is connected to a person's subjective aging. The findings indicate that blocked goals during the COVID-19 pandemic were associated with reports of feeling aged, specifically among participants classified as languishing. The blocked goal-subjective aging relationship were further associated with lower levels of life satisfaction. The results highlight the importance of examining the processes that lead people to feel they have been aged by life experiences.

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APPENDIX A: Survey Definitions

COVID-19 Pandemic Definition

Please note that throughout this survey when we refer to the COVID-19 pandemic situation we mean not just the spread of the virus itself but also the numerous ways that the pandemic has impacted people's everyday lives and behaviors over the 2 year period from March 2020 due to lockdowns, physical distancing requirements, masking, travel restrictions, vaccination protocols, self-isolation, etc.

Blocked Goal Definitions

The following definitions and examples were given to the participants when they were asked to provide a brief description of their goals.

Self-Improvement. Self-improvement goals include such things as acquiring a new skill, enhancing an existing skill, learning new things through reading or courses, and gaining insights into yourself

Leisure. Recreation and leisure goals include such things as travelling, enjoyable activities, athletic pursuits, hobbies, and entertainment.

Fitness. Physical fitness goals include such things as eating a healthier diet, enhancing muscle tone, achieving your preferred body weight, and being physically active.

Financial. Financial goals include such things as saving money, investing in new assets, reducing your debt, and increasing your income.

Social. Social goals include such things as maintaining and strengthening your existing social ties, meeting new people, and forming new social ties.

Aged by the COVID-19 Pandemic

Feeling aged does not refer to the mere passage of time. Rather, feeling aged by the pandemic means that you believe that you feel older than you would have felt if the pandemic had not happened.

Cognitively. Note: cognitive qualities include things like memory, attention, speed of thinking, etc.

APPENDIX B: Measures

Impact of Blocked Goals

Using self-improvement as an example.

How has the COVID-19 pandemic impacted your progress towards self-improvement goals?

- The pandemic has **set back** my progress towards self-improvement goals.
- The pandemic has had **no impact** on my progress towards self-improvement goals.
- The pandemic has **enhanced** my progress towards self-improvement goals.

Display this question:

If How has the COVID-19 pandemic impacted your progress towards self-improvement goals? = The pandemic has set back my progress towards self-improvement goals.



You said that the COVID-19 pandemic has set back your progress towards self-improvement goals. Now, please estimate **how much** the pandemic has set back your progress towards self-improvement goals.

- A little
- A moderate amount
- A lot
- A great deal

Display this question:

If How has the COVID-19 pandemic impacted your progress towards self-improvement goals? = The pandemic has enhanced my progress towards self-improvement goals.



You said that the COVID-19 pandemic has enhanced your progress towards self-improvement goals. Now, please estimate **how much** the pandemic has enhanced your progress towards self-improvement goals.

- A little
- A moderate amount
- A lot
- A great deal

Aged by Scale

Using aged physically as an example

Please indicate how well the following statement describes you: Experiencing the COVID-19 pandemic has **aged me physically**.

- Does not describe me
- Describes me slightly well
- Describes me moderately well
- Describes me very well
- Describes me extremely well

Subjective Aging Scale

Pre-COVID-19

Thinking back to the Fall of 2019 before the COVID-19 pandemic began, what age would you say you felt most days during that period of time?

- I felt **much younger** than my actual age at that time
- I felt **moderately younger** than my actual age at that time
- I felt **slightly younger** than my actual age at that time
- I felt **about the same age** my actual age at that time
- I felt **slightly older** than my actual age at that time
- I felt **moderately older** than my actual age at that time
- I felt **much older** than my actual age at that time

Post-COVID-19

What age would you say you feel most days in your life right now?

- I feel **much younger** than my current actual age
- I feel **moderately younger** than my current actual age
- I feel **slightly younger** than my current actual age
- I feel **about the same age** as my current actual age
- I feel **slightly older** than my current actual age
- I feel **moderately older** than my current actual age
- I feel **much older** than my current actual age

Proportionate Subjective Aging

Pre-COVID-19

Please type a number in the following box to estimate what approximate age (in years) you felt most days during the Fall of 2019 before the COVID-19 pandemic began.

Post-COVID-19

Please type a number in the following box to estimate what approximate age (in years) you feel on a typical in your life right now.
