



Stress, sleep, and socialization before and during COVID-19: Exploring lifestyle behaviors self-reported on the *Staying Sharp* platform

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Preliminary findings suggest age-associated patterns in sleep disturbance as associated with the acute and chronic phases of the COVID-19 pandemic.

AARP's Staying Sharp program is a digital platform dedicated to educating users how to learn, practice, and apply holistic, lifestyle-based behaviors that may impact cognitive aging. The Staying Sharp program has been active since 2018, and currently has a userbase of over 1 million members.

This past year, COVID-19 necessitated a massive shift in the way we live our lives; this particularly impacted older adults, who are especially vulnerable to COVID.

Since the program's inception in 2018, over 200,000 neurocognitive and lifestyle assessments have been taken on the Staying Sharp platform. Lifestyle assessment questions pertain to six domains of holistic behaviors related to cognitive health: (1) Stress management; (2) Social engagement; (3) Sleep hygiene; (4) Intellectual stimulation; (5) Nutrition; (6) Exercise.

Here, we present preliminary data analyses of the impact of COVID-19 and social distancing on self-reported measures of behaviors in three domains: sleep, stress, and social interaction.

A retrospective analysis of self-reported lifestyle behaviors from Staying Sharp evaluated responses regarding sleep hygiene, social isolation, and stress management. Responses were categorized across three periods:

- (1) **T1: Baseline – Pre-COVID.** Responses collected between November 1, 2019 – March 31, 2020
- (2) **T2: Acute COVID Period.** Responses collected between April 1, 2020 – July 31, 2020.
- (3) **T3: Chronic COVID Period.** Responses collected between August 1, 2020 – December 31, 2020.

Demographic factors were also analyzed for potential correlation with self-reported changes in lifestyle behaviors.

Age	T1		T2		T3	
	Male	Female	Male	Female	Male	Female
50 - 59	250	754	3,876	11,736	1,754	4,987
60 - 69	1,581	3,730	13,701	36,142	6,676	16,466
70 - 79	1,511	2,945	11,274	24,489	5,564	10,991
80 - 89	308	469	2,600	4,241	1,239	1,944
90 - 99	34	32	230	350	96	140

Count of survey responses across time periods T1, T2, and T3, broken down by sex and age group. Total N = 170,110.

As a component of the preliminary analysis of global lifestyle changes associated with the COVID-19 pandemic, six specific lifestyle questions were examined:

Category: Sleep

- How much sleep do you normally get?
 - Less than 6 hours
 - 6 – 7 hours
 - At least 7 – 8 hours
- Do you take prescribed or over-the-counter medicine to help you sleep?
 - Never
 - Occasionally
 - Often

Category: Socialization

- Would you describe yourself more as a lone wolf, or part of a pack?
 - Lone wolf
 - Part of a pack
- How often are you in touch with closest friends or family?
 - Rarely
 - At least twice per month
 - Weekly
 - Most days

Category: Stress management

- How often do you worry about health, finances, or relationships?
 - Rarely
 - Occasionally
 - Often
 - Always
- Is it hard for you to wind down and relax?
 - Rarely
 - Occasionally
 - Often
 - Always

Preliminary analyses revealed age-associated and time-period associated trends in sleep duration.

Prior to the pandemic (T1), higher age correlated with a higher percent likelihood of maintaining at least 7 – 8 hours of sleep per night. Lower age was associated with a higher likelihood of self-reporting less than 6 hours sleep duration. This overall pattern was maintained throughout the acute (T2) and chronic (T3) periods of the pandemic, but certain trends were found. Of particular note: during pandemic periods T2 and T3, males aged 50 – 59 tended to report getting more sleep than pre-pandemic (T1).

In contrast to this finding, males 60+ reported a higher likelihood of <6 hours of sleep per night. This sleep disruption was exacerbated during the acute (T2) period of the pandemic and did not fully resolve / return to baseline during the chronic (T3) period. Females in the same age brackets demonstrated a similar trend. The most consistency in self-reported sleep duration as compared across all three time periods was found in females aged 60 – 69, 70 – 79, and 80 – 89.

Preliminary findings regarding self-reported lifestyle behaviors in the domains of sleep, stress, and social engagement indicate pandemic-related changes associated with both age and gender. Further analyses will investigate the relationship between gender and stress management during the acute and chronic periods of the pandemic, as well as explore the relationship between age and social media engagement as a function of pre-, acute-, and chronic-pandemic time periods. Future research will also investigate other lifestyle domains, including self-reported nutrition and exercise habits, and their relationship to these time periods.

We anticipate that these findings will inform our understanding of the effects of extreme stress and social distancing on health-related lifestyle behaviors.

