

Additional file 2.

The mean knowledge, attitude, and practice scores of university students regarding COVID-19

| No. | Characteristics | | Number | Knowledge | | Attitude | | Practice | |
|-----|--------------------|--------------|--------|--------------|---------|--------------|---------|--------------|---------|
| | | | | Mean (SD) | p-value | Mean (SD) | p-value | Mean (SD) | p-value |
| 1 | Sex | Male | 312 | 17.01 (4.55) | <0.0001 | 42.79 (4.39) | <0.0001 | 8.77 (1.97) | <0.0001 |
| | | Female | 713 | 18.67 (4.44) | | 44.79 (3.79) | | 9.36 (1.84) | |
| 2 | Age | 18 | 245 | 17.06 (4.59) | <0.0001 | 43.93 (3.98) | 0.00187 | 8.67 (1.86) | <0.0001 |
| | | 19 | 366 | 17.31 (4.00) | | 43.91 (3.91) | | 8.94 (1.91) | |
| | | 20 | 189 | 18.46 (4.66) | | 43.79 (4.03) | | 9.35 (1.75) | |
| | | 21 | 70 | 19.47 (4.59) | | 44.66 (4.15) | | 9.76 (1.83) | |
| | | 22 and above | 155 | 20.97 (4.12) | | 45.46 (4.47) | | 10.11 (1.73) | |
| 3 | Year of study | First | 570 | 17.21 (4.33) | <0.0001 | 43.85 (4.00) | 0.00145 | 8.82 (1.90) | <0.0001 |
| | | Second | 242 | 18.29 (4.45) | | 43.99 (3.88) | | 9.22 (1.80) | |
| | | Third | 83 | 20.52 (3.92) | | 45.48 (4.15) | | 10.13 (1.57) | |
| | | Fourth | 71 | 20.56 (4.77) | | 45.42 (4.59) | | 10.27 (1.67) | |
| | | Fifth | 59 | 20.63 (4.25) | | 44.88 (4.39) | | 9.86 (1.87) | |
| 4 | Major | Medical | 494 | 19.97 (3.99) | <0.0001 | 45.10 (3.94) | <0.0001 | 9.72 (1.78) | <0.0001 |
| | | Non-medical | 531 | 16.48 (4.37) | | 43.33 (4.03) | | 8.68 (1.87) | |
| 5 | Place of residence | Urban | 408 | 18.75 (4.64) | <0.0001 | 44.37 (4.27) | 0.1847 | 9.36 (1.86) | 0.01554 |
| | | Rural | 617 | 17.78 (4.43) | | 44.06 (3.96) | | 9.07 (1.92) | |

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|-----|--|--|--------|--------------|---------|--------------|---------|-------------|---------|
| | | | | Mean (SD) | p-value | Mean (SD) | p-value | Mean (SD) | p-value |
| 6 | Province (home location) | Hanoi | 305 | 17.83 (4.96) | 0.2521 | 43.95 (4.17) | 0.2422 | 9.18 (1.87) | 0.4315 |
| | | Namdinh | 90 | 18.42 (4.51) | | 44.51 (4.02) | | 9.62 (1.64) | |
| | | Thanhhoa | 65 | 17.74 (4.93) | | 43.49 (3.73) | | 8.97 (1.57) | |
| | | Haiduong | 59 | 18.53 (4.09) | | 44.47 (4.26) | | 8.88 (2.27) | |
| | | Thaibinh | 55 | 18.00 (4.23) | | 44.95 (4.09) | | 9.18 (2.06) | |
| | | Bacninh | 53 | 17.19 (4.50) | | 43.42 (4.18) | | 8.87 (2.17) | |
| | | Hungyen | 38 | 18.34 (3.69) | | 43.79 (3.65) | | 9.21 (1.79) | |
| | | Bacgiang | 37 | 17.86 (3.71) | | 43.95 (3.99) | | 9.49 (1.54) | |
| | | Haiphong | 34 | 17.76 (4.54) | | 43.82 (4.55) | | 9.09 (1.88) | |
| | | Others | 289 | 18.73 (4.31) | | 44.54 (4.03) | | 9.19 (1.95) | |
| 7 | The people living with the student | Alone | 69 | 17.65 (5.97) | <0.0001 | 43.71 (4.36) | 0.00881 | 8.97 (2.10) | <0.0001 |
| | | Friends | 509 | 17.53 (4.37) | | 43.89 (4.09) | | 8.93 (1.84) | |
| | | Family (such as parents, siblings...) | 447 | 18.96 (4.35) | | 44.58 (4.01) | | 9.51 (1.88) | |
| 8 | Number of doses of COVID-19 vaccines given | No or 1 | 10 | 16.80 (5.71) | 0.433 | 45.90 (4.15) | 0.6368 | 8.70 (2.79) | 0.1178 |
| | | 2 | 214 | 18.02 (4.45) | | 44.22 (4.30) | | 9.04 (1.87) | |
| | | 3 | 784 | 18.21 (4.55) | | 44.15 (4.00) | | 9.25 (1.88) | |
| | | >3 | 17 | 18.47 (4.67) | | 43.94 (5.38) | | 8.35 (2.34) | |

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| | | | | Mean (SD) | p-value | Mean (SD) | p-value | Mean (SD) | p-value | |
| 9 | Infected with COVID-19 | Yes | 616 | 18.16 (4.48) | 0.9818 | 44.16 (4.11) | 0.5475 | 9.12 (1.89) | 0.1239 | |
| | | No/don't know | 409 | 18.17 (4.62) | | 44.22 (4.05) | | 9.28 (1.91) | | |
| 10 | Participated in COVID-19 volunteer activities in health facilities | Already | 192 | 18.35 (4.61) | 0.3788 | 44.03 (4.11) | 0.4308 | 9.34 (1.82) | 0.2964 | |
| | | Never | 833 | 18.12 (4.52) | | 44.22 (4.08) | | 9.15 (1.91) | | |
| 11 | Sources for seeking COVID-19 information | Social networks (Facebook, Zalo apps...), online newspapers | Yes | 898 | 18.21 (4.47) | 0.6265 | 44.19 (4.03) | 0.9286 | 9.15 (1.90) | 0.1269 |
| | | | No | 127 | 17.85 (5.00) | | 44.12 (4.46) | | 9.42 (1.83) | |
| | | Friends, family members | Yes | 559 | 18.47 (4.32) | 0.03404 | 44.47 (3.85) | 0.01078 | 9.22 (1.85) | 0.5345 |
| | | | No | 466 | 17.79 (4.76) | | 43.83 (4.33) | | 9.14 (1.96) | |
| | | Mass media (national news, radio, television) | Yes | 675 | 18.55 (4.37) | 0.00031 | 44.58 (3.87) | <0.0001 | 9.23 (1.90) | 0.2418 |
| | | | No | 350 | 17.42 (4.76) | | 43.42 (4.38) | | 9.09 (1.89) | |
| | | Websites of the World Health Organization, the Ministry of Health, and scientific articles | Yes | 584 | 18.74 (4.42) | <0.0001 | 44.78 (3.85) | <0.0001 | 9.39 (1.89) | <0.0001 |
| | | | No | 441 | 17.39 (4.58) | | 43.39 (4.25) | | 8.91 (1.87) | |