Appendices for “Singleness and the Pandemic Dating Recession”

Journal of Family Issues

Appendix Table 1: Logistic Regressions predicting Singleness in the GSS, 2021 and 2022
Coefficients and (SE)

Predictor	Model 1	Model 2
Mode (ref in-person)		
Phone	0.11 (0.09)	0.23* (0.10)
Combo	0.05 (0.20)	0.03 (0.22)
Web only	-0.33*** (0.06)	-0.30*** (0.06)
Age		-0.18*** (0.008)
Age-squared		0.0017*** (0.00008)
Female		0.19*** (0.053)

Weighted data, singleness from POSSLQ or POSSLQY

* P<0.05; **P<0.01; ***P<0.001, two tailed tests

Appendix Table 2:

Predictors of pre-pandemic dating activity among single (unpartnered) adults

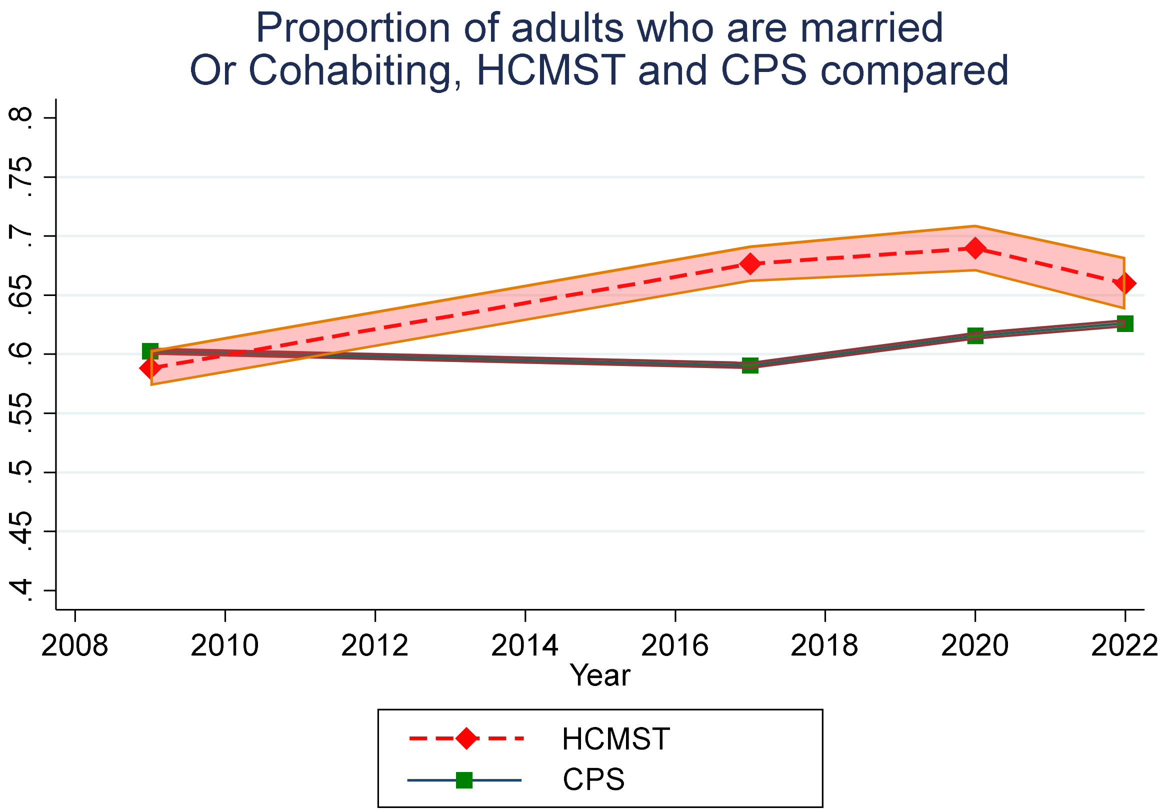
	Predicting met anyone in the past 12 months, logistic regression coefficients (SE)	Predicting how many people met in the past 12 months, OLS regression coefficients (SE)
Age	-0.051*** (0.0082)	-0.022** (0.0078)
Education BA or more	0.61* (0.29)	-0.11 (0.35)
Gay man	1.48*** (0.57)	4.02*** (0.81)
Female	-0.088 (0.28)	0.42 (0.31)
Constant	0.31 (0.32)	1.37*** (0.39)
Unweighted N	534	531
Chi-square	64.5 (4 df)	
R-square		0.059

Source: Weighted data from HCMST 2017. Single means subject has no romantic or sexual partner.

Appendix Table 3: Ordered logit coefficients (SE) predicting Reduced Dating App Use among Singles during the pandemic

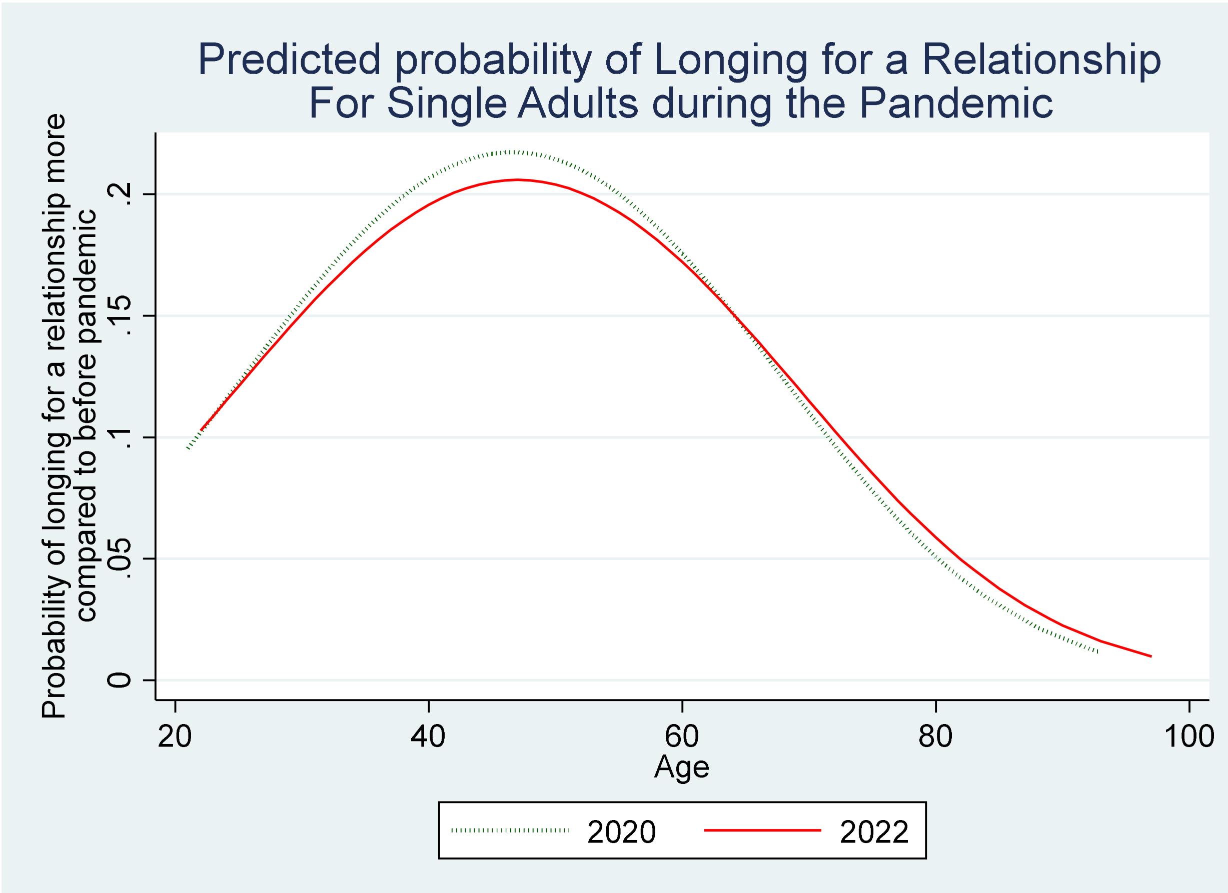
	2020	2022
Age	0.020***	0.014*
	(0.006)	(0.006)
N	439	366
Chisquare	13.4 (1 df)	5.45 (1df)

Source: Weighted data from HCMST 2020 and 2022. The closed ended question, w2_app_use and w3_app_use: "During the coronavirus (also known as COVID-19) pandemic are you using dating apps and dating online more or less than before?" There were 3 possible answers: "I am using dating apps and online dating More than before," "About the same," and "I am using dating apps and online dating Less than before."



Appendix Figure 1

Source: Weighted data from HCMST 2009 (the beginning year of a separate panel), 2017, 2020 and 2022 matched to weighted CPS data from March 2009, July, 2017, September 2020, and April 2022, mean estimates and 95% confidence intervals for a combination of married (spouse present) and living with unmarried partner. For 2009 and 2017 (both data sources) data are for ages ≥18, for 2020≥ 21 years of age, and for 2022 ≥23 years of age (to match CPS to HCMST age ranges).



Appendix Figure 2: The probability of longing for a relationship more during the pandemic than before

Source: Predicted values from weighted logistic regressions from HCMST 2020 and 2022.

Appendix Part 2, The Pandemic Dating Recession Supplement

Other Data Sources besides HCMST:

For comparison to the HCMST broad questions about relationship status and declarative question about singleness, the US Census, American Community Survey, and Current Population Surveys only inquire about marriages and unmarried coresidential romantic partners. The National Survey of Family Growth (NSFG) has data on current marital partners, current cohabiting partners, and other current sexual partners but the latest NSFG data release as of this writing is pre-pandemic data, through 2019. NSFG is an in-person survey and was not in the field during the pandemic years of 2020 and 2021 (Office of Science & Data Policy 2021).

Gallup surveys have a marital status question that includes 'living with partner' as an option, but no data on casual dating partners. The Pew surveys have a marital status question similar to Gallup that includes married and cohabiting options. Pew surveys have not asked about casual romantic partners since October, 2019. The National Longitudinal Survey of Adolescent Health (Add Health, most recent wave of available data was fielded in 2016-18) and the 1992 National Health and Social Life Survey (NHSLS) have information on casual dating partners (Joyner and Kao 2005), predating the coronavirus pandemic.

This leaves the General Social Survey (GSS) as a potential data source for comparison with HCMST data about romantic relationship status in the US (Bergström and Brée 2023) before and during the coronavirus pandemic. Unfortunately, the GSS as primarily an in-person survey before the pandemic was especially vulnerable to pandemic disruption. In 2018, 89.5% of GSS respondents were surveyed in person, and 10.5% of respondents were surveyed by phone. In 2020 (the third wave of the 2016-2020 panel) and in 2021 (a cross sectional survey) because of the pandemic, GSS discarded in-person surveys in favor of mostly online surveys (70.3% online respondents in 2020, 88.3% online in 2021) with the remainder as phone interviews. In 2022 the GSS had a mix of survey modes: 46.2% online, 44.4% in-person, 5.8% phone, and 3.6% multimode.

GSS has a relationship status question with two wording options, POSSLQ (fielded 1986-2022) and POSSLQY (fielded 2012-2022). POSSLQ and POSSLQY offer slightly different wording for the cohabiting partner (option two), and the same wording for option one (married and living together), and for option three: "I have a husband or wife or steady partner, but we don't live in the same household"; and most relevant here, the same definition for option 4 "I don't have a steady partner." The POSSLQ and POSSLQY questions are supposed to be less affected by variation in GSS survey mode and less affected by variation in GSS ballot and form type than other GSS variables (Christian et al. 2022; General Social Survey 2023), but the radical variation in GSS survey mode from 2018 to 2020, 2021 and 2022 leaves room for uncertainty about the consistency of answers across survey years.

GSS data on the possible pandemic rise in singleness

Appendix Table 4 shows the GSS data on singleness for 2018, 2021, and 2022 (for GSS cross-sectional data) and 2018 and 2020 for the GSS panel data, using the definition of singleness available in the GSS: "I don't have a steady partner." Ignoring survey mode variations, parts A and D show that there was no significant difference in adult singleness in the GSS whether the relationship question wording was the POSSLQ version, or the POSSLQY version, or a combination of the two (as the two versions were fielded to similar numbers of respondents in each survey year).

Note that the average percent single in GSS is much higher than the average percent single in HCMST, because the HCMST had a broader definition of relationships and a correspondingly narrower definition of singleness than the GSS. In HCMST 2022, the percent of adults (adjusted to account for age 18 and over) who were single was 27.3% (see main text Table 1), whereas in the GSS (all survey modes combined) for 2022 the percent single was 34.3%, a difference of 7 percentage points corresponding to a difference of 17.8 million more adults classified as single in the GSS. The GSS definition of relationships includes only "steady partners," whereas the HCMST has a broader definition of relationships including "sexual partner (boyfriend or girlfriend)" and "a romantic partner who is not yet a sexual partner," and therefore HCMST has a narrower definition of singleness.

Appendix Table 4: GSS measures of Singleness before and during the pandemic

Relationship question:	Percent Single 2018	Percent Single 2020/ 2021	Percent Single 2022	Δ Percent Single	P value	Implied change in single population (millions)
A) All survey Modes, cross sectional data, Weighted						
POSSLQ	35.0	34.8	34.6	-0.4	0.82	
POSSLQY	31.9	30.1	34.0	2.1	0.23	
Both Questions combined	33.5	32.4	34.3	0.8	0.53	
B) In-Person only, cross sectional data, Weighted						
POSSLQ	36.0	--	37.2	1.2	0.60	
POSSLQY	32.6	--	38.6	6.0**	0.0085	15.3M
Both Questions combined	34.4	--	37.9	3.5*	0.03	8.9M
C) In-person only, cross sectional data, Unweighted						
POSSLQ	42.7	--	47.0	4.3	0.07	
POSSLQY	40.6	--	45.9	5.3*	0.025	13.5M
Both Questions combined	41.7	--	46.4	4.8**	0.004	12.2M
D) All survey modes, 2016-2020 panel data, weighted						
POSSLQ	34.0	32.8	--	-1.2	0.45	
POSSLQY	31.4	29.4	--	-2.0	0.19	
Both questions combined	32.8	31.2	--	-1.6	0.16	
Both Questions combined and age adjusted	32.8	33.3	--	0.5	0.66	

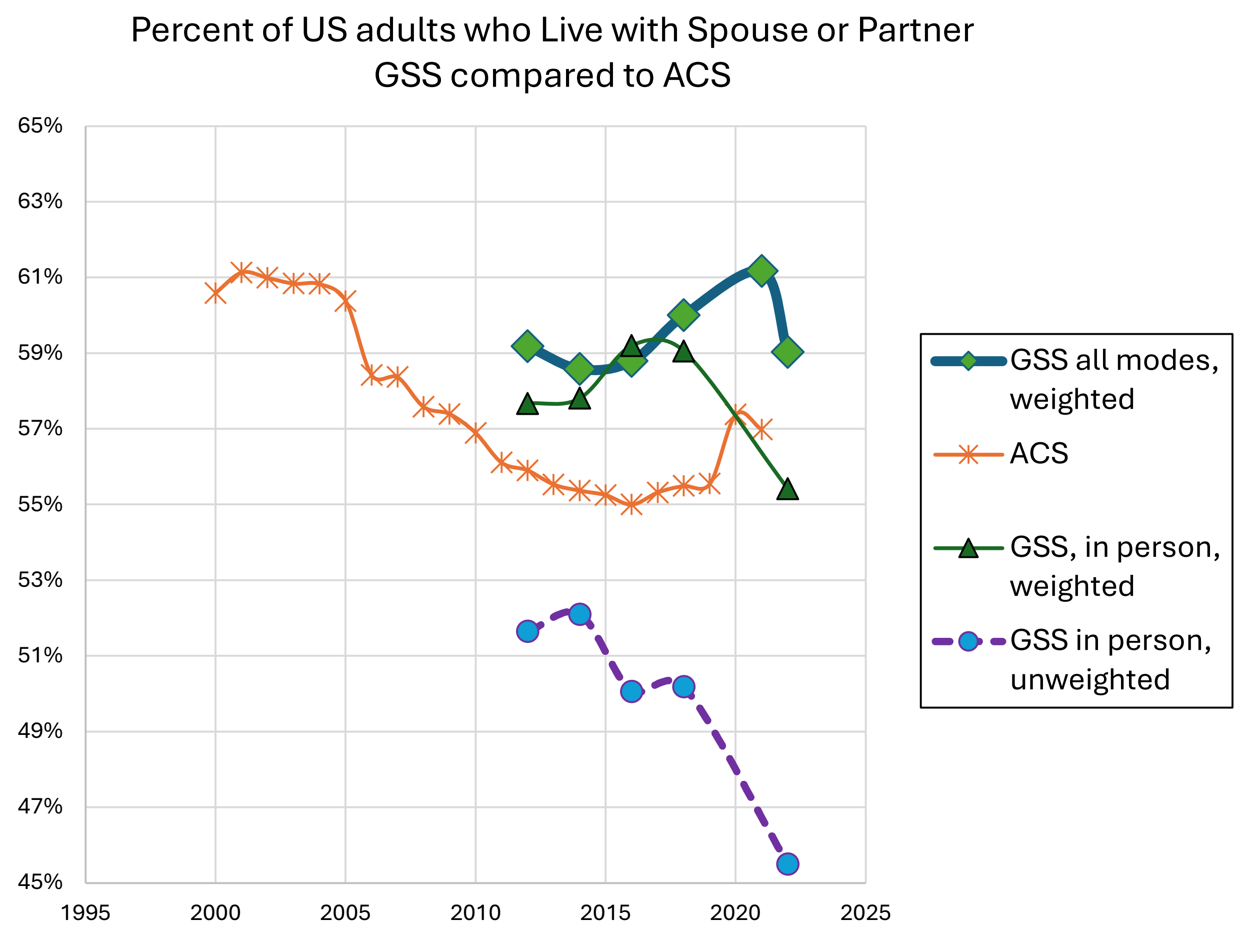
Source: Cross sectional GSS data weighted by wtsscompnr except where noted. GSS definition of singleness: "I don't have a steady partner." No in-person surveys took place in GSS 2020 or 2021. In the cross sectional data, the middle year is 2021. In the panel data, the middle year is 2020. Panel data for 2018 include only subjects who were re-interviewed in 2020 with the same questions, and vice versa. In the 'all survey modes cross sectional data,' the change in singlehood compares 2018 and 2022.

* P<0.05; ** P<0.01, two tailed tests

In parts B and C of Appendix Table 4, we control for the GSS variation in survey modes by examining only subjects who were interviewed in person in the cross-sectional GSS in 2018 and 2022 either with weights (part B) or without weights (part C) because the weights were designed to be used with all survey modes combined, and there are (as of GSS 2022 release 2a) no suggested weights for in-person surveys alone (General Social Survey 2024 p.7). Examining the in-person surveys only, so that the pre-pandemic and pandemic survey modes are the same, the GSS data (combining survey questions wordings) show a statistically significant increase of either 8.9 million single adults (when the data are weighted) or an increase of 12.2 million adults (ignoring the GSS weights).

Survey mode clearly affects GSS measurement of singleness in 2021 and 2022. Combining the POSSLQ and POSSLQY questions, the 2021 and 2022 GSS subjects had a 35.0% singleness rate in web surveys, compared to a 47.2% singleness rate in the other survey modes combined. The survey mode differences in measures of singleness in GSS were highly significant and remained so regardless of weights and regardless of controlling for age and gender of respondent (see Appendix Table 1 and Appendix Table 4).

In Appendix Figure 3, I compare the combined GSS POSSLQ+POSSLQY categories for living with spouse or living with unmarried partner (categories 1 and 2) against ACS data for US adults (not in group quarters) percent living with spouse or living with unmarried partner. Appendix Figure 3 suggests that the versions of the GSS POSSLQ and POSSLQY data that track the ACS best for marriage and cohabitation are the weighted version including all survey modes and the weighted in-person-only GSS data.



Appendix Figure 3: Measures of coresidence with spouse or partner, GSS POSSLQ and POSSLQY combined even though the POSSLQ and POSSLQY question wording ask about cohabitation differently. American Community Survey data are weighted data for persons 18 and older, not living in group quarters.

The GSS data provide a mixed and unclear picture of the stability or change in singleness (as defined by the GSS to mean lacking a steady partner). If we rely only on the in-person surveys, the traditional survey mode for the GSS, and we compare 2018 and 2022 data, there is evidence for an increase in singlehood among U.S. adults consistent with the results from the HCMST data, with estimated increases of between 8.9 million and 12.2 million singles. If one ignores the radical changes in survey mode in the GSS (and we ignore the highly significant differences in singleness by GSS survey mode) by combining all survey modes, then both the GSS cross-sectional data and the GSS panel data show no change in the prevalence of singleness during the coronavirus pandemic. There is no unique best way to parse the GSS results given the changes in GSS survey mode and the unique challenges of the pandemic.

Even if we were to accept the GSS results showing no change in singleness of American adults during the coronavirus pandemic, the GSS results could still be consistent with the HCMST results because of the different ways GSS and HCMST define singleness. The GSS has a broader definition of singleness (being without a steady partner) than HCMST. As a result of the broader definition of singleness, GSS estimates for the prevalence of single people in the US are more than 17 million higher than the HCMST estimates. It is possible that most of the HCMST's observed 10 million (or more) increase in adult singleness from 2017 to 2022 could be due to reduction in the formation of non-steady relationships which were missed by the GSS.

Appendix References:

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