Intentions to Receive COVID-19 Vaccines in the United States: Sociodemographic

Factors and Personal Experiences with COVID-19

Ann Marie Warren, PhD*a, b*, Monica M. Bennett, PhD*b*, Briget da Graca, JD, MS*b*, Anthony C. Waddimba MD, DSc*a, b, c*, Robert L Gottlieb, MD, PhD*a, b*, Megan E. Douglas, PhD*b*, and Mark B. Powers, PhD*a, b*

*a Baylor University Medical Center, Dallas, TX, USA*

*b Baylor Scott & White Research Institute, Dallas, TX, USA*

*c Health Systems Science, Department of Surgery, Baylor University Medical Center, Dallas, TX, USA*

Author Note

Ann Marie Warren <https://orcid.org/0000-0002-3753-5573>, Monica Bennett <https://orcid.org/0000-0001-7506-7160>, Briget da Graca https://orcid.org/0000-0002-8634-7122,Anthony Waddimba https://orcid.org/0000-0002-5377-0864,Robert Gottlieb https://orcid.org/0000-0001-8376-8709,Megan Douglas https://orcid.org/0000-0002-1522-7991,Mark Powers https://orcid.org/0000-0001-7898-073X

Ann Marie Warren served as the lead for the conceptualization of the study, study design, obtaining study funding, and contributed to writing, review, and editing. Monica Bennett served as the lead for the formal data analysis and validation. Briget da Graca was a lead on writing, review and editing. Anthony Waddimba, Robert Gottlieb, and Megan Douglas served in writing and editing and review. Mark Powers was involved in study conceptualizing, writing, editing and review.

This work was supported by funding from Baylor Scott & White- Dallas Foundation and W.W. Caruth, Jr. Fund, Communities Foundation of North Texas.

Correspondence concerning this work should be addressed to Ann Marie Warren, Baylor Scott & White Research Institute, 3600 Gaston Avenue, Barnett Tower Suite 1202, Dallas, Texas 75246. United States. Email: annmarie.warren@bswhealth.org

**Supplemental Table 1: Differences between demographic factors and levels of trust in health authority**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **A lot**  **(n=478)** | **A little (n=355)** | **Not at all (n=93)** | **p-value** |
| **Age** | 55.2 ± 13.1 | 53.8 ± 12.3 | 49.7 ± 13.2 | 0.001 |
| **Age Category** |  |  |  | 0.001 |
| **18-29** | 14 (2.9%) | 6 (1.7%) | 7 (7.5%) |  |
| **30-39** | 64 (13.4%) | 51 (14.4%) | 17 (18.3%) |  |
| **40-49** | 73 (15.3%) | 59 (16.6%) | 19 (20.4%) |  |
| **50-59** | 111 (23.2%) | 114 (32.1%) | 27 (29%) |  |
| **60-69** | 151 (31.6%) | 93 (26.2%) | 17 (18.3%) |  |
| **70+** | 65 (13.6%) | 32 (9%) | 6 (6.5%) |  |
| **Sex** |  |  |  | 0.163 |
| Male | 223 (46.7%) | 153 (43.1%) | 34 (36.6%) |  |
| Female | 254 (53.1%) | 202 (56.9%) | 59 (63.4%) |  |
| **BMI (n=872)** | 26.9 ± 6.3 | 27.7 ± 6.4 | 27 ± 6.9 | 0.226 |
| **BMI Category** |  |  |  | 0.195 |
| underweight | 16 (3.5%) | 14 (4.2%) | 3 (3.4%) |  |
| normal | 182 (40%) | 105 (31.8%) | 35 (40.2%) |  |
| overweight | 153 (33.6%) | 110 (33.3%) | 28 (32.2%) |  |
| obese | 104 (22.9%) | 101 (30.6%) | 21 (24.1%) |  |
| **Race/Ethnicity** |  |  |  | 0.126 |
| White | 366 (76.6%) | 274 (77.2%) | 71 (76.3%) |  |
| Black | 22 (4.6%) | 15 (4.2%) | 11 (11.8%) |  |
| Hispanic | 31 (6.5%) | 26 (7.3%) | 4 (4.3%) |  |
| Asian | 45 (9.4%) | 28 (7.9%) | 4 (4.3%) |  |
| Other | 14 (2.9%) | 12 (3.4%) | 3 (3.2%) |  |
| **Marital Status** |  |  |  | 0.137 |
| Single | 119 (24.9%) | 73 (20.6%) | 28 (30.1%) |  |
| Married/Common Law | 302 (63.2%) | 239 (67.3%) | 51 (54.8%) |  |
| Divorced/Separated | 52 (10.9%) | 43 (12.1%) | 13 (14%) |  |
| Unknown/Prefer not to answer | 5 (1%) | 0 (0%) | 1 (1.1%) |  |
| **Education** |  |  |  | 0.006 |
| DNF High School | 0 (0%) | 3 (0.8%) | 0 (0%) |  |
| HS/GED | 40 (8.4%) | 35 (9.9%) | 15 (16.1%) |  |
| Some College/Vocational school | 117 (24.5%) | 104 (29.3%) | 29 (31.2%) |  |
| Bachelors | 171 (35.8%) | 125 (35.2%) | 34 (36.6%) |  |
| Advanced Degree | 149 (31.2%) | 88 (24.8%) | 14 (15.1%) |  |
| Other/Unknown | 1 (0.2%) | 0 (0%) | 1 (1.1%) |  |
| **Job Category** |  |  |  | 0.018 |
| General Public | 304 (63.6%) | 227 (63.9%) | 59 (63.4%) |  |
| Health Care | 147 (30.8%) | 99 (27.9%) | 20 (21.5%) |  |
| Other Essential Workers | 27 (5.6%) | 29 (8.2%) | 14 (15.1%) |  |
| **Work Status** |  |  |  | 0.780 |
| Working from Normal Location | 264 (55.2%) | 210 (59.2%) | 57 (61.3%) |  |
| Working from home | 110 (23%) | 82 (23.1%) | 20 (21.5%) |  |
| Not working due to COVID | 18 (3.8%) | 12 (3.4%) | 4 (4.3%) |  |
| Unemployed due to COVID | 14 (2.9%) | 6 (1.7%) | 3 (3.2%) |  |
| Not working - Other reason | 72 (15.1%) | 44 (12.4%) | 9 (9.7%) |  |
| **Income** |  |  |  | 0.135 |
| <$30,000 | 53 (11.6%) | 34 (9.9%) | 14 (15.6%) |  |
| $30,000 to <$60,000 | 107 (23.5%) | 84 (24.6%) | 29 (32.2%) |  |
| $60,000 to <$100,000 | 126 (27.6%) | 108 (31.6%) | 20 (22.2%) |  |
| $100,000 or more | 170 (37.3%) | 116 (33.9%) | 27 (30%) |  |
| **Current Psychological diagnosis** | 36 (7.5%) | 31 (8.7%) | 7 (7.5%) | 0.815 |
| **Presence of a comorbidity** | 187 (39.1%) | 140 (39.4%) | 30 (32.3%) | 0.419 |
| **Rural-Urban Commuting Area Classification** |  |  |  | 0.809 |
| Metropolitan | 431 (90.2%) | 313 (88.2%) | 81 (87.1%) |  |
| Micropolitan | 30 (6.3%) | 28 (7.9%) | 7 (7.5%) |  |
| Small town/Rural | 17 (3.6%) | 14 (3.9%) | 5 (5.4%) |  |
| **Typically receives Flu Vaccine** | 365 (76.4%) | 235 (66.2%) | 37 (39.8%) | <0.001 |

**Supplemental Table 2: Differences between COVID experience and levels of trust in health authority**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **A lot (n=478)** | **A little (n=355)** | **Not at all (n=93)** | **p-value** |
| **Cumulative COVID case count per 100k County residents** | 5923  (4842, 7607) | 5780  (4581, 7186) | 6451  (5129, 7795) | 0.024 |
| **Cumulative COVID death count per 100k County residents** | 92 (56, 135) | 89 (58, 132) | 97 (73, 137) | 0.373 |
| **COVID Fear** | 17.5 ± 6.2 | 17.0 ± 6.9 | 15.0 ± 7.7 | 0.006 |
| **COVID Impact ranked as moderate/severe** |  |  |  |  |
| Routines | 302 (63.2%) | 201 (56.6%) | 48 (51.6%) | 0.043 |
| Family Income/Employment | 69 (14.4%) | 69 (19.4%) | 22 (23.7%) | 0.039 |
| Food Access | 18 (3.8%) | 28 (7.9%) | 10 (10.8%) | 0.006 |
| Medical health care access | 75 (15.7%) | 50 (14.1%) | 18 (19.4%) | 0.446 |
| Mental health treatment | 18 (3.8%) | 19 (5.4%) | 6 (6.5%) | 0.383 |
| Access to extended family and non-family social supports | 195 (40.8%) | 119 (33.5%) | 17 (18.3%) | <0.001 |
| Experiences of stress related to coronavirus pandemic | 137 (28.7%) | 88 (24.8%) | 24 (25.8%) | 0.446 |
| Stress and discord in the family | 48 (10%) | 47 (13.2%) | 14 (15.1%) | 0.215 |
| **COVID-19 testing** |  |  |  | 0.537 |
| Screening | 32 (6.7%) | 24 (6.8%) | 2 (2.2%) |  |
| Test | 124 (25.9%) | 83 (23.4%) | 21 (22.6%) |  |
| Both screening and test | 75 (15.7%) | 56 (15.8%) | 13 (14.0%) |  |
| None | 247 (51.7%) | 192 (54.1%) | 57 (61.3%) |  |
| **Tested positive** | 19 (4%) | 17 (4.8%) | 7 (7.5%) | 0.325 |
| **Know someone who tested positive** | 374 (78.2%) | 258 (72.7%) | 45 (48.4%) | <0.001 |
| **Television Consumption last 7 days** |  |  |  | 0.085 |
| Less than an hour | 75 (15.7%) | 57 (16.1%) | 30 (32.3%) |  |
| 1 to 2 hours | 105 (22%) | 82 (23.1%) | 12 (12.9%) |  |
| 3 to 4 hours | 89 (18.6%) | 76 (21.4%) | 16 (17.2%) |  |
| 4 to 5 hours | 55 (11.5%) | 37 (10.4%) | 9 (9.7%) |  |
| More than 5 hours | 154 (32.2%) | 102 (28.7%) | 25 (26.9%) |  |
| **Radio Consumption last 7 days** |  |  |  | 0.062 |
| Less than an hour | 289 (60.8%) | 191 (54.4%) | 52 (56.5%) |  |
| 1 to 2 hours | 113 (23.8%) | 83 (23.6%) | 17 (18.5%) |  |
| 3 to 4 hours | 28 (5.9%) | 30 (8.5%) | 6 (6.5%) |  |
| 4 to 5 hours | 17 (3.6%) | 16 (4.6%) | 6 (6.5%) |  |
| More than 5 hours | 28 (5.9%) | 31 (8.8%) | 11 (12%) |  |
| **Newspapers Consumption last 7 days** |  |  |  | 0.437 |
| Less than an hour | 342 (73.4%) | 266 (76.4%) | 70 (78.7%) |  |
| 1 to 2 hours | 87 (18.7%) | 57 (16.4%) | 13 (14.6%) |  |
| 3 to 4 hours | 20 (4.3%) | 18 (5.2%) | 4 (4.5%) |  |
| 4 to 5 hours | 11 (2.4%) | 4 (1.1%) | 2 (2.2%) |  |
| More than 5 hours | 6 (1.3%) | 3 (0.9%) | 0 (0%) |  |
| **Internet** |  |  |  | 0.396 |
| Less than an hour | 49 (10.3%) | 49 (14%) | 16 (17.2%) |  |
| 1 to 2 hours | 132 (27.7%) | 99 (28.2%) | 25 (26.9%) |  |
| 3 to 4 hours | 100 (21%) | 63 (17.9%) | 13 (14%) |  |
| 4 to 5 hours | 58 (12.2%) | 48 (13.7%) | 12 (12.9%) |  |
| More than 5 hours | 138 (28.9%) | 92 (26.2%) | 27 (29%) |  |
| **Social Media** |  |  |  | 0.239 |
| Less than an hour | 254 (54.3%) | 173 (49.9%) | 46 (50%) |  |
| 1 to 2 hours | 116 (24.8%) | 84 (24.2%) | 19 (20.7%) |  |
| 3 to 4 hours | 40 (8.5%) | 43 (12.4%) | 11 (12%) |  |
| 4 to 5 hours | 22 (4.7%) | 21 (6.1%) | 3 (3.3%) |  |
| More than 5 hours | 36 (7.7%) | 26 (7.5%) | 13 (14.1%) |  |
| **How fearful has media coverage made you** |  |  |  | <0.001 |
| Not fearful at all | 97 (20.5%) | 102 (29.1%) | 44 (48.4%) |  |
| A little fearful | 179 (37.8%) | 95 (27.1%) | 21 (23.1%) |  |
| Somewhat fearful | 127 (26.8%) | 103 (29.3%) | 17 (18.7%) |  |
| Really fearful | 46 (9.7%) | 24 (6.8%) | 3 (3.3%) |  |
| Extremely fearful | 25 (5.3%) | 27 (7.7%) | 6 (6.6%) |  |

**Supplemental Table 3: Differences between demographic factors and levels of trust in personal physician or health care provider**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **A lot (n=592)** | **A little (n=280)** | **Not at all (n=51)** | **p-value** |
| **Age** | 55.8 ± 12.7 | 51.4 ± 12.4 | 49.5 ± 13.2 | <0.001 |
| **Age Category** |  |  |  | <0.001 |
| 18-29 | 13 (2.2%) | 8 (2.9%) | 6 (11.8%) |  |
| 30-39 | 68 (11.5%) | 53 (18.9%) | 7 (13.7%) |  |
| 40-49 | 88 (14.9%) | 56 (20%) | 8 (15.7%) |  |
| 50-59 | 161 (27.2%) | 72 (25.7%) | 19 (37.3%) |  |
| 60-69 | 182 (30.7%) | 71 (25.4%) | 8 (15.7%) |  |
| 70+ | 80 (13.5%) | 20 (7.1%) | 3 (5.9%) |  |
| **Sex** |  |  |  | 0.284 |
| Male | 265 (44.8%) | 124 (44.3%) | 17 (33.3%) |  |
| Female | 327 (55.2%) | 155 (55.4%) | 34 (66.7%) |  |
| **BMI** | 27.3 ± 6.3 | 27.2 ± 6.6 | 26.5 ± 7.1 | 0.717 |
| **BMI Category** |  |  |  | 0.411 |
| underweight | 17 (3%) | 13 (4.9%) | 3 (6.7%) |  |
| normal | 207 (36.8%) | 92 (35%) | 20 (44.4%) |  |
| overweight | 197 (35.1%) | 83 (31.6%) | 12 (26.7%) |  |
| obese | 141 (25.1%) | 75 (28.5%) | 10 (22.2%) |  |
| **Race/Ethnicity** |  |  |  | 0.004 |
| White | 460 (77.7%) | 216 (77.1%) | 34 (66.7%) |  |
| Black | 27 (4.6%) | 11 (3.9%) | 9 (17.6%) |  |
| Hispanic | 36 (6.1%) | 21 (7.5%) | 4 (7.8%) |  |
| Asian | 53 (9%) | 22 (7.9%) | 1 (2%) |  |
| Other | 16 (2.7%) | 10 (3.6%) | 3 (5.9%) |  |
| **Marital Status** |  |  |  | 0.034 |
| Single | 127 (21.5%) | 73 (26.1%) | 18 (35.3%) |  |
| Married/Common Law | 397 (67.1%) | 168 (60%) | 25 (49%) |  |
| Divorced/Separated | 63 (10.6%) | 39 (13.9%) | 7 (13.7%) |  |
| Unknown/Prefer not to answer | 5 (0.8%) | 0 (0%) | 1 (2%) |  |
| **Education** |  |  |  | 0.070 |
| DNF High School | 1 (0.2%) | 1 (0.4%) | 1 (2%) |  |
| HS/GED | 58 (9.8%) | 27 (9.6%) | 7 (13.7%) |  |
| Some College/Vo | 150 (25.3%) | 80 (28.6%) | 20 (39.2%) |  |
| Bachelors | 204 (34.5%) | 107 (38.2%) | 15 (29.4%) |  |
| Advanced Degree | 177 (29.9%) | 65 (23.2%) | 8 (15.7%) |  |
| Other/Unknown | 2 (0.3%) | 0 (0%) | 0 (0%) |  |
| **Job Category** |  |  |  | 0.006 |
| General Public | 374 (63.2%) | 178 (63.6%) | 35 (68.6%) |  |
| Health Care | 182 (30.7%) | 77 (27.5%) | 7 (13.7%) |  |
| Other Essential Workers | 36 (6.1%) | 25 (8.9%) | 9 (17.6%) |  |
| **Work Status** |  |  |  | 0.549 |
| Working from Normal Location | 334 (56.4%) | 168 (60%) | 31 (60.8%) |  |
| Working from home | 131 (22.1%) | 66 (23.6%) | 10 (19.6%) |  |
| Not working due to COVID | 23 (3.9%) | 8 (2.9%) | 3 (5.9%) |  |
| Unemployed due to COVID | 18 (3%) | 3 (1.1%) | 2 (3.9%) |  |
| Not working - Other reason | 86 (14.5%) | 34 (12.1%) | 5 (9.8%) |  |
| **Income** |  |  |  | 0.063 |
| <$30,000 | 56 (9.9%) | 33 (12.2%) | 12 (24.5%) |  |
| $30,000 to <$60,000 | 141 (25%) | 65 (24%) | 13 (26.5%) |  |
| $60,000 to <$100,000 | 151 (26.8%) | 90 (33.2%) | 11 (22.4%) |  |
| $100,000 or more | 216 (38.3%) | 83 (30.6%) | 13 (26.5%) |  |
| **Current Psychological diagnosis** | 47 (7.9%) | 23 (8.2%) | 4 (7.8%) | 0.983 |
| **Presence of a comorbidity** | 236 (39.9%) | 108 (38.6%) | 14 (27.5%) | 0.217 |
| **Rural-Urban Commuting Area Classification** |  |  |  | 0.785 |
| Metropolitan | 524 (88.5%) | 251 (89.6%) | 46 (90.2%) |  |
| Micropolitan | 44 (7.4%) | 20 (7.1%) | 2 (3.9%) |  |
| Small town/Rural | 24 (4.1%) | 9 (3.2%) | 3 (5.9%) |  |
| **Typically receives Flu Vaccine** | 453 (76.5%) | 169 (60.4%) | 15 (29.4%) | <0.001 |

**Supplemental Table 4: Differences between COVID experience and levels of trust in personal physician or health care provider**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **A lot (n=478)** | **A little (n=355)** | **Not at all (n=93)** | **p-value** |
| **Cumulative COVID case count per 100k County residents** | 5991  (4842, 7617) | 5706  (4614, 7140) | 5966.2  (4968, 7797) | 0.063 |
| **Cumulative COVID death count per 100k County residents** | 91 (58, 134) | 91 (57, 132) | 87 (59, 115) |  |
| **COVID Fear** | 17.3 ± 6.4 | 16.7 ± 6.9 | 16.2 ± 7.9 | 0.279 |
| **COVID Impact ranked as moderate/severe** |  |  |  |  |
| Routines | 379 (64%) | 144 (51.4%) | 25 (49%) | 0.001 |
| Family Income/Employment | 101 (17.1%) | 44 (15.7%) | 14 (27.5%) | 0.123 |
| Food Access | 28 (4.7%) | 22 (7.9%) | 6 (11.8%) | 0.042 |
| Medical health care access | 91 (15.4%) | 38 (13.6%) | 14 (27.5%) | 0.042 |
| Mental health treatment | 23 (3.9%) | 14 (5%) | 6 (11.8%) | 0.035 |
| Access to extended family and non-family social supports | 238 (40.2%) | 82 (29.3%) | 10 (19.6%) | <0.001 |
| Experiences of stress related to coronavirus pandemic | 163 (27.5%) | 71 (25.4%) | 14 (27.5%) | 0.792 |
| Stress and discord in the family | 61 (10.3%) | 39 (13.9%) | 10 (19.6%) | 0.067 |
| **COVID-19 testing** |  |  |  | 0.022 |
| Screening | 38 (6.4%) | 19 (6.8%) | 2 (3.9%) |  |
| Test | 158 (26.7%) | 62 (22.1%) | 8 (15.7%) |  |
| Both screening and test | 105 (17.7%) | 33 (11.8%) | 6 (11.8%) |  |
| None | 291 (49.2%) | 166 (59.3%) | 35 (68.6%) |  |
| **Tested positive** | 31 (5.2%) | 11 (3.9%) | 1 (2%) | 0.446 |
| **Know someone who tested positive** | 467 (78.9%) | 191 (68.2%) | 21 (41.2%) | <0.001 |
| **Television** |  |  |  | 0.095 |
| Less than an hour | 90 (15.2%) | 54 (19.3%) | 19 (37.3%) |  |
| 1 to 2 hours | 138 (23.3%) | 52 (18.6%) | 6 (11.8%) |  |
| 3 to 4 hours | 113 (19.1%) | 60 (21.4%) | 8 (15.7%) |  |
| 4 to 5 hours | 71 (12%) | 26 (9.3%) | 4 (7.8%) |  |
| More than 5 hours | 180 (30.4%) | 87 (31.1%) | 13 (25.5%) |  |
| **Radio** |  |  |  | 0.055 |
| Less than an hour | 354 (60.4%) | 151 (54.3%) | 27 (54%) |  |
| 1 to 2 hours | 140 (23.9%) | 61 (21.9%) | 12 (24%) |  |
| 3 to 4 hours | 37 (6.3%) | 21 (7.6%) | 4 (8%) |  |
| 4 to 5 hours | 19 (3.2%) | 17 (6.1%) | 2 (4%) |  |
| More than 5 hours | 36 (6.1%) | 28 (10.1%) | 5 (10%) |  |
| **Newspapers** |  |  |  | 0.637 |
| Less than an hour | 428 (74.4%) | 213 (77.2%) | 35 (71.4%) |  |
| 1 to 2 hours | 112 (19.5%) | 38 (13.8%) | 8 (16.3%) |  |
| 3 to 4 hours | 17 (3%) | 19 (6.9%) | 5 (10.2%) |  |
| 4 to 5 hours | 12 (2.1%) | 3 (1.1%) | 1 (2%) |  |
| More than 5 hours | 6 (1%) | 3 (1.1%) | 0 (0%) |  |
| **Internet** |  |  |  | 0.596 |
| Less than an hour | 67 (11.4%) | 39 (14.1%) | 9 (17.6%) |  |
| 1 to 2 hours | 170 (28.8%) | 71 (25.6%) | 14 (27.5%) |  |
| 3 to 4 hours | 114 (19.3%) | 55 (19.9%) | 9 (17.6%) |  |
| 4 to 5 hours | 76 (12.9%) | 34 (12.3%) | 8 (15.7%) |  |
| More than 5 hours | 163 (27.6%) | 78 (28.2%) | 11 (21.6%) |  |
| **Social Media** |  |  |  | 0.192 |
| Less than an hour | 313 (54%) | 137 (50%) | 23 (45.1%) |  |
| 1 to 2 hours | 144 (24.8%) | 62 (22.6%) | 13 (25.5%) |  |
| 3 to 4 hours | 50 (8.6%) | 32 (11.7%) | 10 (19.6%) |  |
| 4 to 5 hours | 30 (5.2%) | 15 (5.5%) | 1 (2%) |  |
| More than 5 hours | 43 (7.4%) | 28 (10.2%) | 4 (7.8%) |  |
| **How fearful has media coverage made you** |  |  |  | 0.081 |
| Not fearful at all | 140 (24%) | 79 (28.3%) | 23 (46%) |  |
| A little fearful | 201 (34.4%) | 82 (29.4%) | 10 (20%) |  |
| Somewhat fearful | 157 (26.9%) | 79 (28.3%) | 11 (22%) |  |
| Really fearful | 52 (8.9%) | 18 (6.5%) | 3 (6%) |  |
| Extremely fearful | 34 (5.8%) | 21 (7.5%) | 3 (6%) |  |