

Table 1 Demographic characteristics of 903 subjects in Guangxi, China

| Variables | Patients, No. (%) (n=903) |
|--|----------------------------------|
| ender | |
| Male | 578(64.0) |
| Female | 325(36.0) |
| Age | |
| 18-40 | 252(27.9) |
| 41-59 | 430(47.6) |
| ≥60 | 221(24.5) |
| Ethnicity | |
| Han | 564(62.5) |
| Zhuang | 328(36.3) |
| Other Minorities | 11(1.2) |
| Occupations | |
| Farmer | 575(63.7) |
| Domestic Service | 139(15.4) |
| Others/Uncertain | 189(20.9) |
| Marital status | |
| Married | 570(63.1) |
| Single, divorced or widowed | 326(36.1) |
| Others/Uncertain | 7(0.8) |
| Highest level of education | |
| Primary school or below | 332(36.8) |
| Middle school | 425(47.1) |
| High school or above | 146(16.2) |
| Body Mass Index (kg/m²) | |
| 18.5-24.0 | 609(67.4) |
| <18.5 or >24.0 | 294(32.6) |
| The history of serious chronic illness | |
| Yes | 85(9.4) |
| No | 818(90.6) |
| Transmission route | |
| Sexual transmission | 862(95.5) |
| Injecting drug abuse | 33(3.7) |
| Others/Uncertain | 8(0.9) |
| CD4⁺T cell counts (cells/μL) | |
| <200 | 131(14.5) |
| 200-500 | 418(46.3) |
| >500 | 334(37.0) |
| Not-detected | 20(2.2) |
| Infection time | |
| <5 | 394(43.6) |
| 5-10 | 357(39.5) |

| | |
|-------------------------------|-----------|
| >10 | 152(16.8) |
| ART | |
| Yes | 833(92.2) |
| No | 70(7.8) |
| Adverse effects of ART | |
| Yes | 96(10.5) |
| No | 737(89.5) |

Table 2 Effects of CD4 cell count on the willingness of COVID-19 vaccine with HIV infection for 903 subjects in the survey

| Variables | Patients, No. (n=903) | β | S.E. | OR | 95%CI | P-Value |
|---|----------------------------------|---------------------------|-------------|-----------|--------------|----------------|
| CD4⁺T cells count (cells/μL) | | | | | | |
| <250 | 186 | Ref | | | | |
| 250-349 | 155 | .047 | .254 | 1.048 | 0.637-1.723 | .854 |
| 350-500 | 208 | -.210 | .229 | .810 | 0.518-1.269 | .358 |
| >500 | 334 | -.205 | .209 | .815 | 0.541-1.226 | .325 |
| Not detect | 20 | -.266 | .517 | .767 | 0.278-2.111 | .607 |

Table 3 Knowledge of the COVID-19 and its vaccine among HIV/AIDS patients

| Variables | Patients, No. (%) (n=903) |
|---|--------------------------------------|
| What are the main ways to learn about COVID-19? | |
| Phone | 618 (68.4) |
| TV | 536 (59.4) |
| Radio | 66 (7.3) |
| Newspaper | 39 (4.3) |
| Chat | 314 (34.8) |
| Community | 358 (39.6) |
| Others/Unknown | 46 (5.1) |
| What are the available vaccines in China? | |
| Inactivated vaccine | 404 (44.7) |
| mRNA vaccine | 44 (4.9) |
| Adenovirus vaccine | 19 (2.1) |
| Recombinant protein vaccine | 26 (2.9) |
| Unknown | 410 (45.4) |
| What do you think is the most appropriate age to receive the COVID-19 vaccine? | |
| < 18 | 65 (7.2) |
| 18-40 | 602 (66.7) |
| 41-59 | 216 (23.9) |
| ≥60 | 102 (11.3) |
| Unknown | 167(18.5) |
| Which type of occupation is preferential for COVID-19 vaccination? | |
| medical personnel | 671 (74.3) |
| Border workers | 523 (57.9) |
| Courier / delivery / supermarket staff | 360 (39.9) |
| COVID-19 patients/close contacts | 307 (34.0) |
| Migrant workers | 140 (15.5) |
| Faculty and Students | 222 (24.6) |
| Others/Unknown | 76 (8.4) |

Table 4 Attitude towards COVID-19 vaccination for WTV group

| Variables | WTV Group, No. (%) (n=658) |
|--|---------------------------------------|
| Which COVID-19 vaccine would you like to choose? | |
| Inactivated vaccine | 455(69.1) |
| mRNA vaccine | 11(1.7) |
| Adenovirus vaccine | 19(2.9) |
| Recombinant protein vaccine | 7(1.1) |
| Others | 36(5.5) |
| Unknown | 130(19.8) |
| Why do you want to receive the COVID-19 vaccine | |
| Fear of contracting COVID-19 | 500(76.0) |
| Relatives/friends are willing to accept vaccine | 264(40.1) |
| Fear of infecting family members with COVID-19 | 227(34.4) |
| Vaccination can improve immunity | 128(19.5) |
| Others | 8(1.2) |
| Would you still want to receive the COVID-19 vaccine if our country charged for it in the future? | |
| Yes | 457(69.5) |
| No | 198(30.1) |
| Look at the prices | 3(0.5) |
| Do you still wear a mask after vaccination? | |
| Yes | 587(89.2) |
| No | 29(4.4) |
| Depends on the situation | 42(6.4) |

WTV: willingness to vaccination

Table 5 Attitude towards COVID-19 vaccination for non-WTV group

| Variables | Non-WTV Group No. (%) (n=245) |
|--|--|
| Why don't you want to receive the COVID-19 vaccine? | |
| Have received pneumonia/influenza (non-COVID-19) vaccine | 2(0.8) |
| Fear of vaccine side effects | 134(54.7) |
| Concern about little effect on HIV infected patients with COVID-19 vaccination | 69(28.2) |
| Worry that COVID-19 vaccines will affect ART efficacy | 124(50.6) |

| | |
|--|-----------|
| I don't think I will get COVID-19 | 74(30.2) |
| Too expensive | 11(4.5) |
| Others | 45(18.4) |
| Would you like to receive the COVID-19 vaccine if it was freely accessible in China? | |
| Yes | 55(22.5) |
| No | 165(67.3) |
| Unknown | 25(10.2) |
| Would you accept the COVID-19 vaccination if most people have already been vaccinated in China? | |
| Yes | 68(27.8) |
| No | 152(62.0) |
| Unknown | 25(10.2) |
| Non-WTV: unwillingness to vaccination | |

Table 6 Univariate and multivariate analysis for the influencing factors on the willingness to vaccination for 903 subjects in the survey

| Variables | WTV Group No. (%) (n=658) | Non-WTV Group No. (%) (n=245) | OR(95%CI) | P-Value | Adjusted OR(95%CI) | P-Value |
|---|--------------------------------------|--|--------------------|----------------|-------------------------------|----------------|
| Ethnicity | | | | | | |
| Han | 390 (59.3) | 174 (71.0) | Ref | | Ref | |
| Zhuang | 259 (39.4) | 69 (28.2) | 1.675(1.216-2.306) | 0.002 | 1.653(1.109-2.465) | 0.014 |
| Other Minorities | 9 (1.4) | 2 (0.8) | 2.008(0.429-9.389) | 0.376 | 4.196(0.798-22.073) | 0.09 |
| Highest level of education | | | | | | |
| Primary school or below | 207 (31.5) | 125 (51.0) | Ref | | Ref | |
| Middle school | 328 (49.8) | 97 (39.6) | 2.042(1.487-2.804) | <0.001 | 1.747(1.170-2.608) | 0.006 |
| High school or above | 123 (18.7) | 23 (9.4) | 3.229(1.964-5.311) | <0.001 | 2.492(1.326-4.682) | 0.005 |
| Do you think COVID-19 vaccination is helpful to control the pandemic | | | | | | |
| Yes, large or very large | 566 (86.0) | 146 (59.6) | Ref | | Ref | |
| May be helpful | 19 (2.9) | 28 (11.4) | 0.175(0.095-0.322) | <0.001 | 0.437(0.209-0.914) | 0.028 |
| No, little or very little | 5 (0.8) | 4 (1.6) | 0.322(0.086-1.216) | 0.095 | 1.851(0.304-11.282) | 0.504 |
| Unknown | 68 (10.3) | 67 (27.3) | 0.262(0.178-0.384) | <0.001 | 0.936(0.532-1.647) | 0.818 |
| Do you think COVID-19 vaccination is safety? | | | | | | |
| Yes, large or very large | 562 (85.4) | 129 (52.7) | Ref | | Ref | |
| No, little or very little | 5 (0.8) | 15 (6.1) | 0.077(0.027-0.214) | <0.001 | 0.082(0.024-0.282) | <0.001 |
| Unknown | 91 (13.8) | 101 (41.2) | 0.207(0.147-0.291) | <0.001 | 0.381(0.233-0.624) | <0.001 |
| Which type of COVID-19 vaccine is better? | | | | | | |
| Domestic vaccine | 492 (74.8) | 110 (44.9) | Ref | | Ref | |

| | | | | | | |
|---|------------|------------|--------------------|--------|--------------------|--------|
| Foreign/Imported vaccine | 21 (3.2) | 11 (4.5) | 0.427(0.200-0.911) | 0.028 | 0.644(0.270-1.537) | 0.322 |
| No difference | 34 (5.2) | 17 (6.9) | 0.447(0.241-0.829) | 0.011 | 0.669(0.322-1.389) | 0.281 |
| Unknown | 111 (16.9) | 107 (43.7) | 0.232(0.166-0.325) | <0.001 | 0.487(0.305-0.776) | 0.002 |
| Is COVID-19 vaccination effective for HIV/AIDS patients? | | | | | | |
| Yes | 181 (27.5) | 40 (16.3) | Ref | | Ref | |
| No | 6 (0.9) | 16 (6.5) | 0.083(0.031-0.225) | <0.001 | 0.093(0.030-0.287) | <0.001 |
| No difference | 78 (11.9) | 21 (8.6) | 0.821(0.454-1.482) | 0.513 | 0.851(0.427-1.697) | 0.647 |
| Unknown | 393 (59.7) | 168 (68.6) | 0.517(0.351-0.761) | 0.001 | 0.785(0.486-1.268) | 0.322 |