**Hesitancy towards COVID-19 vaccination: The role of personality traits, anti-vaccine attitudes and illness perception**

S1 File

#  **Table A. Inter-correlations between Illness beliefs, Big five personality types, components of vaccine attitudes, combined anti-vaccine attitudes and vaccine hesitancy.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 1. Consequences
 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Timeline
 | .32\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Identity
 | .20\*\* | .20\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Concern
 | .36\*\* | .27\*\* | .22\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Emotional Representation
 | .37\*\* | .25\*\* | .23\*\* | .49\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Personal Control
 | -.05 | .04 | -.08 | -.01 | .01 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Treatment Control
 | -.21\*\* | -.21\*\* | -.16\*\* | -.30\*\* | -.21\*\* | .22\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Coherence
 | -.16\*\* | -.15\*\* | -.11\*\* | -.23 | -.06 | .30\*\* | .24\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. Extraversion
 | .01 | -.03 | .02 | -.04 | -.05 | -.07 | -.01 | -.08 | - |  |  |  |  |  |  |  |  |  |  |  |
| 1. Agreeableness
 | -.15\*\* | -.17\*\* | -.19\*\* | -.04 | -.11\*\* | -.06 | .03 | -.09 | .05 | - |  |  |  |  |  |  |  |  |  |  |
| 1. Conscientiousness
 | -.08 | -.11\*\* | -.19\*\* | -.01 | -.09 | -.06 | .06 | -.15\*\* | .14\*\* | .25\*\* | - |  |  |  |  |  |  |  |  |  |
| 1. Neuroticism
 | .06 | .09 | .07 | .06 | .19\*\* | .16\*\* | -.03 | .09 | -.17\*\* | -.24\*\* | -.25\*\* | - |  |  |  |  |  |  |  |  |
| 1. Openness
 | .03 | .04 | -.03 | -.01 | .10 | -.07 | .03 | -.06 | .06 | .05 | .15\*\* | .07 | - |  |  |  |  |  |  |  |
| 1. Experience with COVID-19
 | -.26\*\* | -.22\*\* | -.28\*\* | -.23\*\* | -.21\*\* | -.09 | .19\*\* | .10\* | .05 | .38\*\* | .11\* | -.06 | .01 | - |  |  |  |  |  |  |
| 1. Vaccine mistrust
 | -.22\*\* | -.22\*\* | -.08 | -.34\*\* | -.17\*\* | -.06 | .34\*\* | .08 | .02 | .11\* | .05 | -.04 | .03 | .30\*\* | - |  |  |  |  |  |
| 1. Future Effects
 | .00 | .03 | -.02 | -.04 | .06 | -.06 | .10\* | -.07 | -.01 | .06 | .08 | -.02 | .06 | .12\*\* | .29\*\* | - |  |  |  |  |
| 1. Profiteering
 | -.11\*\* | -.11\*\* | -.04 | -.14\*\* | .05 | -.05 | .24\*\* | .06 | .03 | .04 | .10 | .04 | .03 | .22\*\* | .42\*\* | .48\*\* | - |  |  |  |
| 1. Natural immunity
 | -.14\*\* | -.20\*\* | -.03 | -.18 | -.07 | -.06 | .23 | .03 | .00 | -.01 | .15 | .01 | .04 | .15 | .35\*\* | .41\*\* | .56\*\* | - |  |  |
| 1. Vaccination Attitudes(total)
 | -.17\*\* | -.18\*\* | -.06 | -.24\*\* | -.05 | -.08 | .31\*\* | .04 | .02 | .07 | .12\*\* | .00 | .05 | .27\*\* | .72\*\* | .69\*\* | .82\*\* | .76\*\* | - |  |
| 1. Vaccine Hesitancy
 | -.26\*\* | -.25\*\* | -.09 | -.39 | -.26\*\* | -.08 | .35\*\* | .10\*\* | -.04 | .09\* | .05 | -.05 | .00 | .43\*\* | .69\*\* | .29\*\* | .40\*\* | .32\*\* | .59\*\* | - |

 \*Correlation is significant at the 0.01 level (2-tailed)

 \*\*Correlation is significant at the 0.05 level (2-tailed)\*

# **Table B. Summary of hierarchical regression results**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variable** |  | **Model 1** |  |  |  | **Model 2** |  |  |  | **Model 3** |  |  |  | **Model 4** |  |  |  | **Model 5** |   |
|   | B | SE B | β |  | B | SE B | β |  | B | SE B | β |  | B | SE B | β |  | B | SE B | β |
| **Sociocultural Variables** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Gender=Female | .19 | .71 | .01 |  | .40 | .72 | .03 |  | .37 | .66 | .02 |  | .68 | .61 | .04 |  | .13 | .50 | .01 |
| Ages <= 23 (vs 31+) | .94 | 1.48 | .06 |  | .87 | 1.50 | .06 |  | .28 | 1.36 | .02 |  | -.56 | 1.25 | -.04 |  | -.81 | -4.00 | -.05 |
| Ages 24 – 30 (vs 31+) | -.58 | 1.35 | -.04 |  | -.64 | 1.36 | -.04 |  | -.32 | 1.24 | -.02 |  | -.42 | 1.13 | -.03 |  | -.54 | .91 | -.04 |
| Akan (vs other ethnicities) | -.52 | .00 | -.03 |  | -.46 | -2.00 | -.03 |  | -.23 | .91 | -.02 |  | -.43 | .83 | -.03 |  | -.60 | .67 | -.04 |
| Ga-Adangbe (vs other ethnicities) | 1.25 | 1.33 | .05 |  | 1.21 | 1.33 | .05 |  | .75 | 1.21 | .03 |  | .19 | 1.11 | .01 |  | .62 | .89 | .03 |
| Ewe (vs other ethnicities) | 1.69 | 1.26 | .08 |  | 1.55 | 1.26 | .08 |  | 1.46 | 1.15 | .07 |  | 1.16 | 1.05 | .06 |  | .85 | .85 | .04 |
| Single (vs. widowed/divorced) | -7.37 | 3.67 | **-.33\*** |  | -7.64 | 3.68 | **-.34\*** |  | -7.59 | 3.35 | **-.34\*** |  | -5.94 | 3.09 | -.26 |  | -1.91 | 2.51 | -.09 |
| Married (vs. widowed/divorced) |  -6.77 | 3.71 | -.29 |  | -7.06 | 3.72 | -.30 |  | -6.71 | 3.39 | **-.29\*** |  | -5.55 | 3.10 | -.24 |  | -1.57 | 2.52 | -.07 |
| Tertiary (vs <=secondary) | -3.04 | 1.89 | -.08 |  | -3.24 | 1.90 | -.08 |  | -4.11 | 1.73 | **-.10\*** |  | -3.94 | 1.58 | -.10 |  | -1.84 | 1.28 | -.05 |
| **Variable** |  | **Model 1** |  |  |  | **Model 2** |  |  |  | **Model 3** |  |  |  | **Model 4** |  |  |  | **Model 5** |   |
|   | B | SE B | β |  | B | SE B | β |  | B | SE B | β |  | B | SE B | β |  | B | SE B | β |
| Unemployed (vs. self-employed) | -.33 | 1.19 | -.02 |  | -.29 | 1.20 | -.02 |  | .43 | 1.10 | .03 |  | .76 | 1.02 | .05 |  | .53 | .82 | .03 |
| Formally employed (vs. self-employed) | -1.32 | 1.08 | -.09 |  | -1.23 | 1.09 | -.08 |  | .04 | .99 | .00 |  | .52 | .91 | .03 |  | .31 | .74 | .02 |
| Christian (vs others) | -.46 | 2.41 | -.02 |  | -1.19 | 2.43 | -.04 |  | -2.99 | 2.22 | -.10 |  | -1.52 | 2.06 | -.05 |  | -1.21 | 1.67 | -.04 |
| Muslim (vs others) | -1.85 | 3.01 | -.05 |  | -2.55 | 3.04 | -.07 |  | -4.18 | 2.77 | -.12 |  | -2.27 | 2.58 | -.06 |  | -3.03 | 2.08 | -.08 |
| Greater Accra (vs Central Region) | -2.08 | 1.63 | -.13 |  | -1.93 | 1.64 | -.12 |  | -.92 | 1.50 | -.06 |  | -1.13 | 1.37 | -.07 |  | .46 | 1.11 | .03 |
| 4 Northern regions ((vs Central Region) | .08 | 2.12 | .00 |  | .22 | 2.12 | .01 |  | .13 | 1.93 | .00 |  | .11 | 1.77 | .00 |  | 1.79 | 1.43 | .06 |
| Ashanti (vs Central Region) | -.68 | 1.96 | -.03 |  | -.70 | 1.97 | -.03 |  | -1.45 | 1.79 | -.06 |  | -1.55 | 1.64 | -.06 |  | -.18 | 1.33 | -.01 |
| Western (vs Central Region) | .00 | 2.31 | .00 |  | .27 | 2.32 | .01 |  | .70 | 2.11 | .02 |  | -1.22 | 1.93 | -.03 |  | .00 | 1.56 | .00 |
| Volta (vs Central Region) | -2.52 | 2.59 | -.06 |  | -2.12 | 2.62 | -.05 |  | -.99 | 2.39 | -.02 |  | -1.18 | 2.18 | -.03 |  | .28 | 1.76 | .01 |
| Eastern (vs Central Region) | -.34 | 2.29 | -.01 |  | -.35 | 2.31 | -.01 |  | -.20 | 2.11 | -.01 |  | -.39 | 1.92 | -.01 |  | 1.02 | 1.55 | .03 |
| **Psychological variables** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Openness |   |   |   |  | .02 | .24 | .01 |  | .06 | .22 | .01 |  | .01 | .20 | .00 |  | -.02 | .16 | .00 |
| **Variable** |  | **Model 1** |  |  |  | **Model 2** |  |  |  | **Model 3** |  |  |  | **Model 4** |  |  |  | **Model 5** |   |
|   | B | SE B | β |  | B | SE B | β |  | B | SE B | β |  | B | SE B | β |  | B | SE B | β |
| Extraversion |   |   |   |  | -.19 | .19 | -.05 |  | -.32 | .18 | -.08 |  | -.36 | .16 | -.09 |  | -.35 | .13 | **-.09\*\*** |
| Agreeableness |   |   |   |  | .46 | .30 | .08 |  | -.51 | .29 | -.08 |  | -.36 | .27 | -.06 |  | -.39 | .22 | -.06 |
| neuroticism |   |   |   |  | -.20 | .22 | -.04 |  | -.25 | .20 | -.06 |  | -.08 | .19 | -.02 |  | -.04 | .15 | -.01 |
| Experience with COVID-19 |   |   |   |  |   |   |   |  | 2.83 | .29 | .**45\*\*** |  | 2.18 | .28 | .**35\*\*** |  | 1.45 | .23 | .**23\*\*** |
| Consequences |   |   |   |  |   |   |   |  |   |   |   |  | -.13 | .12 | -.04 |  | -.03 | .10 | -.01 |
| Timeline |   |   |   |  |   |   |   |  |   |   |   |  | -.19 | .12 | -.07 |  | -.12 | .10 | -.04 |
| Identity |   |   |   |  |   |   |   |  |   |   |   |  | .34 | .13 | **.11\*\*** |  | .23 | .11 | **.07\*** |
| Concern |   |   |   |  |   |   |   |  |   |   |   |  | -.66 | .13 | **-.24\*\*** |  | -.30 | .11 | **-.11\*\*** |
| Emotionalrepresentation |   |   |   |  |   |   |   |  |   |   |   |  | -.05 | .13 | -.02 |  | -.23 | .11 | **-.08\*** |
| Personal Control |   |   |   |  |   |   |   |  |   |   |   |  | -.27 | .12 | **-.09\*** |  | -.11 | .10 | -.04 |
| Treatment Control |   |   |   |  |   |   |   |  |   |   |   |  | .75 | .15 | **.22\*\*** |  | .24 | .12 | .**07\*** |
| Coherence |   |   |   |  |   |   |   |  |   |   |   |  | -.07 | .15 | -.02 |  | .01 | .12 | .00 |
| Vaccine Mistrust |   |   |   |  |   |   |   |  |   |   |   |  |   |   |   |  | 1.22 | .10 | **.49\*\*** |
| Future effects |   |   |   |  |   |   |   |  |   |   |   |  |   |   |   |  | .31 | .12 | **.09\*\*** |
| Profiteering |   |   |   |  |   |   |   |  |   |   |   |  |   |   |   |  | .26 | .12 | **.09\*** |
| Natural immunity |   |   |   |  |   |   |   |  |   |   |   |  |   |   |   |  | -.10 | .12 | -.03 |
| R2 |  |  | .06 |  |  |  | .07 |  |  |  | .23 |  |  |  | .38 |  |  |  | .60 |
| R2 change |  |  |  |  |  |  | .01 |  |  |  | .16 |  |  |  | .14 |  |  |  | .23 |

NB. B- unstandardized Beta; SE, standard error; β-Standardized Beta. \*p< .05, \*\* p<.001

Model 1: Sociodemographic variables

Model 2: Personality types

Model 3: Illness perception

Model 4: Anti-vaccine attitudes

Model 5: Total model

The figures in bold are statistically significant.