I Z A Institute
of Labor Economics
Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 17915

COVID-19 and Subjective Well-Being in the United States: Age Matters

Younghwan Song

MAY 2025

I Z A Institute
of Labor Economics

Initiated by Deutsche Post Foundation

DISCUSSION PAPER SERIES

IZA DP No. 17915

COVID-19 and Subjective Well-Being in the United States: Age Matters

Younghwan Song
Union College and IZA

MAY 2025

ISSN: 2365-9793

IZA – Institute of Labor Economics

Schaumburg-Lippe-Straße 5–9
53113 Bonn, Germany

Phone: +49-228-3894-0
Email: publications@iza.org

www.iza.org

ABSTRACT

COVID-19 and Subjective Well-Being in the United States: Age Matters*

Although the COVID-19 pandemic has affected everyone's life in the United States, the experience of the pandemic differed considerably by age: the risk of hospitalization and death from COVID-19 increases exponentially with age. Using data from the 2013 and 2021 American Time Use Survey Well-Being Modules, this paper examines how various measures of subjective well-being have changed during the COVID-19 pandemic among two age groups in the United States: individuals aged 15 to 44 and those aged 45 to 85. The measures of subjective well-being analyzed include activity-level subjective well-being measures, such as happiness, pain, sadness, stress, tiredness, and meaningfulness, as well as overall life evaluation based on the Cantril ladder. The regression results indicate that younger people felt less happy, more stressed, and less tired during the COVID-19 pandemic because their time use patterns, such as activity types, timing, and with whom, changed. However, there was no change in the life evaluation of the younger group due to the pandemic. The older group, in contrast, felt more pain, sadder, and less meaningful during the COVID-19 pandemic, even after controlling for their health status and time use patterns, perhaps because they had lost many family members and friends to COVID-19. Their life evaluation increased during the COVID-19 pandemic, maybe because they began to better appreciate their life after the deaths of many people around them.

JEL Classification: I10, I31, J14

Keywords: subjective well-being, COVID-19, death, Cantril ladder

Corresponding author:
Younghwan Song
Department of Economics
Union College
Schenectady, NY 12308
USA

E-mail: songy@union.edu

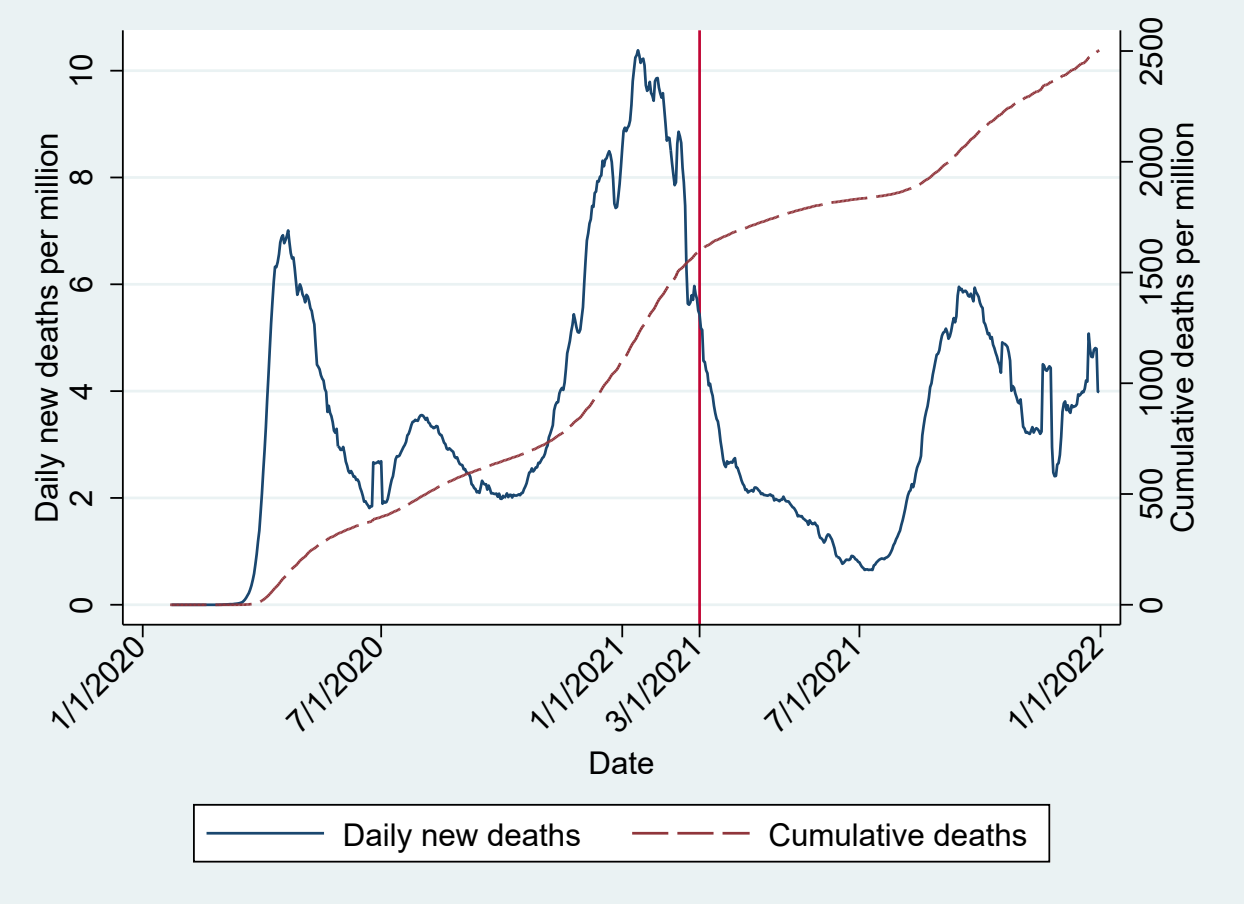
* I would like to thank seminar participants at the Time Use Data for Health and Well Being conference at University of Maryland and the International Society for Quality-of-Life Studies conference in Rotterdam, the Netherlands for their valuable comments. All remaining errors are mine.

1. Introduction

Since the first reported death from COVID-19 in February 2020, 350,831 people died from COVID-19 in 2020 (10.4% of the total number of deaths in 2020) and 416,893 people in 2021 (12.0% of the total number of deaths in 2021) in the United States (Centers for Disease Control and Prevention 2020; Murphy et al. 2021; Xu et al. 2022). By the end of 2021, almost 2,500 people per million had died from COVID-19, as shown in Figure 1 (Centers for Disease Control and Prevention 2022a). As a result, life expectancy at birth for the total US population decreased by 1.5 years in 2020 and by an additional 0.9 years in 2021 (Arias et al., 2021, 2022). In addition to the increased mortality and reduced life expectancy, the COVID-19 pandemic has also led to various policy responses that have fundamentally altered people's daily lives, including school closures, workplace closures, stay-at-home requirements, and restrictions on travel, aimed at containing and mitigating the COVID-19 outbreak. The Stringency Index, a composite measure of the strictness of these policy responses[1], reached above 70 in 2020 and remained around 50 in 2021 in the United States, as shown in Figure 2 (Mathieu et al. 2020). As a result of these strict policy responses, people have decreased their physical activity and socializing but increased their screen time (Chen et al. 2021; Giuntella et al. 2021) and spent more time at home in the United States (Batur et al. 2023; Shi, Su, and Goulias 2023). These policy responses also brought about a vast increase in working from home and gendered changes in housework and childcare among couples and parents in the United States (Pabilonia and Vernon 2023; Restrepo and Zeballos 2022).

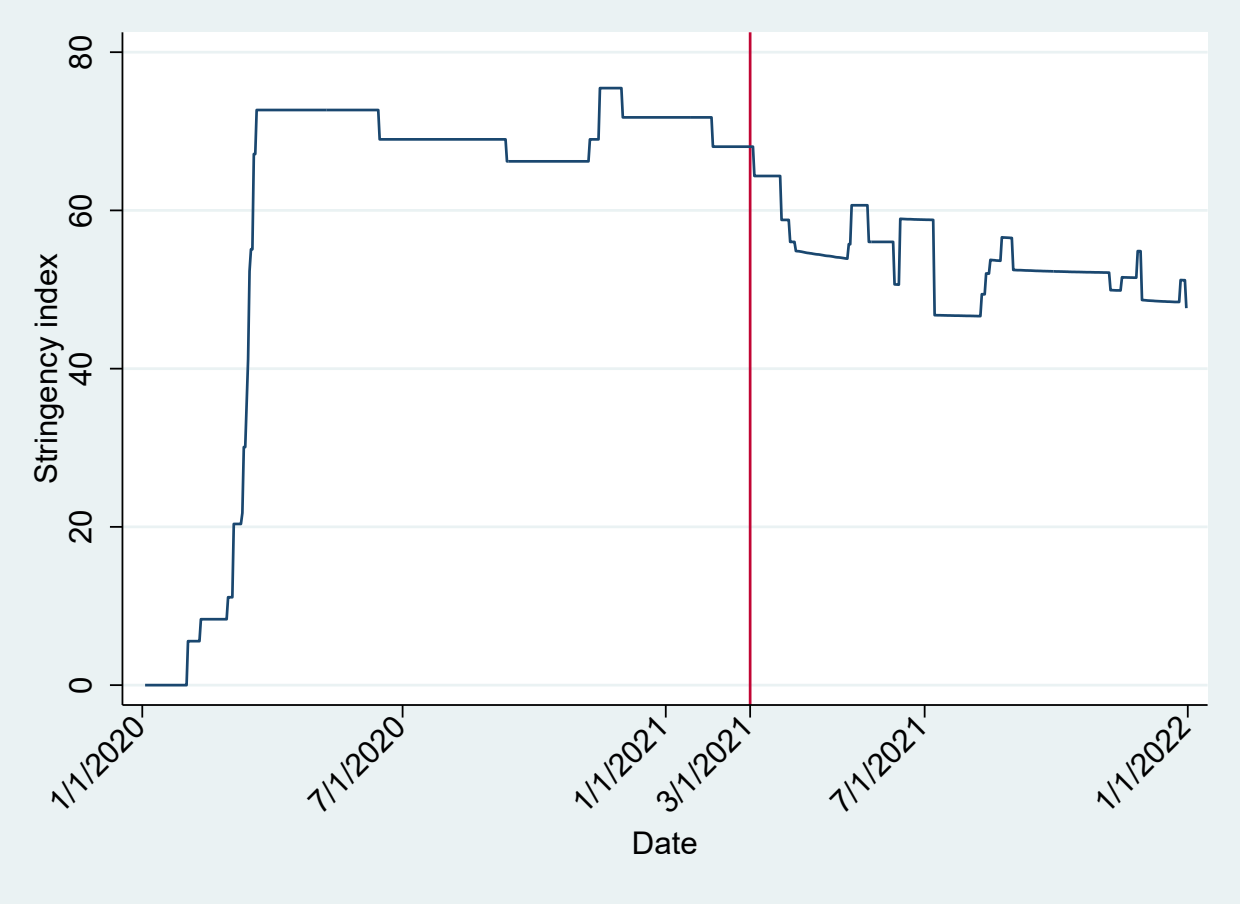
[1] The Stringency Index is a composite measure of the following nine policy response metrics: school closures; workplace closures; cancellation of public events; restrictions on public gatherings; closures of public transport; stay-at-home requirements; public information campaigns; restrictions on internal movements; and international travel controls. The index is calculated as the mean score of the nine metrics, each taking a value between 0 and 100. A higher score indicates a stricter response (100 = strictest) (Mathieu et al. 2020).

Figure 1 Daily New COVID-19 Deaths and Cumulative Deaths per Million in the US in 2020 and 2021



Note: The 2021 ATUS WB Module covers from March 1, 2021 (vertical line) through December 31, 2021. Daily new deaths are smoothed using a seven-day moving average.
Source: Author's calculations based on Centers for Disease Control and Prevention "United States COVID-19 Cases and Deaths by State over Time – ARCHIVED." October 20, 2022. (2022a) https://data.cdc.gov/Case-Surveillance/United-States-COVID-19-Cases-and-Deaths-by-State-o/9mfq-cb36

Figure 2 COVID-19 Stringency Index in the US in 2020 and 2021

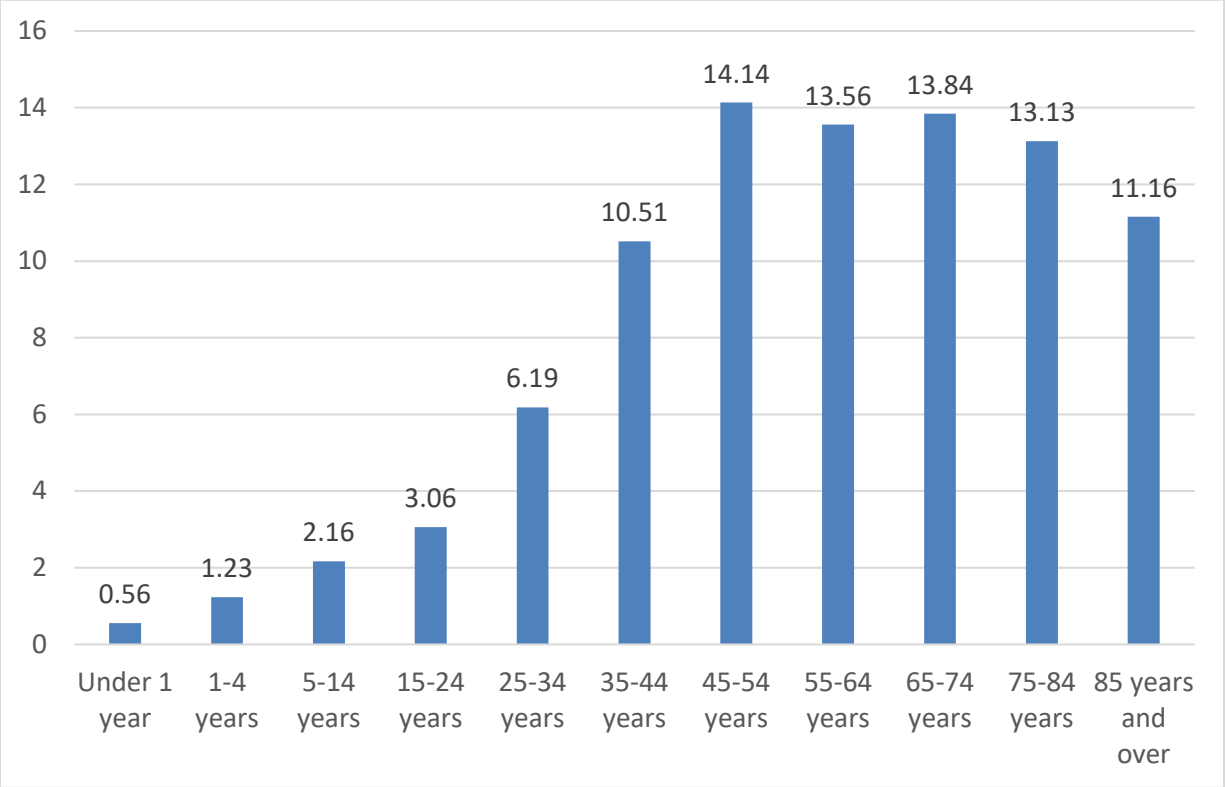


Note: The 2021 ATUS WB Module covers from March 1, 2021 (vertical line) through December 31, 2021. The nine metrics used to calculate the Stringency Index are school closures, workplace closures, cancellation of public events, restrictions on public gatherings, closures of public transport, stay-at-home requirements, public information campaigns, restrictions on internal movements, and international travel controls.
Source: Mathieu et al. (2020) - "Coronavirus Pandemic (COVID-19)". Published online at OurWorldInData.org. Retrieved from: https://ourworldindata.org/coronavirus [Online Resource]

The experience of the COVID-19 pandemic in the United States differed considerably by age. The infection rate of COVID-19 does not change substantially with age; however, the risk of hospitalization and death due to COVID-19 increases exponentially with age (Centers for Disease Control and Prevention 2022c). Combined with the fact that the risk of death in general increases as people get older, the percentage of deaths from COVID-19 in the total number of deaths in 2020 and 2021 rises with age to 14.1% for ages 45-54 and then slightly decreases to

11.2% for ages 85 and older, as shown in Figure 3 (Centers for Disease Control and Prevention 2023). Therefore, the death probability has substantially increased for individuals 45 years or older during the COVID-19 pandemic in the United States. How did this elevated risk of death during the pandemic, as well as the policy responses, change the subjective well-being of older people relative to that of younger people in the United States?

Figure 3 Percentage of Deaths from COVID-19 in the Total Number of Deaths by Age Group in 2020 and 2021



Source: Author's calculations based on Centers for Disease Control and Prevention. "Provisional COVID-19 Deaths by Sex and Age." January 23, 2023. https://data.cdc.gov/NCHS/Provisional-COVID-19-Deaths-by-Sex-and-Age/9bhg-hcku

Using subjective well-being data from the 2013 and 2021 American Time Use Survey Well-Being (ATUS WB) Modules, this paper examines how the COVID-19 pandemic changed various measures of subjective well-being compared to the pre-pandemic period among two age

groups in the United States: individuals aged 15 to 44 and those aged 45 or older. Many studies, mainly in Europe, have found that both the stringent policies and the intensity of the pandemic lower life satisfaction and positive affect, and increase stress and negative affect (Aknin et al. 2022; Bachman et al. 2023; Brindal et al. 2022; Clark and Lepinteur 2022; Easterlin and O'Connor 2023; Foa, Fabian, and Gilbert 2022; Foliano, Tonei, and Sevilla 2022; Handschuh, Kroh, and Nester 2024; Oberndorfer, Stolz, and Dorner 2022). A few US studies have also found that older adults experience less stress, negative affect, and depressive symptoms, and report higher positive affect than younger adults in the United States during the pandemic (Birditt et al. 2021; Fields et al. 2022; Knepple Carney et al. 2021). However, these US studies have failed to examine changes in subjective well-being by age group during the pandemic compared to the pre-pandemic period. This is because they relied on data, often small and unrepresentative, collected exclusively during the pandemic, without comparable data from the pre-pandemic period. As a result, they may reconfirm the existing differences in subjective well-being by age group that predated the pandemic (Carsten 1999; Charles 2010; Scott, Sliwinski, and Blanchard-Fields 2013). Utilizing large and nationally representative ATUS WB Module data from both before and during the pandemic, this paper contributes to the literature by focusing on changes in subjective well-being, rather than merely examining differences by age group.

Several studies have also investigated changes in subjective well-being, utilizing data from before and during the pandemic. Using the same 2013 and 2021 ATUS WB Modules, Shi, Su, and Goulias (2023) find that people changed their time allocation and experienced more negative emotions during the COVID year compared to the pre-pandemic period in the United States.[2] However, they have failed to analyze the varying effects of COVID-19 on subjective

[2] Giménez-Nadal, Molina, and Velilla (2024) and Restrepo and Zeballos (2023) examine the difference in subjective well-being between working from home and working away from home before and during the pandemic.

well-being by age. Helliwell et al. (2021) and Helliwell et al. (2022) are the only other papers examining changes in life satisfaction by age group. Using multiple years of microdata from around 100 countries in the Gallup World Poll, they find that the life satisfaction of individuals aged 60 and older *increased* during 2020 and 2021 compared to the pre-pandemic period. Unlike Helliwell et al. (2021) and Helliwell et al. (2022), this paper focuses on the United States. Additionally, it expands the measures of subjective well-being beyond life satisfaction, a cognitive measure, to encompass various indicators of instantaneous well-being, including affective measures such as happiness, pain, sadness, stress, and tiredness, as well as another cognitive measure, meaningfulness (Angner 2010; Brülde 2007). The results of this paper indicate that the pandemic's effect varied by measures of subjective well-being and by age group.

This paper further contributes to the literature by examining the causes of the observed changes in subjective well-being among the two age groups. Helliwell et al. (2021) and Helliwell et al. (2022) find that the life satisfaction of individuals aged 60 and older increased during 2020 and 2021 compared to the pre-pandemic period, but do not further explore the reasons for these unexpected changes. The detailed time diary data and health variables available in the ATUS WB Modules facilitate disentangling the policy response effects on changes in subjective well-being from the health effects of the COVID-19 pandemic.

Finally, the analysis presented in this paper also contributes to a deeper understanding of the relationship between age and subjective well-being. The vast literature on the relationship between subjective well-being and age has shown that life satisfaction in cross-sectional data is U-shaped through the life cycle, reaching the lowest point in midlife and increasing afterward, hence calling it a midlife crisis (Becker and Trautmann 2022; Blanchflower and Oswald 2008,

Cheng, Powdthavee, and Oswald 2017; Graham and Pozuelo 2017)[3]. However, the reasons for this U-shaped relationship between life satisfaction and age have been unclear and rarely examined. Blanchflower and Oswald (2008) conjecture that life satisfaction increases after midlife because more satisfied individuals may live longer than less satisfied ones, or because people tend to value their lives more after the death of their friends after midlife. In contrast, using longitudinal data on life satisfaction among individuals aged 65 or older from the Health and Retirement Study, Hudomiet, Hurd, and Rohwedder (2021) find that the relationship between life satisfaction and age is not U-shaped longitudinally, as life satisfaction declines with age for the same person. They demonstrate that this longitudinal relationship is biased upward and appears to be U-shaped cross-sectionally, as individuals with higher life satisfaction tend to be in better health, live longer, and are more likely to remain in the survey than those with lower life satisfaction. The exogenous shock of the elevated death probability among older people during the COVID-19 pandemic would help clarify these competing explanations of the U-shaped relationship between life satisfaction and age.

2. Data and Methodology

This study utilizes data from the 2013 and 2021 ATUS WB Modules. The American Time Use Survey (ATUS) is an annual time-use study conducted by the U.S. Census Bureau since 2003, based on a nationally representative sample of individuals aged 15 years or older. The ATUS collects a detailed account of respondents' activities, including where and with whom they were, for 24 hours, from 4 am to 4 am, on a preassigned diary day through telephone interviews. The

[3] Stone et al. (2010) report that in addition to life satisfaction, measures of positive hedonic well-being, such as enjoyment and happiness, are also U-shaped; in comparison, measures of negative hedonic well-being show varying patterns: stress and anger decline with age, worry declines after age 50, and sadness shows an inverted U-shape.

diary days cover more or less all days in a year. The ATUS also collects respondents' demographic information, such as age, sex, race/ethnicity, educational attainment, marital status, employment status, number of children, disabilities, immigration status, and household income.

The ATUS WB Module, a supplemental survey collected in 2010, 2012, 2013, and 2021, collected instantaneous well-being using the Day Reconstruction Method (Kahneman et al., 2004a, 2004b). It randomly selected three activities from all activities reported by each ATUS respondent on the diary day. Then, it asked the respondents to rate the happiness, pain, sadness, stress, tiredness, and meaningfulness they felt during the activity, using a scale from 0 to 6, where 0 meant no feeling at all and 6 meant the strongest feeling. The selected activity must have been at least 5 minutes long, and activities such as sleeping, grooming, and personal care have been excluded. In 2012, 2013, and 2021, the ATUS WB Modules included a standard life-evaluation question using the Cantril ladder (Cantril, 1965). It asked respondents where they feel they stand on the 10-step ladder, where the bottom represents the worst possible life for them, while the top represents the best possible life for them. Happiness, pain, sadness, stress, and tiredness correspond to affective (or hedonistic) views of subjective well-being. In contrast, meaningfulness and life evaluation correspond to cognitive (or attitudinal) views of subjective well-being (Angner, 2010; Brülde, 2007).

The ATUS WB Modules also had a series of questions on health: a question on self-assessed general health status with five response categories: poor, fair, good, very good, and excellent; a question on how well-rested the respondent felt when woke up on the diary day with four response categories: not at all, a little, somewhat, and very; if a doctor ever told the respondent had high blood pressure in the last five years; and if the respondent took any pain medication on the diary day.

The 2021 ATUS WB Module represents the year of the COVID-19 pandemic in this study. Following Shi, Su, and Goulias (2023), I use the 2013 ATUS WB Module as the comparison data for the 2021 ATUS WB Module because no ATUS WB Module was collected between 2013 and 2021. All ATUS WB Modules prior to 2021 covered all days from January through December; however, the 2021 ATUS WB Module was conducted from March 1 through December 31.[4] Therefore, I use data from March 1 to December 31 from the 2013 ATUS WB Module for comparability.

In the 2013 ATUS WB Module (March through December), there were 8,769 respondents with 26,023 episodes; in the 2021 ATUS WB Module, there were 6,902 respondents with 20,461 episodes. From the pooled data of both years of ATUS WB Modules, I first excluded 761 episodes with missing values for any of the six episode-level subjective well-being measures. I also excluded 121 respondents (314 episodes) with allocated values for either the Cantril ladder or self-assessed general health status. In the end, there are 8,629 respondents (3,900 for 15- to 44-year-olds and 4,729 for 45- to 85-year-olds[5]) with 25,303 episodes (11,519 for 15- to 44-year-olds and 13,784 for 45 to 85-year-olds) from the 2013 ATUS WB Module and 6,837 respondents (2,683 for 15- to 44-year-olds and 4,154 for 45- to 85-year-olds) with 20,106 episodes (7,908 for 15- to 44-year-olds and 12,198 for 45- to 85-year-olds) from the 2021 ATUS WB Module in the sample.

I estimate two separate OLS regressions for two age groups: 15- to 44-year-olds and 45- to 85-year-olds, as the increased mortality due to COVID-19 is primarily observed among the

[4] The red vertical lines in Figures 1 and 2 indicate the first date of the 2021 ATUS WB Module, March 1, 2021.
[5] All those age 85 or above have age 85 because age is top-coded to 85 in the ATUS.

older group. [6] To analyze the effect of the COVID-19 pandemic, both the increased mortality and the strictness of the policy responses, on the six episode-level measures of subjective well-being in regressions, I include the year dummy for 2021 and also control for the following respondents' characteristics that have been found to influence one's subjective well-being in the literature : age and its square (Becker and Trautmann 2022; Blanchflower and Oswald 2008, Cheng, Powdthavee, and Oswald 2017; Graham and Pozuelo 2017; Stone et al. 2010); a female dummy (Batz and Tay 2018); three dummies for race/ethnicity (black, Hispanic, and other; the reference group being white) (Cummings 2020); five education dummies (some high school, high school, some college, college, and graduate degree; the reference group is less than some high school education) (Nikolaev 2018); two marriage/partner dummies (married and partnered; the reference group being single) (Helliwell 2003); two employment status dummies (unemployed and not in the labor force; the reference group being employed) (Di Tella et al. 2001; Frey and Stutzer 2000; Helliwell 2003); the number of children (Myrskylä and Margolis 2014); the number of disabilities (Oswald and Powdthavee 2008); a metropolitan status dummy (Burger et al. 2020); an immigrant dummy (Hendriks and Burger 2021); four dummies for household income ($30,000-$59,999, $60,000-$99,999, $100,000-$149,999, and $150,000 and over; the reference group being less than $30,000) (Clark, Frijters, and Shields 2008); and state dummies (Oswald and Wu 2010; Song 2017). I also control for the characteristics of the diary day, including a holiday dummy, six dummies for the days of the week (Csikszentmihalyi and Hunter 2003; Stone, Schneider, and Harter 2012), and nine dummies for the months (Bryson and Blanchflower 2023). These are the basic control variables for the regressions for the episode-

[6] The following analysis results do not change substantially even if the age groups are changed to 15- to 34-year-olds and 35 or above. Chow pooling tests indicate that the coefficients differ between the younger and older groups, regardless of the dependent variable and specification.

level measures of subjective well-being.

Then, to capture the effect of the pandemic mediated by health, I include the following health control variables: a dummy for high blood pressure, a dummy for pain medication, four dummies for general health status (fair, good, very good, and excellent; the reference group being poor), and three dummies for how well-rested the respondent felt when they woke up (a little, somewhat, and very; the reference group being not at all) (Larson 1978; Okun and George 1984). Finally, I add the following control variables to capture the effect of the pandemic policy responses mediated by time use: 23 dummies for the location of the activity (Batur et al. 2023; Shi, Su, and Goulias 2023), 17 dummies for the type of activity (Krueger et al. 2009), dummies for activity start time (Csikszentmihalyi and Hunter 2003), the activity duration (Etkin and Mogilner 2016), a dummy for interacting with anyone, including over the phone, during the episode (Csikszentmihalyi and Hunter 2003; Hudson, Lucas, and Donnellan 2020), and six dummies with whom the respondent was during the episode (alone, spouse/partner, children, other relatives, friends, and other people) (Flood and Genadek 2016; Giménez-Nadal, Molina, and Velilla 2023).[7] The regressions are weighted using the ATUS WB Module activity weights, and the standard errors are clustered at the state level.

In the individual-level analysis of the COVID-19 pandemic's effect on the Cantril ladder, the basic control variables include the respondents' and diary day's characteristics. I also include the health control variables. Finally, the time-use controls here include the number of hours spent in different activities on the diary day (sleep, home production, childcare, work, and watching TV) and the number of hours spent with whom on the diary day (alone, spouse/partner, children, other relatives, friends, and other people) (Hamermesh 2020). These regressions are weighted

[7] The "who with" information was not collected for some activities, such as sleeping, personal activities, and some other activities. The respondent could also have been with multiple groups of people during the episode.

using the ATUS WB Module respondent weights, and the standard errors are clustered at the state level.

Table 1 shows the descriptive statistics of the key variables by age group and year. The top panel of the table indicates that, in the 15- to 44-year-old sample, individuals felt less happy and sadder, and more stressed in 2021 than in 2013. In contrast, there was no significant change in the episode-level measures of subjective well-being in the 45- to 85-year-old sample between 2013 and 2021. In contrast, the bottom panel of Table 1 shows that the Cantril ladder, a measure of life evaluation, was higher in the older sample in 2021 than in 2013. In contrast, there was no significant change in the Cantril ladder in the younger sample between the two years. Since Table 1 presents simple comparisons of various measures of subjective well-being, it is necessary to control for other factors in the regression analysis.

The bottom panel of Table 1 also reveals that in the younger group, the proportion of people whose self-assessed general health is excellent decreased by 0.027 to 0.190 in 2021 from 0.217 in 2013, and all other categories of self-assessed general health slightly increased but not statistically significantly between the two years, perhaps due to post-COVID conditions (Centers for Disease Control and Prevention 2022b). In the older group, however, in addition to a similar decrease of 0.029 to 0.115 in 2021 from 0.144 in 2013 in the proportion of people with excellent self-assessed health, the proportion of people with poor self-assessed health significantly decreased by 0.017 to 0.045 in 2021 from 0.062 in 2013, resulting in a significant increase in the share of people with good self-assessed health in the middle by 0.035 to 0.342 in 2021 from 0.307 in 2013. The bottom row of Table 1 also shows that the proportion of older people who took pain medication on the diary day decreased by 0.032 from 0.379 in 2013 to 0.347 in 2021.

Table 1 Descriptive Statistics of Key Variables by Age Group and Year

	Age: 15-44		Age: 45-85	
	2013	2021	2013	2021
Episode-level variables				
Happiness	4.345 (.037)	4.180 (.036)***	4.381 (.037)	4.329 (.030)
Pain	.665 (.029)	.685 (.033)	1.183 (.036)	1.214 (.030)
Sadness	.520 (.027)	.622 (.030)**	.668 (.029)	.716 (.025)
Stress	1.449 (.039)	1.704 (.042)***	1.247 (.037)	1.301 (.034)
Tiredness	2.682 (.044)	2.574 (.042)*	2.288 (.046)	2.225 (.036)
Meaningfulness	4.111 (.041)	4.008 (.044)*	4.406 (.039)	4.320 (.033)*
Number of episodes	11,519	7,908	13,784	12,198
Individual-level variables				
Cantril ladder	7.086 (.041)	7.064 (.048)	7.208 (.039)	7.494 (.038)***
Age	29.35 (.19)	29.47 (.22)	60.87 (.20)	62.26 (.21)***
Female	.500 (.011)	.500 (.013)	.526 (.009)	.531 (.010)
White	.585 (.011)	.569 (.012)	.755 (.008)	.692 (.010)***
Black	.127 (.008)	.106 (.008)*	.108 (.005)	.133 (.007)***
Hispanic	.212 (.009)	.223 (.011)	.097 (.005)	.127 (.007)***
Other	.077 (.006)	.102 (.008)***	.040 (.004)	.047 (.004)
Less than some high school	.042 (.004)	.035 (.005)	.041 (.004)	.032 (.004)*
Some high school	.167 (.009)	.142 (.010)*	.071 (.005)	.052 (.005)***
High school	.227 (.010)	.244 (.012)	.343 (.009)	.321 (.010)*
Some college	.267 (.010)	.227 (.010)***	.234 (.007)	.227 (.008)
College	.203 (.008)	.233 (.010)**	.191 (.007)	.198 (.008)
Graduate	.095 (.006)	.120 (.007)***	.120 (.006)	.171 (.007)***
Single	.530 (.011)	.521 (.013)	.328 (.008)	.335 (.009)
Married	.398 (.010)	.396 (.012)	.640 (.008)	.623 (.009)
Partnered	.072 (.006)	.083 (.007)	.031 (.003)	.042 (.004)*
Employed	.647 (.011)	.672 (.013)	.449 (.009)	.436 (.010)
Unemployed	.081 (.006)	.057 (.007)***	.031 (.003)	.017 (.002)***
Not in the labor force	.225 (.010)	.223 (.011)	.446 (.009)	.479 (.010)**
Number of children	1.17 (.03)	1.11 (.03)	.319 (.014)	.290 (.015)
Number of disabilities	.063 (.008)	.067 (.008)	.287 (.013)	.257 (.015)
Metropolitan area	.866 (.007)	.895 (.007)***	.807 (.007)	.847 (.007)***
Immigrant	.171 (.008)	.174 (.010)	.108 (.006)	.156 (.008)***
Family income: Less than $30,000	.262 (.010)	.161 (.009)***	.275 (.008)	.188 (.007)***
$30,000-59,999	.268 (.010)	.231 (.011)***	.284 (.008)	.269 (.009)
$60,000-99,999	.246 (.010)	.255 (.011)	.231 (.008)	.231 (.008)
$100,000-149,999	.134 (.008)	.168 (.010)***	.114 (.006)	.151 (.007)***
$150,000 and over	.089 (.006)	.184 (.010)***	.096 (.006)	.160 (.007)***
General health: Excellent	.217 (.009)	.190 (.010)**	.144 (.006)	.115 (.006)***
Very good	.368 (.011)	.369 (.012)	.324 (.009)	.329 (.009)
Good	.300 (.010)	.310 (.012)	.307 (.009)	.342 (.009)***
Fair	.096 (.006)	.111 (.008)	.163 (.007)	.169 (.008)
Poor	.018 (.003)	.019 (.003)	.062 (.005)	.045 (.004)***
Well rested: Very	.364 (.011)	.340 (.012)	.445 (.009)	.425 (.010)
Somewhat	.412 (.011)	.417 (.013)	.382 (.009)	.381 (.010)
A little	.163 (.008)	.184 (.010)	.124 (.006)	.136 (.007)
Not at all	.061 (.006)	.059 (.006)	.050 (.004)	.057 (.005)
High blood pressure	.107 (.006)	.112 (.007)	.486 (.009)	.471 (.010)
Pain medication	.189 (.009)	.165 (.009)*	.379 (.009)	.347 (.009)**
Number of individuals	3,900	2,683	4,729	4,154

Note: Episode-level statistics use the WB Module activity weights, whereas individual-level statistics use the WB Module respondent weights. Standard errors are in parentheses. *, **, *** denote that the means are significantly different between 2013 and 2021 at the 10%, 5%, and 1% levels, respectively.

These decreases in the proportion of people with poor self-assessed health and those who took pain medication on the diary day do not necessarily suggest an improvement in the health of older people. Considering that the risk of death due to COVID-19 increases with age, certain underlying health conditions, and the number of conditions (Centers for Disease Control and Prevention 2022c; Kompaniyets et al. 2021), the decrease in the proportion of people with poor self-assessed health and those who took pain medication on the diary day among the older group could be because these people have many underlying health conditions and are more likely have died from COVID-19 than those with better health and do not take pain medication. Finally, in both groups, the proportion of people who responded that they felt very well rested when they woke up slightly decreased.

3. Results

Table 2 presents the episode-level regression results for those between the ages of 15 and 44, where the dependent variables are episode-level measures of subjective well-being. When respondents' characteristics and diary day characteristics are controlled for in Panel A of Table 2, younger people reported feeling less happy, more stressed, and less tired during the COVID-19 pandemic than in 2013, consistent with the findings in Table 1. The results do not change substantially in Panel B of Table 2 when the respondents' health variables are additionally controlled. This result aligns with the observation that the health status of individuals between the ages of 15 and 44 remained essentially unchanged between 2013 and 2021, as shown in Table 1, except for a decrease in the proportion of those with excellent self-assessed health.

Table 2 COVID-19 and Episode-level Subjective Well-being: Age 15-44

Panel A Basic control

VARIABLES	(1) Happiness	(2) Pain	(3) Sadness	(4) Stress	(5) Tiredness	(6) Meaningfulness
Year 2021	-0.134**	0.046	0.103*	0.199***	-0.130**	-0.082
	(0.053)	(0.046)	(0.058)	(0.054)	(0.052)	(0.067)
Observations	19,427	19,427	19,427	19,427	19,427	19,427
R-squared	0.055	0.088	0.059	0.068	0.040	0.066

Panel B Basic control plus health control

VARIABLES	(1) Happiness	(2) Pain	(3) Sadness	(4) Stress	(5) Tiredness	(6) Meaningfulness
Year 2021	-0.115**	0.039	0.087	0.163***	-0.161**	-0.074
	(0.047)	(0.044)	(0.056)	(0.049)	(0.064)	(0.068)
Observations	19,427	19,427	19,427	19,427	19,427	19,427
R-squared	0.103	0.232	0.104	0.133	0.142	0.079

Panel C Basic control plus health and time-use control

VARIABLES	(1) Happiness	(2) Pain	(3) Sadness	(4) Stress	(5) Tiredness	(6) Meaningfulness
Year 2021	-0.045	0.027	0.061	0.035	-0.015	-0.040
	(0.041)	(0.037)	(0.050)	(0.049)	(0.064)	(0.068)
Observations	19,427	19,427	19,427	19,427	19,427	19,427
R-squared	0.206	0.273	0.139	0.271	0.225	0.176

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at the state level are in parentheses. The following basic control is included in all panels: age and its square; a female dummy; three race/ethnicity dummies; five education dummies; two marriage/partner dummies; two employment status dummies; the number of children; the number of disabilities; a metropolitan status dummy; an immigrant dummy; four dummies for household income; a holiday dummy; six dummies for days of the week; nine month dummies; and state dummies. The health control variables included in Panels B and C are four dummies for general health status, three dummies for how well-rested the respondent felt, a dummy for high blood pressure, and a dummy for the use of pain medication. The time-use control variables included in Panel C are 23 dummies for the location of the activity, 17 dummies for the type of activity (first-tier time-use categories), dummies for the activity start time, the activity duration, a dummy for interacting with anyone, including over the phone, during the episode, and six dummies with whom the respondent was during the episode. The regressions are weighted using the ATUS WB Module activity weights.

When the time-use control variables[8] are included in Panel C of Table 2; however, all of the coefficients on the year dummy for 2021 become smaller in absolute terms, and none are

[8] The time-use controls are 23 dummies for the location of the activity, 17 dummies for the type of activity, dummies for activity start time, the activity duration, a dummy for interacting with anyone, including over the phone, during the episode, and six dummies with whom the respondent was during the episode. The full regression results are presented in Table A1 of the Appendix.

statistically significant.[9] A further analysis (not presented) indicates that of the five sets of variables in the time-use controls, 17 dummies for the type of activity and dummies for activity start time and six dummies with whom the respondent was during the episode are the main reasons for the insignificance of the coefficients on the year 2021 dummy in Columns 1, 4 and 5 in Panel C of Table 2. These results suggest that younger people felt less happy, more stressed, and less tired during the COVID-19 pandemic than they did in 2013, mainly because they were engaging in different types of activities at different times and with different people in 2021 than they had in 2013.

Table 3 shows the episode-level regression results for those between the ages of 45 and 85, where the dependent variables are episode-level measures of subjective well-being. When the respondents' and diary day characteristics are controlled for in Panel A of Table 3, older people reported feeling less happy, experiencing more pain, being sadder, feeling more stressed, and perceiving less meaning during the COVID-19 pandemic than in 2013. Note that these results differ from the findings in Table 1, which were based on simple comparisons of the dependent variables and showed no change in these variables between 2013 and 2021. When the health variables are additionally controlled for in Panel B of Table 3, the coefficients on the year 2021 dummy in Columns 1 for happiness and 4 for stress become smaller in absolute terms and statistically insignificant. In contrast, those in Columns 2 for pain, 3 for sadness, and 6 for meaningfulness remain statistically significant, although smaller. These results remain unchanged when the time-use control variables are included in Panel C of Table 3.

To better understand why the coefficients on the 2021 dummy in Columns 1 for happiness and 4 for stress become smaller in absolute terms and statistically insignificant when

[9] The smaller standard errors in Columns 1, 4 and 5 in Panel C than in Panel B of Table 2 indicate that these insignificant results are unlikely due to multicollinearity among the independent variables.

the health variables are controlled for, it is necessary to examine the changes in health variables between 2013 and 2021, as well as the coefficients on the health variables. As described in the previous section and shown in Table 1, the proportion of people with excellent self-assessed health decreased by 0.029 between 2013 and 2021, and the share of people with good self-assessed health in the middle increased by 0.035 between 2013 and 2021 in the old group. Table A2 in the Appendix reports the full regression results for Panel C of Table 3, excluding the coefficients for state dummies. According to the coefficients for a set of dummies on the health variables in Column 1 of Table A2, the decrease of 0.029 in the proportion of people with excellent self-assessed health, combined with the estimated coefficient of 1.077, has a negative effect of 0.031 on the average happiness level. In contrast, the increase of 0.035 in the proportion of people with good self-assessed health, combined with the estimated coefficient of 0.627, has a positive effect of 0.021. These two variables, which showed statistically significant changes between 2013 and 2021 (Table 1), combined with their coefficients in Table A2, account for a 0.01 decrease in the average happiness level between 2013 and 2021. Although Table 1 also shows that the proportion of older people who took pain medication on the diary day decreased by 0.032 between 2013 and 2021, the estimated coefficient of -0.03 in Column 1 of Table A2 indicates that the effect on the average happiness level is very small, 0.00096. In contrast, a decrease of 0.02 from 0.445 in 2013 to 0.425 in 2021, although statistically insignificant, in the proportion of people who felt very well rested when they woke up in the old age group, shown in Table 1, combined with the estimated coefficient of 1.080 in Column of Table A2, accounts for a 0.022 decrease in the average happiness level between 2013 and 2021. Overall, this simple exercise indicates a decrease of approximately 0.032 in the average happiness level between 2013 and 2021, which is about 2/3 of the change in the estimated coefficients on the year 2021

dummy in Column 1 between Panels A and C of Table 3 ($-0.049 = -0.124 - (-0.075)$). The pattern of the coefficients in Column 4 of Table A2 is also similar to that in Column 1 of Table A2, except that they have opposite signs. Therefore, one can use them the same way to understand why the coefficients on the 2021 dummy in Column 4 for stress become statistically insignificant when the health variables are controlled for.

The results in Table 3 indicate that older individuals were less happy and more stressed in 2021 than in 2013 due to changes in their health. They felt more pain, sadder, and less meaningful during the pandemic than in 2013, even after controlling for their health status and time use. Because the respondents' health status is already controlled, the increased pain and sadness and the decreased meaningfulness found in Panel C of Table 3 are not because these people suffered from post-COVID conditions.[10] They might feel more pain, sadder, and less meaningful in 2021 than in 2013, perhaps because they lost their family members or friends around their age due to COVID-19.

[10] If the health control variables used in the analysis fail to capture all the changes in health, these results could still be observed due to post-COVID conditions.

Table 3 COVID-19 and Episode-level Subjective Well-being: Age 45-85

Panel A Basic control

VARIABLES	(1) Happiness	(2) Pain	(3) Sadness	(4) Stress	(5) Tiredness	(6) Meaningfulness
Year 2021	-0.124**	0.160***	0.114***	0.119***	0.052	-0.138**
	(0.053)	(0.051)	(0.034)	(0.041)	(0.072)	(0.055)
Observations	25,982	25,982	25,982	25,982	25,982	25,982
R-squared	0.058	0.121	0.055	0.072	0.056	0.041

Panel B Basic control plus health control

VARIABLES	(1) Happiness	(2) Pain	(3) Sadness	(4) Stress	(5) Tiredness	(6) Meaningfulness
Year 2021	-0.060	0.118**	0.071**	0.053	-0.034	-0.092*
	(0.050)	(0.046)	(0.030)	(0.038)	(0.064)	(0.053)
Observations	25,982	25,982	25,982	25,982	25,982	25,982
R-squared	0.118	0.307	0.148	0.186	0.187	0.062

Panel C Basic control plus health and time-use control

VARIABLES	(1) Happiness	(2) Pain	(3) Sadness	(4) Stress	(5) Tiredness	(6) Meaningfulness
Year 2021	-0.061	0.111**	0.059**	-0.014	0.075	-0.120**
	(0.048)	(0.048)	(0.029)	(0.032)	(0.061)	(0.054)
Observations	25,982	25,982	25,982	25,982	25,982	25,982
R-squared	0.158	0.317	0.161	0.246	0.245	0.141

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at the state level are in parentheses. The following basic control is included in all panels: age and its square; a female dummy; three race/ethnicity dummies; five education dummies; two marriage/partner dummies; two employment status dummies; the number of children; the number of disabilities; a metropolitan status dummy; an immigrant dummy; four dummies for household income; a holiday dummy; six dummies for days of the week; nine month dummies; and state dummies. The health control variables included in Panels B and C are four dummies for general health status, three dummies for how well-rested the respondent felt, a dummy for high blood pressure, and a dummy for the use of pain medication. The time-use control variables included in Panel C are 23 dummies for the location of the activity, 17 dummies for the type of activity (first-tier time-use categories), dummies for the activity start time, the activity duration, a dummy for interacting with anyone, including over the phone, during the episode, and six dummies with whom the respondent was during the episode. The regressions are weighted using the ATUS WB Module activity weights.

Table 4 presents the individual-level regression results for both age groups, where the dependent variable is the life evaluation based on the Cantril ladder. The regression results are consistent with the findings presented in Table 1. When the respondents' characteristics are controlled for in Panel A of Table 4, younger people show no significant change in their life evaluations in Column 1. In contrast, the life evaluation increased in the older group during the

COVID-19 pandemic compared to 2013, as shown in Column 2 of Panel A. When the health variables are additionally controlled for in Panel B and the time-use controls in Panel C of Table 4, the coefficients on the 2021 year dummy become larger without changes in the statistical significance for either age group.[11]

Table 4 COVID-19 and Life Evaluation based on the Cantril Ladder

Panel A Basic control

	(1)	(2)
VARIABLES	Age 15-44	Age 45-85
Year 2021	-0.042	0.145***
	(0.069)	(0.045)
Observations	6,583	8,883
R-squared	0.085	0.103

Panel B Basic control plus health control

	(1)	(2)
VARIABLES	Age 15-44	Age 45-85
Year 2021	0.021	0.222***
	(0.060)	(0.040)
Observations	6,583	8,883
R-squared	0.186	0.255

Panel C Basic control plus health and time-use control

	(1)	(2)
VARIABLES	Age 15-44	Age 45-85
Year 2021	0.053	0.241***
	(0.070)	(0.042)
Observations	6,583	8,883
R-squared	0.190	0.258

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at the state level are in parentheses. The following basic control is included in all panels: age and its square; a female dummy; three race/ethnicity dummies; five education dummies; two marriage/partner dummies; two employment status dummies; the number of children; the number of disabilities; a metropolitan status dummy; an immigrant dummy; four dummies for household income; a holiday dummy; six dummies for the days of the week; nine dummies for the months; and state dummies. The health control variables included in Panel B are four dummies for general health status, three dummies for how well-rested the respondent felt, a dummy for high blood pressure, and a dummy for the use of pain medication. The time-use controls included in Panel C are the number of hours spent in different activities on the diary day and the number of hours spent alone and with others on the diary day. The regressions are weighted using the ATUS WB Module respondent weights.

[11] Table A3 in the Appendix reports the full regression results for Panel B of Table 4, excluding the coefficients for the holiday dummy, days of the week, month, and state dummies.

Considering that the probability of death did not change drastically due to the pandemic in the younger group, it is understandable that the life evaluation of younger people did not change significantly. However, why did the life evaluation of older people significantly *increase* during the COVID-19 pandemic when their risk of death substantially increased? As shown in Hudomiet, Hurd, and Rohwedder (2021), it could be because older people with lower life evaluations are in poorer health and are more likely to have died from COVID-19. Then, the average life evaluation in the data could increase when these individuals were removed from the sample due to their death, even if there was no change in the life evaluations of everyone else. The decrease in the proportion of people with poor self-assessed health and those who took pain medication on the diary day observed in the older group in Table 1 is consistent with this notion. However, the coefficient on the 2021 dummy in Column 2 of Panel B of Table 4 remained positive and significant, and it even increased in magnitude after controlling for the health variables. Therefore, the sample attrition due to poorer health cannot explain the increase in life evaluation among the older group. An alternative explanation could be that older people began to better appreciate their lives after the deaths of many of their family members and friends around their age from COVID-19, as conjectured in Blanchflower and Oswald (2008).[12] These results are also consistent with the findings in Helliwell et al. (2021) and Helliwell et al. (2022), which indicate that the life satisfaction of individuals aged 60 and older increased during 2020 and 2021 compared to the pre-pandemic period.

[12] The results in Panel C of Table 4 with time-use control suggest that this effect is not working through changes in time use, including how much time they spent with whom.

4. Conclusions

Using subjective well-being data from the 2013 and 2021 American Time Use Survey Well-Being Modules, this paper demonstrates that the impact of COVID-19 on people's subjective well-being varies by age. Younger people between the ages of 15 and 44 reported feeling less happy, more stressed, and less tired during the COVID-19 pandemic. However, these effects disappear when time use is controlled, and there is no change in the life evaluation of the younger group due to the pandemic. These results suggest that younger people suffered less from the mortality/morbidity of COVID-19 but had to change their time use due to the stringent policy responses.

Older people, 45 years or older, felt more pain, sadder, and less meaningful during the COVID-19 pandemic, even after controlling for their health status and time use patterns, perhaps because they suffered from losing their family members and friends to COVID-19. However, their life evaluation increased during the COVID-19 pandemic because they might have begun to appreciate their life better after the deaths of many people around them.

The findings in this paper clearly illustrate that the subjective well-being cost of the COVID-19 pandemic varied substantially by age. Among the younger group, the cost mainly was on affective measures of subjective well-being, such as happiness and stress, with a slight benefit of being less tired. According to the results presented in this paper, these effects are somewhat transient and may dissipate when pandemic policy responses are lifted, allowing people to pursue activities as they wish.

Among the older group, in contrast, in addition to affective measures of subjective well-being, such as pain and sadness, cognitive (or attitudinal) measures of subjective well-being, such as meaningfulness and the Cantril ladder (Angner 2010; Brülde 2007), were also affected

by the pandemic. According to the results presented in this paper, these effects on affective measures of subjective well-being among older individuals are not transient. They may persist even after pandemic policy responses are lifted. Therefore, policymakers should consider implementing additional policies to support and help older individuals.

Interestingly, two cognitive measures of subjective well-being were differently affected among the older group: meaningfulness decreased while life evaluation increased. This divergence could be due to how they are measured: meaningfulness is instantaneously assessed at the activity episode level, whereas the Cantril ladder requires an overall evaluation of the respondents' lives.

One limitation of this paper is that the 2013 ATUS WB Module is used as comparative pre-pandemic data due to the lack of more recent data. Some of the effects of the COVID-19 pandemic on subjective well-being by age found in this paper could be due to changes in the United States society between 2013 and 2019. Future research should explore this possibility if other subjective well-being data closer to the COVID-19 pandemic becomes available.

Recent research has shown that people's time allocation and spatial mobility changed over the years during the pandemic, and some changes, such as working from home, are expected to persist even after the pandemic is over (Foltýnová and Brůha 2024; Gershuny et al. 2021; Shi and Goulias 2024a, 2024b; Sullivan et al. 2021). Additional years of subjective well-being data during and after the pandemic would help us better understand the implications of these changes on subjective well-being.

Declarations

Funding: No funding was received to assist with the preparation of this manuscript.

Authors Contributions: This paper is solely authored by a single author.

The Stata do files used to generate the results reported in this paper are uploaded to Dataverse: https://doi.org/10.7910/DVN/CSCLK2

Compliance with Ethical Standards

Conflict of Interest: The author has no relevant financial or non-financial interests to disclose.

Informed Consent: For this type of study, informed consent is not required.

References

Aknin, Lara B., Bernardo Andretti, Rafael Goldszmidt, John F. Helliwell, Anna Petherick, Jan-Emmanuel De Neve, Elizabeth W. Dunn et al. "Policy stringency and mental health during the COVID-19 pandemic: a longitudinal analysis of data from 15 countries." *The Lancet Public Health* 7, no. 5 (2022): e417-e426.

Angner, Erik. "Subjective well-being." *The Journal of Socio-Economics* 39, no. 3 (2010): 361-368. https://doi.org/10.1016/j.socec.2009.12.001

Arias, Elizabeth, Betzaida Tejada-Vera, Farida Ahmad, and Kenneth D. Kochanek. "Provisional life expectancy estimates for 2020." (2021). http://dx.doi.org/10.15620/cdc:107201

_____. "Provisional life expectancy estimates for 2021." (2022). https:/dx.doi.org/10.15620/cdc:118999

Bachmann, Ronald, Myrielle Gonschor, Thorben Korfhage, and Ansgar Wübker. "Covid-19 and life satisfaction across Europe." *Applied Economics Letters* 30, no. 5 (2023): 635-639. https://doi.org/10.1080/13504851.2021.2005766

Batur, Irfan, Abbie C. Dirks, Chandra R. Bhat, Steven E. Polzin, Cynthia Chen, and Ram M. Pendyala. "Analysis of changes in time use and activity participation in response to the COVID-19 pandemic in the United States: implications for well-being." *Transportation Research Record* 2678, no. 12 (2024): 512-526. https://doi.org/10.1177/03611981231165020

Batz, Cassondra, and Louis Tay. "Gender differences in subjective well-being." *Handbook of well-being* (2018): 1-15.

Becker, Christoph K., and Stefan T. Trautmann. "Does Happiness Increase in Old Age? Longitudinal Evidence from 20 European Countries." *Journal of Happiness Studies* 23, no. 7 (2022): 3625-3654. https://doi.org/10.1007/s10902-022-00569-4

Blanchflower, David G., and Andrew J. Oswald. "Is well-being U-shaped over the life cycle?." *Social science & medicine* 66, no. 8 (2008): 1733-1749. https://doi.org/10.1016/j.socscimed.2008.01.030

Birditt, Kira S., Angela Turkelson, Karen L. Fingerman, Courtney A. Polenick, and Akari Oya. "Age differences in stress, life changes, and social ties during the COVID-19 pandemic: Implications for psychological well-being." *The Gerontologist* 61, no. 2 (2021): 205-216. https://doi.org/10.1093/geront/gnaa204

Brindal, Emily, Jillian C. Ryan, Naomi Kakoschke, Sinead Golley, Ian T. Zajac, and Bonnie Wiggins. "Individual differences and changes in lifestyle behaviours predict decreased subjective well-being during COVID-19 restrictions in an Australian sample." *Journal of Public Health* 44, no. 2 (2022): 450-456. https://doi.org/10.1093/pubmed/fdab040

Brülde, Bengt. "Happiness theories of the good life." *Journal of Happiness Studies* 8 (2007): 15-49. https://doi.org/10.1007/s10902-006-9003-8

Bryson, Alexander, and David G. Blanchflower. "Seasonality and the female happiness paradox." *Quality and Quantity: international journal of methodology* (2023). https://doi.org/10.1007/s11135-023-01628-5

Burger, Martijn J., Phillip S. Morrison, Martijn Hendriks, and Marloes M. Hoogerbrugge. "Urban-rural happiness differentials across the world." *World happiness report* 2020 (2020): 66-93.

Cantril, Hadley. "The pattern of human concerns." (1965).

Carstensen, Laura L. "Evidence for a life-span theory of socioemotional selectivity." *Current directions in Psychological science* 4, no. 5 (1995): 151-156. https://doi.org/10.1111/1467-8721.ep11512261

Centers for Disease Control and Prevention. "CDC, Washington State Report First COVID-19 Death." February 29, 2020. https://www.cdc.gov/media/releases/2020/s0229-COVID-19-first-death.html

_____. "United States COVID-19 Cases and Deaths by State over Time – ARCHIVED." October 20, 2022. (2022a) https://data.cdc.gov/Case-Surveillance/United-States-COVID-19-Cases-and-Deaths-by-State-o/9mfq-cb36

_____. "Long COVID or Post-COVID Conditions." December 16, 2022. (2022b) https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects/index.html

_____. "Risk for COVID-19 Infection, Hospitalization, and Death By Age Group." December 28, 2022. (2022c) https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-age.html

_____. "Provisional COVID-19 Deaths by Sex and Age." January 23, 2023. https://data.cdc.gov/NCHS/Provisional-COVID-19-Deaths-by-Sex-and-Age/9bhg-hcku

Charles, Susan Turk. "Strength and vulnerability integration: a model of emotional well-being across adulthood." *Psychological bulletin* 136, no. 6 (2010): 1068-1091.

Chen, Liwei, Jian Li, Tong Xia, Timothy A. Matthews, Tung-Sung Tseng, Lu Shi, Donglan Zhang et al. "Changes of exercise, screen time, fast food consumption, alcohol, and cigarette smoking during the COVID-19 pandemic among adults in the United States." *Nutrients* 13, no. 10 (2021): 3359. https://doi.org/10.3390/nu13103359

Cheng, Terence C., Nattavudh Powdthavee, and Andrew J. Oswald. "Longitudinal evidence for a midlife nadir in human well-being: Results from four data sets." *The Economic Journal* 127, no. 599 (2017): 126-142. https://doi.org/10.1111/ecoj.12256

Clark, Andrew E., Paul Frijters, and Michael A. Shields. "Relative income, happiness, and utility: An explanation for the Easterlin paradox and other puzzles." *Journal of Economic literature* 46, no. 1 (2008): 95-144. https://doi.org/10.1257/jel.46.1.95

Clark, Andrew E., and Anthony Lepinteur. "Pandemic policy and life satisfaction in Europe." *Review of Income and Wealth* 68, no. 2 (2022): 393-408. https://doi.org/10.1111/roiw.12554

Csikszentmihalyi, Mihaly, and Jeremy Hunter. "Happiness in everyday life: The uses of experience sampling." *Journal of happiness studies* 4 (2003): 185-199. https://doi.org/10.1023/A:1024409732742

Cummings, Jason L. "Assessing US racial and gender differences in happiness, 1972–2016: An intersectional approach." *Journal of Happiness Studies* 21, no. 2 (2020): 709-732. https://doi.org/10.1007/s10902-019-00103-z

Di Tella, Rafael, Robert J. MacCulloch, and Andrew J. Oswald. "Preferences over inflation and unemployment: Evidence from surveys of happiness." *American economic review* 91, no. 1 (2001): 335-341. https://pubs.aeaweb.org/doi/pdf/10.1257/aer.91.1.335

Dolan, Paul, Tessa Peasgood, and Mathew White. "Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being." *Journal of economic psychology* 29, no. 1 (2008): 94-122. https://doi.org/10.1016/j.joep.2007.09.001

Easterlin, Richard A., and Kelsey J. O'Connor. "Three years of COVID-19 and life satisfaction in Europe: A macro view." *Proceedings of the National Academy of Sciences* 120, no. 19 (2023): e2300717120. https://doi.org/10.1073/pnas.2300717120

Etkin, Jordan, and Cassie Mogilner. "Does variety among activities increase happiness?" *Journal of Consumer Research* 43, no. 2 (2016): 210-229. https://doi.org/10.1093/jcr/ucw021

Fields, Eric C., Elizabeth A. Kensinger, Sandry M. Garcia, Jaclyn H. Ford, and Tony J. Cunningham. "With age comes well-being: older age associated with lower stress, negative affect, and depression throughout the COVID-19 pandemic." *Aging & mental health* 26, no. 10 (2022): 2071-2079. https://doi.org/10.1080/13607863.2021.2010183

Flood, Sarah M., and Katie R. Genadek. "Time for each other: Work and family constraints among couples." *Journal of Marriage and Family* 78, no. 1 (2016): 142-164. https://doi.org/10.1111/jomf.12255

Foa, Roberto Stefan, Mark Fabian, and Sam Gilbert. "Subjective well-being during the 2020–21 global coronavirus pandemic: Evidence from high frequency time series data." *PloS one* 17, no. 2 (2022): e0263570. https://doi.org/10.1371/journal.pone.0263570

Foliano, Francesca, Valentina Tonei, and Almudena Sevilla. *Social Restrictions and Well-Being: Disentangling the Mechanisms*. No. 15734. IZA Discussion Papers, 2022.

Foltýnová, Hana Brůhová, and Jan Brůha. "Expected long-term impacts of the COVID-19 pandemic on travel behaviour and online activities: Evidence from a Czech panel

survey." *Travel Behaviour and Society* 34 (2024): 100685. https://doi.org/10.1016/j.tbs.2023.100685

Frey, Bruno S., and Alois Stutzer. "Happiness, economy and institutions." *The economic journal* 110, no. 466 (2000): 918-938. https://doi.org/10.1111/1468-0297.00570

Gershuny, Jonathan, Oriel Sullivan, Almudena Sevilla, Marga Vega-Rapun, Francesca Foliano, Juana Lamote de Grignon, Teresa Harms, and Pierre Walthery. "A new perspective from time use research on the effects of social restrictions on COVID-19 behavioral infection risk." *Plos one* 16, no. 2 (2021): e0245551. https://doi.org/10.1371/journal.pone.0245551

Giménez-Nadal, José Ignacio, José Alberto Molina, and Jorge Velilla. "Should we cheer together? Gender differences in instantaneous well-being: an application to COVID-19 lockdowns." *Journal of Happiness Studies* 24, no. 2 (2023): 529-562. https://doi.org/10.1007/s10902-022-00574-7

_____. "Work from home, time allocation, and well-being: the impact of lockdowns." *Review of Economics of the Household* (2024): 1-45. https://doi.org/10.1007/s11150-024-09744-3

Giuntella, Osea, Kelly Hyde, Silvia Saccardo, and Sally Sadoff. "Lifestyle and mental health disruptions during COVID-19." *Proceedings of the National Academy of Sciences* 118, no. 9 (2021): e2016632118. https://doi.org/10.1073/pnas.2016632118

Graham, Carol, and Julia Ruiz Pozuelo. "Happiness, stress, and age: How the U curve varies across people and places." *Journal of Population Economics* 30 (2017): 225-264. https://doi.org/10.1007/s00148-016-0611-2

Hamermesh, Daniel S. "Life satisfaction, loneliness and togetherness, with an application to Covid-19 lock-downs." *Review of Economics of the Household* 18, no. 4 (2020): 983-1000. https://doi.org/10.1007/s11150-020-09495-x

Handschuh, Philipp, Jacqueline Kroh, and Markus Nester. "The Effect of the COVID-19 Pandemic on Life Satisfaction: Does Social Belonging Matter as a Mechanism and are There Differences by Age?." *Journal of Happiness Studies* 25, no. 8 (2024): 1-43.

Helliwell, John F. "How's life? Combining individual and national variables to explain subjective well-being." *Economic modelling* 20, no. 2 (2003): 331-360. https://doi.org/10.1016/S0264-9993(02)00057-3

Helliwell, John F., Haifang Huang, Shun Wang, and Max Norton. "World happiness, trust and deaths under COVID-19." *World happiness report* 2021 (2021): 13-57.

Helliwell, John F., Shun Wang, Haifang Huang, and Max Norton. "Happiness, benevolence, and trust during COVID-19 and beyond." *World happiness report* 2022 (2022): 13-52.

Hendriks, Martijn, and Martijn J. Burger. "Happiness and migration." In *Handbook of labor, human resources and population economics*, pp. 1-23. Cham: Springer International Publishing, 2021.

Hudomiet, Péter, Michael D. Hurd, and Susann Rohwedder. “The age profile of life satisfaction after age 65 in the US.” *Journal of Economic Behavior & Organization* 189 (2021): 431-442. https://doi.org/10.1016/j.jebo.2021.07.002

Hudson, Nathan W., Richard E. Lucas, and M. Brent Donnellan. "Are we happier with others? An investigation of the links between spending time with others and subjective well-being." *Journal of Personality and Social Psychology* 119, no. 3 (2020): 672. https://psycnet.apa.org/doi/10.1037/pspp0000290

Kahneman, D., Krueger, A.B., Schkade, D.A., Schwarz, N., & Stone, A.A. (2004a). Toward national well-being accounts. *American Economic Review, 94*(2), 429-434. http://dx.doi.org/10.1257/0002828041301713

_____ (2004b). A survey method for characterizing daily life experience: The day reconstruction method. *Science, 306*(5702), 1776-1780. http://dx.doi.org/10.1126/science.1103572

Knepple Carney, Amy, Allyson S. Graf, Grace Hudson, and Ellen Wilson. "Age moderates perceived COVID-19 disruption on well-being." *The Gerontologist* 61, no. 1 (2021): 30-35. https://doi.org/10.1093/geront/gnaa106

Kompaniyets, Lyudmyla, Audrey F. Pennington, Alyson B. Goodman, Hannah G. Rosenblum, Brook Belay, Jean Y. Ko, Jennifer R. Chevinsky et al. “Peer Reviewed: Underlying Medical Conditions and Severe Illness Among 540,667 Adults Hospitalized With COVID-19, March 2020–March 2021.” *Preventing chronic disease* 18 (2021). http://dx.doi.org/10.5888/pcd18.210123

Krueger, Alan B., Daniel Kahneman, Claude Fischler, David Schkade, Norbert Schwarz, and Arthur A. Stone. "Time use and subjective well-being in France and the US." *Social indicators research* 93 (2009): 7-18. https://doi.org/10.1007/s11205-008-9415-4

Larson, Reed. "Thirty years of research on the subjective well-being of older Americans." *Journal of gerontology* 33, no. 1 (1978): 109-125. https://doi.org/10.1093/geronj/33.1.109

Mathieu, Edouard, Hannah Ritchie, Lucas Rodés-Guirao, Cameron Appel, Charlie Giattino, Joe Hasell, Bobbie Macdonald, Saloni Dattani, Diana Beltekian, Esteban Ortiz-Ospina and Max Roser (2020) - "Coronavirus Pandemic (COVID-19)". Published online at OurWorldInData.org. Retrieved from: https://ourworldindata.org/coronavirus [Online Resource]

Murphy, Sherry L., Kenneth D. Kochanek, Jiaquan Xu, and Elizabeth Arias. Mortality in the United States, 2020. NCHS Data Brief, no 427. Hyattsville, MD: National Center for Health Statistics. 2021. https://dx.doi.org/10.15620/cdc:112079.

Myrskylä, Mikko, and Rachel Margolis. "Happiness: Before and after the kids." *Demography* 51, no. 5 (2014): 1843-1866. https://doi.org/10.1007/s13524-014-0321-x

Nikolaev, Boris. "Does higher education increase hedonic and eudaimonic happiness?." *Journal of happiness Studies* 19 (2018): 483-504. https://doi.org/10.1007/s10902-016-9833-y

Oberndorfer, Moritz, Erwin Stolz, and Thomas E. Dorner. “Evidence for changes in population-level subjective well-being during the COVID-19 pandemic from 30 waves of representative panel data collected in Austria between March 2020 and March 2022.” *Public Health* 212 (2022): 84-88. https://doi.org/10.1016/j.puhe.2022.09.004

Okun, Morris A., and Linda K. George. "Physician-and self-ratings of health, neuroticism and subjective well-being among men and women." *Personality and individual differences* 5, no. 5 (1984): 533-539. https://doi.org/10.1016/0191-8869(84)90027-8

Oswald, Andrew J., and Nattavudh Powdthavee. "Does happiness adapt? A longitudinal study of disability with implications for economists and judges." *Journal of public economics* 92, no. 5-6 (2008): 1061-1077. https://doi.org/10.1016/j.jpubeco.2008.01.002

Oswald, Andrew J., and Stephen Wu. "Objective confirmation of subjective measures of human well-being: Evidence from the USA." *Science* 327, no. 5965 (2010): 576-579. https://doi.org/10.1126/science.1180606

Pabilonia, Sabrina Wulff, and Victoria Vernon. "Who is doing the chores and childcare in dual-earner couples during the COVID-19 era of working from home?." *Review of Economics of the Household* 21, no. 2 (2023): 519-565. https://doi.org/10.1007/s11150-022-09642-6

Restrepo, Brandon J., and Eliana Zeballos. "Work from home and daily time allocations: evidence from the coronavirus pandemic." *Review of Economics of the Household* 20, no. 3 (2022): 735-758. https://doi.org/10.1007/s11150-022-09614-w

_____. "Working from home and emotional well-being during major daily activities." *International Journal of Environmental Research and Public Health* 20, no. 4 (2023): 3616. https://doi.org/10.3390/ijerph20043616

Scott, Stacey B., Martin J. Sliwinski, and Fredda Blanchard-Fields. "Age differences in emotional responses to daily stress: the role of timing, severity, and global perceived stress." *Psychology and aging* 28, no. 4 (2013): 1076. https://psycnet.apa.org/doi/10.1037/a0034000

Shi, Hui, and Konstadinos G. Goulias. "Long-term effects of COVID-19 on time allocation, travel behavior, and shopping habits in the United States." *Journal of Transport & Health* 34 (2024a): 101730. https://doi.org/10.1016/j.jth.2023.101730

_____. "Year-to-year time allocation and spatial structure of Americans’ daily schedules from 2019 to 2022 and a detailed analysis of the stay-at-home all-day patterns." *Transportation Research Part A: Policy and Practice* 190 (2024b): 104190. https://doi.org/10.1016/j.tra.2024.104190

Shi, Hui, Rongxiang Su, and Konstadinos G. Goulias. “Exploring the impact of COVID-19 pandemic on Americans time use related subjective wellbeing.” *Wellbeing, Space and Society* (2023): 100148. https://doi.org/10.1016/j.wss.2023.100148

Song, Younghwan. "A cross-state comparison of measures of subjective wellbeing." *International Journal of Wellbeing* 7, no. 1 (2017). https://doi.org/10.5502/ijw.v7i1.561

Stone, Arthur A., Stefan Schneider, and James K. Harter. "Day-of-week mood patterns in the United States: On the existence of 'Blue Monday','Thank God it's Friday'and weekend effects." *The Journal of Positive Psychology* 7, no. 4 (2012): 306-314. https://doi.org/10.1080/17439760.2012.691980

Stone, Arthur A., Joseph E. Schwartz, Joan E. Broderick, and Angus Deaton. "A snapshot of the age distribution of psychological well-being in the United States." *Proceedings of the National Academy of Sciences* 107, no. 22 (2010): 9985-9990. https://doi.org/10.1073/pnas.1003744107

Sullivan, Oriel, Jonathan Gershuny, Almudena Sevilla, Francesca Foliano, Margarita Vega-Rapun, Juana Lamote de Grignon, Teresa Harms, and Pierre Walthéry. "Using time-use diaries to track changing behavior across successive stages of COVID-19 social restrictions." *Proceedings of the National Academy of Sciences* 118, no. 35 (2021): e2101724118. https://doi.org/10.1073/pnas.2101724118

Xu, Jiaquan, Sherry L. Murphy, Kenneth D. Kochanek, and Elizabeth Arias. "Mortality in the United States, 2021." NCHS Data Brief, no 456. Hyattsville, MD: National Center for Health Statistics.2022. https://dx.doi.org/10.15620/cdc:122516

Appendix

Table A1 COVID-19 and Episode-level Subjective Well-being: Age 15-44, Full Regression Results, Basic Control Plus Health and Time-Use Control

VARIABLES	(1) Happiness	(2) Pain	(3) Sadness	(4) Stress	(5) Tiredness	(6) Meaningfulness
Year 2021	-0.045	0.027	0.061	0.035	-0.015	-0.040
	(0.041)	(0.037)	(0.050)	(0.049)	(0.064)	(0.068)
Age	-0.021	0.006	0.014	0.050*	-0.008	0.098***
	(0.028)	(0.027)	(0.029)	(0.030)	(0.040)	(0.036)
Age squared	0.000	0.000	-0.000	-0.001	0.000	-0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Female	0.034	0.062*	0.123**	0.263***	0.332***	0.058
	(0.055)	(0.037)	(0.050)	(0.036)	(0.066)	(0.041)
Black	0.050	0.134*	0.041	-0.195*	-0.048	0.325***
	(0.093)	(0.078)	(0.091)	(0.103)	(0.104)	(0.110)
Hispanic	0.113	0.015	0.042	-0.054	0.144	0.234***
	(0.076)	(0.065)	(0.054)	(0.086)	(0.088)	(0.083)
Other	-0.158**	0.078	0.003	-0.081	0.083	0.122
	(0.078)	(0.071)	(0.075)	(0.083)	(0.079)	(0.084)
Some high school	0.220	0.014	-0.275**	-0.120	-0.199	-0.091
	(0.140)	(0.095)	(0.133)	(0.151)	(0.268)	(0.193)
High school	0.239**	-0.076	-0.421***	-0.125	-0.266	0.053
	(0.113)	(0.099)	(0.143)	(0.165)	(0.186)	(0.171)
Some college	0.209*	-0.126	-0.474***	-0.060	-0.196	0.004
	(0.121)	(0.105)	(0.133)	(0.174)	(0.215)	(0.155)
College	0.064	-0.177	-0.403***	0.125	-0.230	-0.120
	(0.146)	(0.115)	(0.143)	(0.151)	(0.204)	(0.182)
Graduate	0.055	-0.248**	-0.420**	0.155	-0.304	-0.072
	(0.126)	(0.112)	(0.160)	(0.171)	(0.203)	(0.194)
Married	0.181**	-0.062	-0.235***	-0.211**	-0.095	0.041
	(0.073)	(0.065)	(0.062)	(0.092)	(0.070)	(0.085)
Partnered	0.034	0.077	-0.055	0.142	-0.087	0.039
	(0.086)	(0.094)	(0.096)	(0.115)	(0.092)	(0.132)
Unemployed	-0.027	-0.046	0.088	0.293*	-0.215	0.257**
	(0.104)	(0.077)	(0.081)	(0.149)	(0.129)	(0.119)
Not in the labor force	-0.004	0.011	0.088	0.179**	-0.236**	-0.040
	(0.049)	(0.051)	(0.066)	(0.071)	(0.093)	(0.070)
Number of children	-0.016	-0.003	-0.031*	0.042*	0.053**	0.054**
	(0.020)	(0.022)	(0.019)	(0.024)	(0.022)	(0.024)
Number of disabilities	-0.112	0.280***	0.190**	0.179**	-0.110	-0.014
	(0.092)	(0.090)	(0.082)	(0.085)	(0.100)	(0.091)
Metropolitan area	-0.103	0.006	0.052	0.182*	0.084	-0.042
	(0.075)	(0.076)	(0.061)	(0.102)	(0.093)	(0.086)
Immigrant	0.294***	0.040	0.134**	-0.025	-0.049	0.184**
	(0.077)	(0.070)	(0.058)	(0.073)	(0.091)	(0.069)
$30,000-59,999	-0.068	-0.102	0.111	0.096	0.075	-0.121
	(0.064)	(0.078)	(0.070)	(0.085)	(0.083)	(0.106)
$60,000-99,999	-0.160**	-0.087	0.158**	0.134*	0.218**	-0.179**
	(0.062)	(0.076)	(0.065)	(0.080)	(0.096)	(0.085)
$100,000-149,999	-0.225***	-0.167*	0.112	0.196**	0.232**	-0.232**
	(0.070)	(0.088)	(0.085)	(0.073)	(0.109)	(0.101)
$150,000 and over	-0.134	-0.203**	0.120*	0.088	0.095	-0.225*
	(0.099)	(0.084)	(0.066)	(0.112)	(0.109)	(0.115)

General health: Excellent	0.955***	-1.206***	-0.841***	-0.848***	-0.756***	0.741**
	(0.208)	(0.271)	(0.178)	(0.181)	(0.203)	(0.291)
General health: Very good	0.752***	-1.119***	-0.692***	-0.593***	-0.642***	0.718**
	(0.209)	(0.262)	(0.176)	(0.174)	(0.192)	(0.280)
General health: Good	0.592***	-0.953***	-0.607***	-0.475**	-0.551***	0.574**
	(0.215)	(0.270)	(0.180)	(0.197)	(0.204)	(0.253)
General health: Fair	0.581***	-0.687**	-0.477**	-0.296	-0.393*	0.561**
	(0.205)	(0.278)	(0.204)	(0.179)	(0.234)	(0.271)
Very well rested	0.993***	-0.757***	-0.755***	-1.049***	-1.786***	0.612***
	(0.165)	(0.146)	(0.124)	(0.176)	(0.134)	(0.165)
Somewhat rested	0.774***	-0.640***	-0.687***	-0.738***	-1.165***	0.413**
	(0.156)	(0.146)	(0.136)	(0.162)	(0.123)	(0.166)
A little rested	0.595***	-0.424***	-0.494***	-0.265	-0.631***	0.355**
	(0.147)	(0.156)	(0.118)	(0.167)	(0.115)	(0.166)
High blood pressure	0.031	0.070	0.025	0.206**	-0.007	0.050
	(0.086)	(0.082)	(0.058)	(0.081)	(0.098)	(0.106)
Pain medication	-0.198**	0.981***	0.120***	0.255***	0.452***	-0.127
	(0.086)	(0.072)	(0.043)	(0.062)	(0.070)	(0.098)
Interacted with someone	0.227***	0.069	0.022	0.170***	0.121	0.317***
	(0.070)	(0.055)	(0.051)	(0.050)	(0.086)	(0.071)
Alone	-0.150	-0.010	0.046	0.345***	0.032	-0.185
	(0.094)	(0.066)	(0.076)	(0.093)	(0.109)	(0.113)
With spouse/partner	0.050	-0.054	-0.031	0.127	-0.044	0.128
	(0.090)	(0.061)	(0.062)	(0.082)	(0.110)	(0.112)
With children	0.171**	0.003	-0.010	0.065	-0.114	0.426***
	(0.072)	(0.069)	(0.058)	(0.069)	(0.092)	(0.100)
With other relatives	0.103	-0.039	-0.082	0.194*	0.008	0.487***
	(0.093)	(0.060)	(0.075)	(0.106)	(0.110)	(0.102)
With friends	0.109	-0.081	-0.175**	0.226	-0.355**	0.458***
	(0.115)	(0.097)	(0.068)	(0.160)	(0.142)	(0.133)
With other people	-0.192*	-0.047	-0.006	0.352***	0.209**	0.038
	(0.102)	(0.080)	(0.076)	(0.105)	(0.100)	(0.137)
Tier 1 act code = 2	1.545***	-2.665***	-1.519**	-0.603	-0.490*	-0.291
	(0.465)	(0.446)	(0.744)	(0.547)	(0.284)	(0.609)
Tier 1 act code = 3	2.119***	-2.940***	-1.686**	-0.705	-0.471	0.352
	(0.470)	(0.462)	(0.749)	(0.548)	(0.317)	(0.591)
Tier 1 act code = 4	1.811***	-2.665***	-1.682**	-0.595	-0.158	0.164
	(0.489)	(0.478)	(0.755)	(0.547)	(0.419)	(0.590)
Tier 1 act code = 5	1.216***	-2.840***	-1.560**	0.194	-0.511*	-0.321
	(0.446)	(0.443)	(0.751)	(0.524)	(0.298)	(0.600)
Tier 1 act code = 6	0.792*	-2.671***	-1.303*	0.685	0.130	0.187
	(0.465)	(0.481)	(0.772)	(0.530)	(0.323)	(0.572)
Tier 1 act code = 7	1.681***	-3.175***	-1.670**	-0.597	-0.922**	-1.085*
	(0.563)	(0.520)	(0.780)	(0.564)	(0.371)	(0.572)
Tier 1 act code = 8	1.234*	-2.627***	-1.148	-0.283	-0.356	-0.133
	(0.639)	(0.531)	(0.802)	(0.515)	(0.448)	(0.513)
Tier 1 act code = 9	-0.532	-3.298***	-1.651**	0.856	-0.554	-2.504**
	(1.053)	(0.472)	(0.743)	(0.663)	(0.362)	(1.077)
Tier 1 act code = 10	1.949*	-3.831***	-2.158**	-1.427	-1.207	0.294
	(1.123)	(0.509)	(0.855)	(1.199)	(0.840)	(1.018)
Tier 1 act code = 11	1.954***	-2.869***	-1.588**	-0.939*	-0.638**	-0.226
	(0.461)	(0.443)	(0.746)	(0.537)	(0.313)	(0.581)
Tier 1 act code = 12	1.896***	-2.872***	-1.618**	-1.160**	-0.494	-0.622
	(0.469)	(0.455)	(0.745)	(0.531)	(0.318)	(0.569)
Tier 1 act code = 13	2.229***	-2.079***	-1.686**	-1.156**	0.004	0.472
	(0.444)	(0.491)	(0.767)	(0.526)	(0.351)	(0.590)

Tier 1 act code = 14	1.573***	-2.882***	-1.589**	-1.071*	-0.626*	0.697
	(0.530)	(0.461)	(0.781)	(0.614)	(0.349)	(0.662)
Tier 1 act code = 15	2.276***	-2.792***	-1.749**	-0.264	-0.439	1.065*
	(0.468)	(0.478)	(0.743)	(0.588)	(0.386)	(0.628)
Tier 1 act code = 16	1.692***	-2.842***	-1.219*	-0.329	-1.022**	0.400
	(0.492)	(0.350)	(0.720)	(0.595)	(0.435)	(0.673)
Tier 1 act code = 18	1.706***	-2.910***	-1.457*	-0.550	-0.082	-0.820
	(0.519)	(0.389)	(0.741)	(0.542)	(0.304)	(0.624)
Tier 1 act code = 50	1.114**	-2.444***	-1.160	0.046	-0.421	-0.176
	(0.488)	(0.464)	(0.764)	(0.579)	(0.389)	(0.629)
Location = 2	0.006	0.268**	0.113	-0.113	0.024	-0.091
	(0.116)	(0.114)	(0.090)	(0.145)	(0.111)	(0.153)
Location = 3	0.339***	-0.134	0.025	-0.370***	-0.275**	0.348**
	(0.079)	(0.098)	(0.077)	(0.102)	(0.128)	(0.146)
Location = 4	0.500***	-0.069	-0.040	-0.329***	-0.984***	0.519***
	(0.109)	(0.097)	(0.086)	(0.093)	(0.158)	(0.116)
Location = 5	0.754***	-0.059	0.287	-0.749***	-0.129	0.116
	(0.232)	(0.289)	(0.301)	(0.273)	(0.299)	(0.512)
Location = 6	-0.400	0.174	0.652**	-0.080	0.157	0.539*
	(0.368)	(0.270)	(0.318)	(0.299)	(0.331)	(0.301)
Location = 7	0.133	0.577*	0.047	-0.239	0.409	0.716***
	(0.347)	(0.316)	(0.242)	(0.205)	(0.344)	(0.187)
Location = 8	0.378**	0.022	-0.142	-0.380***	-0.067	0.145
	(0.187)	(0.185)	(0.195)	(0.120)	(0.188)	(0.182)
Location = 9	0.304**	-0.132	-0.001	-0.063	-0.521***	0.187
	(0.141)	(0.125)	(0.103)	(0.197)	(0.165)	(0.154)
Location = 10	-2.119**	-0.855***	-0.490***	-0.011	0.473	-0.512
	(0.898)	(0.234)	(0.175)	(0.175)	(0.561)	(0.426)
Location = 11	0.251**	0.090	0.095	-0.097	-0.027	0.305***
	(0.113)	(0.117)	(0.081)	(0.124)	(0.102)	(0.100)
Location = 12	-0.008	0.140	-0.015	0.029	-0.494**	0.199
	(0.175)	(0.152)	(0.151)	(0.253)	(0.191)	(0.206)
Location = 13	0.338*	0.148	-0.113	-0.396	-0.272	0.242
	(0.198)	(0.145)	(0.134)	(0.249)	(0.207)	(0.191)
Location = 14	0.614**	0.213	0.251	0.071	-0.536***	1.115***
	(0.259)	(0.186)	(0.227)	(0.331)	(0.198)	(0.313)
Location = 15	0.128	0.169	-0.309	-0.141	0.251	0.285
	(0.266)	(0.308)	(0.199)	(0.274)	(0.507)	(0.447)
Location = 16	-0.494**	0.117	0.227	0.657**	0.665***	0.089
	(0.207)	(0.292)	(0.195)	(0.274)	(0.233)	(0.238)
Location = 17	0.328	0.744**	0.062	-0.008	-0.260	-0.039
	(0.250)	(0.293)	(0.362)	(0.357)	(0.439)	(0.375)
Location = 18	0.021	0.285	-0.997**	-1.207***	2.244***	1.383***
	(0.893)	(0.285)	(0.439)	(0.280)	(0.741)	(0.402)
Location = 19	0.794	-0.025	0.092	1.222***	0.796	-0.197
	(0.559)	(0.244)	(0.384)	(0.449)	(0.719)	(0.566)
Location = 20	0.729*	-0.475**	2.463**	1.790**	1.517**	1.710
	(0.372)	(0.236)	(1.198)	(0.879)	(0.601)	(1.097)
Location = 21	-0.364	-0.116	-0.477***	-1.353***	-0.249	-0.085
	(0.439)	(0.108)	(0.161)	(0.173)	(1.277)	(0.644)
Location = 30	-2.294	2.618	2.225	-0.134	0.030	0.095
	(1.689)	(1.580)	(1.512)	(0.666)	(0.348)	(0.539)
Location = 31	-0.223	0.670**	-0.003	-0.018	0.354	0.124
	(0.180)	(0.268)	(0.143)	(0.292)	(0.295)	(0.368)
Location = 32	-1.818***	-0.273*	-0.653***	1.120***	-1.899***	0.636**
	(0.316)	(0.158)	(0.188)	(0.297)	(0.237)	(0.291)

Location = 89	0.074	-0.666**	0.297	-0.612	-2.012***	-0.539
	(0.197)	(0.303)	(0.405)	(0.382)	(0.479)	(0.451)
Activity duration	-0.000	0.030***	0.036**	0.052***	0.014	0.021*
	(0.012)	(0.010)	(0.014)	(0.010)	(0.021)	(0.012)
Start time = 1	-0.095	-0.178	-0.264	0.466	0.503	-0.347
	(0.270)	(0.304)	(0.456)	(0.453)	(0.467)	(0.555)
Start time = 2	0.121	-0.371	-0.686**	-0.428	0.450	0.016
	(0.406)	(0.284)	(0.288)	(0.529)	(0.615)	(0.459)
Start time = 3	-0.143	-0.414	-0.801***	-0.631	0.467	-0.283
	(0.360)	(0.276)	(0.276)	(0.440)	(0.685)	(0.341)
Start time = 4	-0.076	0.102	-0.300	-0.396	-0.591	0.293
	(0.256)	(0.283)	(0.453)	(0.385)	(0.405)	(0.303)
Start time = 5	-0.428	-0.166	-0.324	-0.180	-0.878	0.093
	(0.308)	(0.227)	(0.377)	(0.451)	(0.547)	(0.324)
Start time = 6	0.283	0.023	-0.695**	-0.729**	-0.840**	0.315
	(0.201)	(0.209)	(0.308)	(0.322)	(0.356)	(0.261)
Start time = 7	0.080	0.058	-0.597**	-0.281	-0.790*	-0.046
	(0.202)	(0.190)	(0.275)	(0.285)	(0.419)	(0.271)
Start time = 8	0.214	-0.070	-0.562*	-0.483	-1.029***	0.099
	(0.219)	(0.214)	(0.307)	(0.296)	(0.380)	(0.249)
Start time = 9	0.195	0.009	-0.570*	-0.238	-0.864**	0.141
	(0.199)	(0.183)	(0.304)	(0.331)	(0.366)	(0.254)
Start time = 10	0.067	-0.021	-0.590**	-0.313	-0.986***	-0.015
	(0.200)	(0.169)	(0.288)	(0.304)	(0.352)	(0.221)
Start time = 11	0.358	-0.058	-0.616**	-0.294	-1.162***	0.188
	(0.218)	(0.201)	(0.292)	(0.287)	(0.312)	(0.228)
Start time = 12	0.103	-0.109	-0.605**	-0.270	-0.947**	0.015
	(0.198)	(0.175)	(0.285)	(0.302)	(0.356)	(0.258)
Start time = 13	0.074	-0.033	-0.484*	-0.256	-0.917**	0.063
	(0.193)	(0.171)	(0.253)	(0.301)	(0.358)	(0.269)
Start time = 14	-0.001	0.019	-0.528*	-0.268	-0.747**	-0.063
	(0.247)	(0.190)	(0.282)	(0.298)	(0.343)	(0.252)
Start time = 15	0.015	0.019	-0.524*	-0.287	-0.722*	-0.085
	(0.226)	(0.191)	(0.279)	(0.292)	(0.362)	(0.250)
Start time = 16	-0.002	0.001	-0.618**	-0.429	-0.575	-0.142
	(0.210)	(0.184)	(0.291)	(0.307)	(0.359)	(0.241)
Start time = 17	-0.105	-0.025	-0.682**	-0.474	-0.590	-0.095
	(0.230)	(0.183)	(0.293)	(0.302)	(0.383)	(0.250)
Start time = 18	0.122	0.007	-0.497*	-0.265	-0.217	0.079
	(0.211)	(0.201)	(0.287)	(0.307)	(0.354)	(0.253)
Start time = 19	-0.127	0.067	-0.581*	-0.516*	0.060	0.094
	(0.235)	(0.190)	(0.292)	(0.304)	(0.361)	(0.248)
Start time = 20	0.026	0.082	-0.489	-0.411	0.383	0.164
	(0.214)	(0.214)	(0.301)	(0.297)	(0.352)	(0.248)
Start time = 21	-0.041	-0.012	-0.556*	-0.439	0.461	0.129
	(0.212)	(0.163)	(0.294)	(0.317)	(0.364)	(0.249)
Start time = 22	-0.204	-0.110	-0.518*	-0.418	0.422	-0.397
	(0.226)	(0.182)	(0.307)	(0.306)	(0.364)	(0.275)
Start time = 23	0.104	0.018	-0.444*	-0.611*	0.241	-0.478
	(0.237)	(0.191)	(0.253)	(0.346)	(0.403)	(0.351)
Holiday	-0.183	-0.155**	0.043	-0.306	-0.030	-0.473**
	(0.169)	(0.074)	(0.149)	(0.206)	(0.216)	(0.221)
Day of the week = 2	0.061	0.086	-0.089	-0.048	0.120	0.152
	(0.058)	(0.076)	(0.072)	(0.092)	(0.096)	(0.099)
Day of the week = 3	0.074	0.014	-0.004	0.027	0.041	0.129
	(0.082)	(0.079)	(0.095)	(0.082)	(0.125)	(0.108)

Day of the week = 4	0.008	0.105*	0.064	0.096	0.022	0.125
	(0.077)	(0.060)	(0.085)	(0.084)	(0.114)	(0.128)
Day of the week = 5	0.158*	0.070	-0.040	0.045	0.088	0.382***
	(0.081)	(0.065)	(0.074)	(0.093)	(0.124)	(0.099)
Day of the week = 6	0.116	-0.055	0.017	-0.098	-0.016	0.251**
	(0.096)	(0.057)	(0.059)	(0.082)	(0.101)	(0.095)
Day of the week = 7	0.025	0.165**	-0.043	-0.117*	0.029	0.022
	(0.055)	(0.068)	(0.067)	(0.058)	(0.082)	(0.077)
Month = 4	-0.093	-0.157	0.118	0.062	0.078	-0.090
	(0.097)	(0.103)	(0.103)	(0.122)	(0.154)	(0.105)
Month = 5	-0.016	-0.271***	0.104	-0.005	-0.143	-0.080
	(0.109)	(0.072)	(0.069)	(0.103)	(0.106)	(0.154)
Month = 6	-0.061	-0.132	0.021	-0.101	0.008	-0.220
	(0.070)	(0.084)	(0.088)	(0.096)	(0.135)	(0.162)
Month = 7	0.075	-0.181*	-0.116	-0.157*	-0.169**	-0.228**
	(0.076)	(0.091)	(0.082)	(0.087)	(0.077)	(0.087)
Month = 8	0.021	-0.204*	0.024	0.043	0.138	-0.140
	(0.075)	(0.105)	(0.081)	(0.106)	(0.110)	(0.113)
Month = 9	-0.014	-0.210**	-0.055	0.027	0.021	-0.113
	(0.097)	(0.089)	(0.117)	(0.123)	(0.090)	(0.141)
Month = 10	0.072	-0.265**	0.110	0.097	0.033	-0.189*
	(0.118)	(0.124)	(0.113)	(0.108)	(0.116)	(0.100)
Month = 11	0.061	-0.126	0.042	-0.099	-0.025	-0.220
	(0.119)	(0.082)	(0.106)	(0.116)	(0.121)	(0.158)
Month = 12	0.057	-0.185**	0.236**	0.065	-0.007	-0.211
	(0.133)	(0.079)	(0.091)	(0.123)	(0.131)	(0.137)
Constant	1.671**	4.726***	3.286***	1.539*	4.909***	1.093
	(0.754)	(0.610)	(0.830)	(0.775)	(0.905)	(0.776)
Observations	19,427	19,427	19,427	19,427	19,427	19,427
R-squared	0.206	0.273	0.139	0.271	0.225	0.176

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at the state level are in parentheses. State dummies are also controlled but not reported here. The regressions are weighted using the ATUS WB Module activity weights.

Table A2 COVID-19 and Episode-level Subjective Well-being: Age 45-85, Full Regression Results, Basic Control Plus Health and Time-Use Control

VARIABLES	(1) Happiness	(2) Pain	(3) Sadness	(4) Stress	(5) Tiredness	(6) Meaningfulness
Year 2021	-0.061	0.111**	0.059**	-0.014	0.075	-0.120**
	(0.048)	(0.048)	(0.029)	(0.032)	(0.061)	(0.054)
Age	0.073***	0.073***	0.033	-0.042	-0.026	0.071**
	(0.021)	(0.027)	(0.027)	(0.028)	(0.029)	(0.033)
Age squared	-0.001***	-0.001***	-0.000	0.000	0.000	-0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Female	0.063	0.018	0.083**	0.198***	0.114**	0.122***
	(0.040)	(0.051)	(0.040)	(0.062)	(0.047)	(0.045)
Black	0.446***	-0.226***	0.010	-0.188***	-0.220***	0.464***
	(0.064)	(0.082)	(0.069)	(0.061)	(0.066)	(0.055)
Hispanic	0.328***	-0.057	-0.143**	-0.295**	-0.065	0.486***
	(0.080)	(0.081)	(0.071)	(0.121)	(0.095)	(0.070)
Other	-0.024	0.154	0.073	0.013	0.055	0.095
	(0.165)	(0.121)	(0.087)	(0.120)	(0.119)	(0.109)
Some high school	-0.214	-0.153	0.007	-0.001	-0.230	0.237
	(0.243)	(0.157)	(0.179)	(0.157)	(0.164)	(0.161)
High school	-0.074	-0.195	0.054	-0.128	-0.207	0.225
	(0.176)	(0.130)	(0.170)	(0.136)	(0.136)	(0.169)
Some college	-0.168	-0.123	0.055	0.020	-0.151	0.253
	(0.154)	(0.139)	(0.159)	(0.123)	(0.130)	(0.177)
College	-0.216	-0.177	0.065	0.163	-0.201	0.113
	(0.168)	(0.157)	(0.147)	(0.139)	(0.160)	(0.179)
Graduate	-0.327*	-0.205	0.162	0.247**	-0.190	0.156
	(0.168)	(0.143)	(0.155)	(0.115)	(0.131)	(0.197)
Married	0.075*	0.017	-0.044	-0.032	0.001	0.144**
	(0.039)	(0.072)	(0.049)	(0.056)	(0.078)	(0.068)
Partnered	0.100	0.192	0.047	0.176	0.185	0.259
	(0.105)	(0.172)	(0.146)	(0.134)	(0.171)	(0.162)
Unemployed	-0.198	0.167	0.255**	0.449***	-0.497***	-0.170
	(0.128)	(0.118)	(0.100)	(0.140)	(0.161)	(0.230)
Not in the labor force	-0.027	0.281***	0.022	-0.015	-0.159	-0.032
	(0.064)	(0.078)	(0.055)	(0.073)	(0.103)	(0.059)
Number of children	0.004	0.005	-0.015	-0.020	0.032	-0.024
	(0.036)	(0.039)	(0.034)	(0.035)	(0.062)	(0.043)
Number of disabilities	-0.057	0.178***	0.074*	0.035	0.017	-0.026
	(0.039)	(0.032)	(0.044)	(0.027)	(0.036)	(0.029)
Metropolitan area	-0.096	-0.014	-0.033	-0.063	-0.086	-0.138
	(0.071)	(0.068)	(0.048)	(0.080)	(0.086)	(0.093)
Immigrant	0.180*	0.031	0.145**	0.003	0.054	0.193**
	(0.096)	(0.076)	(0.070)	(0.117)	(0.098)	(0.077)
$30,000-59,999	0.136**	-0.067	-0.126**	-0.064	-0.021	-0.016
	(0.066)	(0.057)	(0.051)	(0.068)	(0.079)	(0.077)
$60,000-99,999	0.151***	-0.220***	-0.220***	-0.178**	-0.025	0.013
	(0.052)	(0.071)	(0.069)	(0.083)	(0.114)	(0.065)
$100,000-149,999	0.040	-0.289***	-0.252***	-0.108	-0.091	-0.159
	(0.085)	(0.076)	(0.072)	(0.080)	(0.101)	(0.120)
$150,000 and over	0.107	-0.285***	-0.189**	-0.022	0.058	-0.064
	(0.088)	(0.103)	(0.081)	(0.093)	(0.102)	(0.069)
General health: Excellent	1.067***	-1.580***	-0.821***	-1.094***	-1.007***	0.188
	(0.124)	(0.204)	(0.144)	(0.168)	(0.160)	(0.169)

General health: Very good	0.775***	-1.416***	-0.816***	-1.034***	-0.789***	0.000
	(0.120)	(0.221)	(0.137)	(0.178)	(0.172)	(0.161)
General health: Good	0.625***	-1.237***	-0.699***	-0.881***	-0.705***	0.004
	(0.094)	(0.215)	(0.135)	(0.155)	(0.173)	(0.136)
General health: Fair	0.478***	-0.694***	-0.382**	-0.533***	-0.437***	-0.005
	(0.104)	(0.199)	(0.159)	(0.187)	(0.151)	(0.157)
Very well rested	1.054***	-0.942***	-1.100***	-1.627***	-1.894***	0.799***
	(0.136)	(0.125)	(0.098)	(0.122)	(0.147)	(0.123)
Somewhat rested	0.742***	-0.636***	-0.922***	-1.197***	-1.124***	0.547***
	(0.128)	(0.114)	(0.092)	(0.130)	(0.128)	(0.121)
A little rested	0.421***	-0.271*	-0.470***	-0.746***	-0.584***	0.283**
	(0.135)	(0.141)	(0.126)	(0.162)	(0.138)	(0.134)
High blood pressure	0.109**	0.043	0.094**	0.140***	0.163***	0.102**
	(0.044)	(0.044)	(0.042)	(0.040)	(0.044)	(0.047)
Pain medication	-0.030	1.001***	0.169***	0.191***	0.365***	-0.025
	(0.047)	(0.060)	(0.039)	(0.048)	(0.054)	(0.057)
Interacted with someone	0.142**	0.022	-0.057	0.036	0.074	0.257***
	(0.057)	(0.055)	(0.055)	(0.051)	(0.068)	(0.055)
Alone	0.017	0.063	-0.039	-0.026	-0.144	-0.112
	(0.080)	(0.081)	(0.069)	(0.074)	(0.101)	(0.106)
With spouse/partner	0.098	0.051	-0.072	-0.132	-0.147*	0.080
	(0.069)	(0.073)	(0.059)	(0.084)	(0.085)	(0.083)
With children	0.451***	0.034	-0.181**	-0.142**	-0.136	0.510***
	(0.074)	(0.089)	(0.072)	(0.069)	(0.132)	(0.108)
With other relatives	0.315***	0.015	-0.116	0.041	0.076	0.540***
	(0.063)	(0.075)	(0.082)	(0.083)	(0.086)	(0.091)
With friends	0.429***	0.036	-0.189***	-0.185*	-0.063	0.452***
	(0.067)	(0.083)	(0.062)	(0.101)	(0.130)	(0.084)
With other people	0.170*	0.079	-0.020	0.102	0.107	0.273***
	(0.089)	(0.101)	(0.075)	(0.096)	(0.115)	(0.087)
Tier 1 act code = 2	0.086	-0.287	-0.628***	-0.677*	-0.734**	1.830***
	(0.490)	(0.629)	(0.181)	(0.361)	(0.304)	(0.342)
Tier 1 act code = 3	0.163	-0.551	-0.240	-0.315	-0.729	2.052***
	(0.533)	(0.675)	(0.271)	(0.396)	(0.437)	(0.318)
Tier 1 act code = 4	0.599	-0.633	-0.516**	-0.553	-1.176***	2.062***
	(0.497)	(0.750)	(0.239)	(0.381)	(0.318)	(0.359)
Tier 1 act code = 5	-0.080	-0.436	-0.557***	-0.075	-0.981***	1.652***
	(0.480)	(0.650)	(0.166)	(0.408)	(0.343)	(0.403)
Tier 1 act code = 6	-0.043	-0.355	-0.750**	0.667	-0.658	2.419***
	(0.549)	(0.714)	(0.348)	(0.542)	(0.541)	(0.506)
Tier 1 act code = 7	-0.004	-0.582	-0.754***	-0.690**	-1.146***	1.405***
	(0.549)	(0.648)	(0.215)	(0.311)	(0.423)	(0.380)
Tier 1 act code = 8	-0.163	-0.291	-0.740***	-0.289	-1.043***	1.723***
	(0.523)	(0.814)	(0.255)	(0.388)	(0.299)	(0.401)
Tier 1 act code = 9	-0.826	-0.455	-0.696*	-0.380	-1.601***	1.070*
	(0.698)	(0.856)	(0.359)	(0.686)	(0.479)	(0.613)
Tier 1 act code = 10	-0.197	-0.669	1.906	1.074	-0.753	1.603*
	(0.634)	(0.739)	(1.607)	(1.622)	(0.589)	(0.892)
Tier 1 act code = 11	0.253	-0.470	-0.638***	-0.880**	-1.077***	1.607***
	(0.487)	(0.655)	(0.178)	(0.353)	(0.300)	(0.333)
Tier 1 act code = 12	0.175	-0.502	-0.590***	-1.012***	-0.908***	1.236***
	(0.477)	(0.629)	(0.181)	(0.356)	(0.318)	(0.369)
Tier 1 act code = 13	0.535	-0.381	-0.748***	-1.090***	-0.758**	2.172***
	(0.502)	(0.671)	(0.201)	(0.346)	(0.331)	(0.326)
Tier 1 act code = 14	0.659	-0.540	-0.670***	-1.168***	-1.244***	2.592***
	(0.526)	(0.690)	(0.237)	(0.432)	(0.319)	(0.365)

Tier 1 act code = 15	0.273	-0.602	-0.829***	-0.759**	-0.986**	2.384***
	(0.466)	(0.690)	(0.235)	(0.349)	(0.438)	(0.406)
Tier 1 act code = 16	0.425	-0.149	-0.250	-0.419	-1.074***	2.468***
	(0.507)	(0.669)	(0.235)	(0.332)	(0.302)	(0.366)
Tier 1 act code = 18	0.115	-0.359	-0.835***	-0.374	-0.541	1.555***
	(0.534)	(0.620)	(0.250)	(0.434)	(0.491)	(0.379)
Tier 1 act code = 50	-0.078	-0.505	-0.613***	-0.709*	-0.968***	1.487***
	(0.520)	(0.683)	(0.225)	(0.389)	(0.347)	(0.375)
Location = 2	-0.137	0.123	0.090	0.094	-0.045	-0.066
	(0.101)	(0.088)	(0.086)	(0.108)	(0.152)	(0.125)
Location = 3	0.316***	-0.259***	-0.092	-0.232**	-0.307**	0.421***
	(0.093)	(0.080)	(0.064)	(0.092)	(0.122)	(0.095)
Location = 4	0.313**	-0.260**	0.002	-0.270**	-0.760***	0.295**
	(0.117)	(0.106)	(0.075)	(0.118)	(0.108)	(0.114)
Location = 5	0.161	-0.078	-0.083	-0.211	-0.526**	0.021
	(0.178)	(0.148)	(0.108)	(0.219)	(0.236)	(0.115)
Location = 6	0.142	0.226	0.290	0.124	0.322	-0.126
	(0.258)	(0.191)	(0.212)	(0.290)	(0.282)	(0.295)
Location = 7	0.217	0.232	-0.032	-0.012	0.057	0.223
	(0.147)	(0.168)	(0.072)	(0.153)	(0.229)	(0.231)
Location = 8	-0.008	-0.109	-0.148	-0.228	-1.360***	0.685**
	(0.299)	(0.276)	(0.280)	(0.450)	(0.333)	(0.302)
Location = 9	0.412***	0.003	-0.184**	-0.225	-0.481***	0.277**
	(0.104)	(0.141)	(0.070)	(0.143)	(0.117)	(0.132)
Location = 10	0.774	-0.644**	-0.437***	-0.332	-0.217	0.649**
	(0.501)	(0.242)	(0.156)	(0.245)	(0.343)	(0.292)
Location = 11	0.115	0.090	0.036	0.086	-0.238*	-0.024
	(0.078)	(0.096)	(0.079)	(0.128)	(0.120)	(0.129)
Location = 12	0.089	-0.140	0.212	-0.155	-0.403	-0.047
	(0.165)	(0.168)	(0.172)	(0.276)	(0.345)	(0.199)
Location = 13	0.399*	-0.119	0.164	-0.442	-0.457	0.028
	(0.201)	(0.195)	(0.171)	(0.269)	(0.428)	(0.234)
Location = 14	0.218	-0.230	-0.025	-0.166	-0.183	0.067
	(0.313)	(0.217)	(0.240)	(0.403)	(0.434)	(0.353)
Location = 15	0.274	0.300	0.536	-0.161	-0.414	-0.060
	(0.332)	(0.470)	(0.450)	(0.506)	(0.498)	(0.370)
Location = 16	0.702***	0.331	0.658**	0.174	-0.718*	0.312
	(0.168)	(0.473)	(0.247)	(0.375)	(0.414)	(0.255)
Location = 17	1.111***	-0.168	-0.301	-0.429**	0.202	1.545***
	(0.359)	(0.197)	(0.392)	(0.193)	(0.581)	(0.278)
Location = 18	-1.145**	-1.362***	-0.213	1.308*	0.003	-0.760**
	(0.515)	(0.204)	(0.153)	(0.679)	(0.749)	(0.353)
Location = 19	0.129	-0.592*	-0.150	-1.026*	-0.919*	-0.060
	(0.127)	(0.303)	(0.385)	(0.584)	(0.493)	(0.194)
Location = 20	-0.978	-0.300	0.280	-0.352	0.640	-0.677
	(0.963)	(0.524)	(0.412)	(0.600)	(0.723)	(0.870)
Location = 21	0.746**	0.014	0.816***	2.838***	-1.307***	0.298
	(0.327)	(0.279)	(0.234)	(0.930)	(0.301)	(0.402)
Location = 30	-0.271	-1.062***	-0.041	-0.298	-1.067	-1.088*
	(0.408)	(0.379)	(0.448)	(0.824)	(0.682)	(0.546)
Location = 31	0.024	1.347***	0.002	0.161	0.633	-0.109
	(0.225)	(0.282)	(0.111)	(0.299)	(0.419)	(0.272)
Location = 32	-0.111	-0.419	1.324	0.870	0.569	-0.011
	(0.355)	(0.363)	(0.985)	(0.892)	(0.425)	(0.510)
Location = 89	0.281	-0.017	0.047	-0.638***	-0.675	0.291
	(0.367)	(0.579)	(0.362)	(0.213)	(0.517)	(0.605)

Activity duration	-0.016	0.012	0.002	0.029*	0.029*	0.015
	(0.017)	(0.009)	(0.008)	(0.015)	(0.015)	(0.016)
Start time = 1	-0.535	0.038	0.654	0.217	0.422	0.993
	(0.329)	(0.554)	(0.493)	(0.628)	(0.542)	(0.655)
Start time = 2	0.212	0.091	-0.461	-0.338	0.093	-0.037
	(0.477)	(0.645)	(0.480)	(0.553)	(0.714)	(0.577)
Start time = 3	-0.188	0.103	-0.159	-0.578	-0.615	-0.786
	(0.381)	(0.446)	(0.340)	(0.493)	(0.445)	(0.605)
Start time = 4	-0.137	0.137	-0.228	-0.891**	-0.446	0.298
	(0.351)	(0.437)	(0.393)	(0.399)	(0.398)	(0.502)
Start time = 5	0.226	0.253	0.157	-0.263	-0.614	0.721
	(0.255)	(0.449)	(0.430)	(0.400)	(0.425)	(0.484)
Start time = 6	0.258	0.053	-0.324	-0.625*	-0.576	0.649
	(0.186)	(0.404)	(0.386)	(0.367)	(0.372)	(0.486)
Start time = 7	0.220	-0.097	-0.345	-0.669*	-0.892**	0.502
	(0.218)	(0.431)	(0.388)	(0.362)	(0.398)	(0.481)
Start time = 8	0.147	0.096	-0.283	-0.699*	-0.786**	0.657
	(0.210)	(0.415)	(0.378)	(0.380)	(0.389)	(0.471)
Start time = 9	-0.007	0.017	-0.266	-0.743*	-0.887**	0.509
	(0.207)	(0.425)	(0.371)	(0.381)	(0.388)	(0.463)
Start time = 10	0.145	-0.049	-0.160	-0.813**	-0.708*	0.563
	(0.193)	(0.431)	(0.342)	(0.347)	(0.385)	(0.478)
Start time = 11	0.093	0.052	-0.190	-0.709*	-0.705*	0.491
	(0.174)	(0.413)	(0.364)	(0.363)	(0.393)	(0.479)
Start time = 12	0.042	-0.074	-0.230	-0.772**	-0.553	0.565
	(0.213)	(0.416)	(0.389)	(0.374)	(0.377)	(0.468)
Start time = 13	0.032	-0.146	-0.210	-0.747**	-0.549	0.466
	(0.228)	(0.396)	(0.361)	(0.337)	(0.391)	(0.474)
Start time = 14	-0.105	0.074	-0.186	-0.729*	-0.411	0.288
	(0.171)	(0.413)	(0.372)	(0.375)	(0.362)	(0.482)
Start time = 15	0.069	0.051	-0.171	-0.720**	-0.047	0.446
	(0.212)	(0.417)	(0.347)	(0.350)	(0.417)	(0.487)
Start time = 16	-0.121	0.058	-0.324	-0.767**	-0.305	0.593
	(0.252)	(0.426)	(0.377)	(0.331)	(0.366)	(0.465)
Start time = 17	0.035	0.056	-0.204	-0.738*	-0.043	0.564
	(0.208)	(0.429)	(0.380)	(0.369)	(0.409)	(0.480)
Start time = 18	-0.000	0.116	-0.267	-0.814**	0.020	0.357
	(0.205)	(0.416)	(0.343)	(0.369)	(0.373)	(0.460)
Start time = 19	-0.127	0.112	-0.212	-0.671*	0.127	0.515
	(0.210)	(0.425)	(0.388)	(0.356)	(0.397)	(0.479)
Start time = 20	0.076	-0.136	-0.234	-0.873**	0.272	0.649
	(0.222)	(0.396)	(0.370)	(0.340)	(0.375)	(0.507)
Start time = 21	0.125	-0.045	-0.246	-0.670	0.581	0.809
	(0.249)	(0.424)	(0.378)	(0.443)	(0.392)	(0.491)
Start time = 22	-0.080	-0.084	-0.331	-1.088***	0.592	0.455
	(0.240)	(0.435)	(0.381)	(0.398)	(0.380)	(0.544)
Start time = 23	-0.465*	-0.110	-0.596	-0.861**	0.845	0.512
	(0.272)	(0.453)	(0.401)	(0.386)	(0.614)	(0.476)
Holiday	0.328**	0.141	0.094	-0.148	-0.062	0.084
	(0.159)	(0.118)	(0.122)	(0.114)	(0.185)	(0.249)
Day of the week = 2	-0.124	-0.047	0.008	0.138*	0.172**	0.004
	(0.084)	(0.078)	(0.082)	(0.077)	(0.067)	(0.097)
Day of the week = 3	0.013	-0.067	0.031	0.126	0.105	0.153
	(0.075)	(0.081)	(0.047)	(0.082)	(0.088)	(0.115)
Day of the week = 4	-0.008	-0.047	0.008	0.019	0.240*	0.162*
	(0.079)	(0.090)	(0.072)	(0.069)	(0.120)	(0.096)

Day of the week = 5	-0.190**	-0.049	0.010	0.154*	0.163**	-0.033
	(0.079)	(0.069)	(0.061)	(0.077)	(0.079)	(0.065)
Day of the week = 6	0.107	-0.076	-0.058	-0.096	0.015	0.327***
	(0.073)	(0.091)	(0.057)	(0.072)	(0.088)	(0.115)
Day of the week = 7	0.141**	0.000	0.073*	0.005	0.081	0.175*
	(0.067)	(0.049)	(0.039)	(0.053)	(0.059)	(0.096)
Month = 4	0.175*	-0.026	-0.062	-0.125	0.054	0.123*
	(0.099)	(0.086)	(0.086)	(0.098)	(0.123)	(0.073)
Month = 5	0.156*	0.004	-0.070	-0.090	0.077	0.127
	(0.092)	(0.080)	(0.070)	(0.097)	(0.099)	(0.102)
Month = 6	0.141	0.106	-0.114	-0.078	0.365***	0.111
	(0.118)	(0.102)	(0.085)	(0.091)	(0.132)	(0.104)
Month = 7	0.170	-0.065	-0.049	-0.121	0.055	-0.039
	(0.117)	(0.083)	(0.092)	(0.109)	(0.111)	(0.092)
Month = 8	0.226*	-0.011	-0.144*	-0.350***	0.021	0.048
	(0.121)	(0.087)	(0.075)	(0.078)	(0.112)	(0.118)
Month = 9	0.110	0.009	-0.141	-0.113	0.192*	-0.049
	(0.127)	(0.102)	(0.086)	(0.089)	(0.107)	(0.123)
Month = 10	0.246**	-0.044	-0.011	-0.132	0.144	0.077
	(0.099)	(0.103)	(0.082)	(0.085)	(0.101)	(0.091)
Month = 11	0.101	0.112	-0.051	-0.090	0.021	-0.006
	(0.121)	(0.093)	(0.088)	(0.088)	(0.115)	(0.109)
Month = 12	0.132	-0.153	0.082	-0.060	0.060	-0.090
	(0.126)	(0.108)	(0.097)	(0.120)	(0.118)	(0.095)
Constant	0.291	1.330	1.860*	6.051***	6.224***	-0.971
	(0.871)	(1.172)	(1.017)	(1.147)	(1.165)	(1.262)
Observations	25,982	25,982	25,982	25,982	25,982	25,982
R-squared	0.158	0.317	0.161	0.246	0.245	0.141

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at the state level are in parentheses. State dummies are also controlled but not reported here. The regressions are weighted using the ATUS WB Module activity weights.

Table A3 COVID-19 and Life Evaluation based on the Cantril Ladder, Full Regression Results, Basic Control Plus Health and Time-Use Control

VARIABLES	(1) Age 15-44	(2) Age 45-85
Year 2021	0.053	0.241***
	(0.070)	(0.042)
Age	-0.074**	-0.026
	(0.033)	(0.031)
Age squared	0.001**	0.000
	(0.000)	(0.000)
Female	0.090	0.152***
	(0.054)	(0.053)
Black	-0.033	0.460***
	(0.068)	(0.099)
Hispanic	0.338***	0.380***
	(0.079)	(0.092)
Other	-0.046	0.148
	(0.133)	(0.148)
Some high school	-0.205	-0.263
	(0.214)	(0.191)
High school	-0.533***	-0.353**
	(0.187)	(0.138)
Some college	-0.553***	-0.487***
	(0.206)	(0.126)
College	-0.481**	-0.591***
	(0.233)	(0.158)
Graduate	-0.362*	-0.497***
	(0.208)	(0.160)
Married	0.581***	0.460***
	(0.121)	(0.074)
Partnered	0.072	0.363**
	(0.148)	(0.144)
Unemployed	-0.449**	-0.843***
	(0.176)	(0.151)
Not in the labor force	0.015	-0.014
	(0.099)	(0.060)
Number of children	0.038	-0.046
	(0.034)	(0.066)
Number of disabilities	-0.018	-0.073
	(0.110)	(0.048)
Metropolitan area	-0.137*	0.054
	(0.069)	(0.076)
Immigrant	-0.040	-0.165*
	(0.092)	(0.089)
$30,000-59,999	-0.059	0.147
	(0.060)	(0.092)
$60,000-99,999	-0.048	0.301***
	(0.081)	(0.097)
$100,000-149,999	0.046	0.350***
	(0.099)	(0.092)
$150,000 and over	0.146	0.411***
	(0.114)	(0.115)
General health: Excellent	2.219***	2.479***
	(0.218)	(0.180)

General health: Very good	1.733***	2.107***
	(0.190)	(0.184)
General health: Good	1.310***	1.666***
	(0.207)	(0.172)
General health: Fair	0.855***	1.022***
	(0.200)	(0.191)
Very well rested	0.988***	1.413***
	(0.118)	(0.139)
Somewhat rested	0.593***	0.793***
	(0.126)	(0.149)
A little rested	0.217	0.453***
	(0.146)	(0.134)
High blood pressure	0.058	0.035
	(0.074)	(0.062)
Pain medication	-0.133*	-0.163***
	(0.071)	(0.049)
Sleep hours	-0.004	-0.021
	(0.014)	(0.018)
Home production hours	-0.001	0.018
	(0.014)	(0.012)
Childcare hours	0.046**	-0.011
	(0.017)	(0.045)
Work hours	0.005	-0.006
	(0.009)	(0.009)
TV hours	-0.000	0.005
	(0.012)	(0.011)
Hours alone	0.003	-0.016
	(0.014)	(0.011)
Hours with spouse/partner	0.016*	0.006
	(0.008)	(0.011)
Hours with children	0.020**	0.006
	(0.009)	(0.013)
Hours with other relatives	0.021*	-0.003
	(0.011)	(0.013)
Hours with friends	0.020	0.038***
	(0.020)	(0.013)
Hours with other people	0.010	-0.004
	(0.010)	(0.013)
Constant	6.030***	4.726***
	(0.670)	(0.981)
Observations	6,583	8,883
R-squared	0.190	0.258

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at the state level are in parentheses. A holiday dummy, days of the week, month, and state dummies are also controlled but not reported here. The regressions are weighted using the ATUS WB Module respondent weights.