**Prevalence and Correlates of Suicidal Ideation Among the General Population in China During the COVID-19 Pandemic**

Suicidal ideation during the COVID-19 outbreak in China

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**Supplementary Results**

Due to space constraints for the main manuscript, we present additional results here.

**Supplementary Table 1. Demographic characteristics of participants.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | The severity of suicidal ideation | | | | *p* |
| No | Seldom | Often | Always |
| Overall, n(%) | 47,357(83.6) | 6,206(10.9) | 2,320(4.1) | 796(1.4) |  |
| Categorical variables, n(%) |  |  |  |  |  |
| Gender, n(%) |  |  |  |  | <0.001 |
| Male | 21,954(46.4) | 3,418(55.1) | 1,364(58.8) | 413(51.9) |  |
| Female | 25,403(53.6) | 2788(44.9) | 956(41.2) | 383(48.1) |  |
| Age (years), n(%) |  |  |  |  | <0.001 |
| 18-24 | 2,461(5.2) | 495(8.0) | 225(9.7) | 86(10.8) |  |
| 25-34 | 18,747(39.6) | 2,877(46.4) | 1,063(45.8) | 363(45.6) |  |
| 35-44 | 18,477(39.0) | 2,125(34.2) | 788(34.0) | 268(33.7) |  |
| ≥45 | 7,672(16.2) | 709(11.4) | 244(10.5) | 79(9.9) |  |
| Living area, n(%) |  |  |  |  | <0.001 |
| Urban | 44,277(93.5) | 5,722(92.2) | 2,131(91.9) | 709(89.1) |  |
| Rural | 3,080(6.5) | 484(7.8) | 189(8.1) | 87(10.9) |  |
| Geographical region in China, n(%) |  |  |  |  | <0.001 |
| Eastern | 19,441(41.1) | 2,495(40.2) | 947(40.9) | 289(36.4) |  |
| Northern | 8,622(18.2) | 1,088(17.5) | 376(16.2) | 141(17.8) |  |
| Northwest | 1,092(2.3) | 168(2.7) | 64(2.8) | 24(3.0) |  |
| Northeast | 3,234(6.8) | 473(7.6) | 152(6.6) | 62(7.8) |  |
| Central | 3,945(8.3) | 527(8.5) | 243(10.5) | 88(11.1) |  |
| Southern | 8,390(17.7) | 1,094(17.6) | 396(17.1) | 148(18.6) |  |
| Southwest | 2,619(5.5) | 357(5.8) | 138(6.0) | 42(5.3) |  |
| Marital status, n(%) |  |  |  |  | <0.001 |
| Married | 36,964(78.1) | 4,591(74.0) | 1,646(70.9) | 562(70.6) |  |
| Separated/divorced | 1,076(2.3) | 121(1.9) | 55(2.4) | 18(2.3) |  |
| Never married | 9,317(19.7) | 1,494(24.1) | 619(26.7) | 216(27.1) |  |
| Educational level, n(%) |  |  |  |  | <0.001 |
| Middle school and lower | 7,761(16.4) | 1,084(17.5) | 465(20.0) | 230(28.9) |  |
| College and higher | 39,596(83.6) | 5,122(82.5) | 1,855(80.0) | 566(71.1) |  |
| Monthly family income (¥), n(%) |  |  |  |  | <0.001 |
| <5,000 | 10,264(21.7) | 1,752(28.2) | 695(30.0) | 305(38.3) |  |
| 5,000-7,999 | 11,230(23.7) | 1,604(25.8) | 627(27.0) | 202(25.4) |  |
| 8,000-11,999 | 10,851(22.9) | 1,371(22.1) | 471(20.3) | 136(17.1) |  |
| ≥12,000 | 15,012(31.7) | 1,479(23.8) | 527(22.7) | 153(19.2) |  |
| History of mental disorders, n(%) |  |  |  |  | <0.001 |
| No | 47,040(99.3) | 6,080(98.0) | 2,256(97.2) | 761(95.6) |  |
| Unknown | 223(0.5) | 91(1.5) | 43(1.9) | 24(3.0) |  |
| Yes | 94(0.2) | 32(0.6) | 21(0.9) | 11(1.4) |  |
| Family history of mental disorders, n(%) |  |  |  |  | <0.001 |
| No | 46,628(98.5) | 6,040(97.3) | 2,245(96.8) | 762(95.7) |  |
| Unknown | 410(0.9) | 124(2.0) | 49(2.1) | 25(3.1) |  |
| Yes | 319(0.7) | 42(0.7) | 26(1.1) | 9(1.1) |  |
| History of sleep problems, n(%) |  |  |  |  | <0.001 |
| No | 34,825(73.5) | 3,937(63.4) | 1,456(62.8) | 480(60.3) |  |
| Yes | 12,532(26.5) | 2,269(36.6) | 864(37.2) | 316(39.7) |  |
| Have you suspected or confirmed been infected during the COVID-19 pandemic? n(%) | | | | | <0.001 |
| No | 47,320(99.9) | 6,168(99.4) | 2,298(99.1) | 793(99.6) |  |
| Yes | 37(0.1) | 38(0.6) | 22(0.9) | 3(0.4) |  |
| Have you been to the most severely COVID-19 affected region recently? n(%) | | | | | <0.001 |
| No | 45,274(95.6) | 5,886(94.8) | 2,125(91.6) | 697(87.6) |  |
| Yes, I remain at the region | 1,821(3.8) | 281(4.5) | 170(7.3) | 80(10.1) |  |
| Yes, I have left the region | 262(0.6) | 39(0.6) | 25(1.1) | 19(2.4) |  |
| Have you experienced quarantine during the COVID-19 pandemic? n(%) | | | | | <0.001 |
| No | 34,105(72.0) | 4,149(66.9) | 1,478(63.7) | 493(61.9) |  |
| Yes, quarantine duration <14 days | 1,668(3.5) | 349(5.6) | 142(6.1) | 40(5.0) |  |
| Yes, quarantine duration ≥14 days | 11,584(24.5) | 1,708(27.5) | 700(30.2) | 263(33.0) |  |
| Have you experienced the COVID-19 induced unemployment? N(%) | | | | | <0.001 |
| No | 45,933(97.0) | 5,828(93.9) | 2,155(92.9) | 673(84.5) |  |
| Yes | 1,424(3.0) | 378(6.1) | 165(7.1) | 123(15.5) |  |
| Did you participate in frontline work? n(%) | | | | | <0.001 |
| No | 39,495(83.4) | 5,022(80.9) | 1,838(79.2) | 599(75.3) |  |
| Yes | 7,862(16.6) | 1,184(19.1) | 482(20.8) | 197(24.7) |  |
| Have you got more access to psychological knowledge after the COVID-19 pandemic? n(%) | | | | | <0.001 |
| No | 37,822(79.9) | 5,145(82.9) | 1,966(84.7) | 680(85.4) |  |
| Yes | 9,535(20.1) | 1,061(17.1) | 354(15.3) | 116(14.6) |  |
| Continuous variables |  |  |  |  |  |
| The rating of perceived psychological stress after the COVID-19 pandemic [mean (SD)] | 4.06(2.68) | 5.17(2.39) | 5.33(2.52) | 6.32(3.28) | <0.001 |
| The degree of attention to the related information about the COVID-19 pandemic [mean (SD)] | 9.29(1.54) | 8.85(2.03) | 8.74(2.19) | 9.05(2.28) | <0.001 |
| The mastery degree of perceived knowledge of COVID-19 [mean (SD)] | 8.19(1.80) | 7.72(2.10) | 7.63(2.22) | 8.17(2.53) | <0.001 |
| The difficulty in getting access to the information about psychological interventions after the COVID-19 pandemic [mean (SD)] | 3.02(2.46) | 4.34(2.30) | 4.72(2.40) | 5.10(3.29) | <0.001 |

COVID-19, coronavirus disease 2019. SD, standard deviation. The severity of suicidal ideation: Seldom, several days over the last two weeks. Often, more than half the days over the last two weeks. Always, nearly every day over the last two weeks.

**Supplementary Table 2. Factors associated with the various severity of suicidal ideation in the ordinal logistic regression analysis.**

|  |  |  |
| --- | --- | --- |
| Variables | OR(95%CI) | *p* |
| Gender |  |  |
| Male | 1(ref) |  |
| Female | 0.66(0.63-0.69) | <0.001 |
| Age (years) |  |  |
| 18-24 | 1.94(1.72-2.19) | <0.001 |
| 25-34 | 1.56(1.45-1.70) | <0.001 |
| 35-44 | 1.25(1.15-1.35) | <0.001 |
| ≥45 | 1(ref) |  |
| Living area |  |  |
| Urban | 1(ref) |  |
| Rural | 0.92(0.84-1.01) | 0.077 |
| Geographical region in China |  |  |
| Eastern | 1(ref) |  |
| Northern | 0.94(0.88-1.01) | 0.083 |
| Northwest | 0.96(0.83-1.12) | 0.110 |
| Northeast | 1.04(0.95-1.48) | 0.138 |
| Central | 0.77(0.70-0.85) | <0.001 |
| Southern | 0.83(0.78-0.89) | <0.001 |
| Southwest | 0.91(0.82-1.01) | 0.012 |
| Marital status |  |  |
| Married | 1(ref) |  |
| Separated/divorced | 0.99(0.84-1.16) | 0.873 |
| Never married | 0.93(0.88-1.00) | 0.039 |
| Educational level |  |  |
| Middle school and lower | 1(ref) |  |
| College and higher | 0.92(0.86-0.98) | 0.027 |
| Monthly family income (¥) |  |  |
| <5,000 | 1(ref) |  |
| 5,000-7,999 | 0.86(0.80-0.92) | <0.001 |
| 8,000-11,999 | 0.75(0.70-0.80) | <0.001 |
| ≥12,000 | 0.62(0.58-0.67) | <0.001 |
| History of mental disorders |  |  |
| No | 1(ref) |  |
| Unknown | 1.95(1.51-2.52) | <0.001 |
| Yes | 2.17(1.55-3.04) | <0.001 |
| Family history of mental disorders |  |  |
| No | 1(ref) |  |
| Unknown | 1.12(0.90-1.40) | 0.315 |
| Yes | 0.69(0.52-0.91) | 0.009 |
| History of sleep problems |  |  |
| No | 1(ref) |  |
| Yes | 1.43(1.37-1.51) | <0.001 |
| Have you suspected or confirmed been infected during the COVID-19 pandemic? |  |  |
| No | 1(ref) |  |
| Yes | 2.21(1.48-3.29) | <0.001 |
| Have you been to the most severely COVID-19 affected region recently? |  |  |
| No | 1(ref) |  |
| Yes, I remain at the region | 1.53(1.34-1.73) | <0.001 |
| Yes, I have left the region | 1.69(1.30-2.19) | <0.001 |
| Have you ever experienced quarantine during the COVID-19 pandemic? |  |  |
| No | 1(ref) |  |
| Yes, quarantine duration <14 days | 1.35(1.21-1.50) | <0.001 |
| Yes, quarantine duration ≥14 days | 1.11(1.05-1.17) | <0.001 |
| Have you experienced the COVID-19 induced unemployment? |  |  |
| No | 1(ref) |  |
| Yes | 1.82(1.64-2.01) | <0.001 |
| Did you participate in frontline work? |  |  |
| No | 1(ref) |  |
| Yes | 1.22(1.15-1.30) | <0.001 |
| Have you got more access to psychological knowledge after the COVID-19 pandemic? |  |  |
| No | 1(ref) |  |
| Yes | 0.73(0.69-0.78) | <0.001 |
| The rating of perceived psychological stress after the COVID-19 pandemic | 1.13(1.12-1.14) | <0.001 |
| The degree of attention to the related information about COVID-19 pandemic | 0.88(0.87-0.89) | <0.001 |
| The mastery degree of perceived knowledge of COVID-19 | 0.96(0.95-0.97) | <0.001 |
| The difficulty in getting access to the information about psychological interventions after the COVID-19 pandemic | 1.19(1.18-1.20) | <0.001 |
| Nagelkerke R2 | 0.134 | |

**Supplementary Table 3. Factors that were associated with suicidal ideation among different groups of changes in psychological stress after the COVID-19 pandemic.**

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | Changes in psychological stress after the COVID-19 pandemic | | |
| Increased | No change | Decreased |
| Gender |  |  |  |
| Male | 1(ref) | 1(ref) | 1(ref) |
| Female | 0.68(0.63-0.74)\*\*\* | 0.70(0.64-0.76)\*\*\* | 0.59(0.54-0.65)\*\*\* |
| Age (years) |  |  |  |
| 18-24 | 1.84(1.52-2.24)\*\*\* | 1.97(1.58-2.44)\*\*\* | 2.02(1.59-2.57)\*\*\* |
| 25-34 | 1.63(1.43-1.85)\*\*\* | 1.59(1.38-1.83)\*\*\* | 1.43(1.22-1.67)\*\*\* |
| 35-44 | 1.31(1.15-1.48)\*\*\* | 1.32(1.16-1.52)\*\*\* | 1.05(0.90-1.22) |
| ≥45 | 1(ref) | 1(ref) | 1(ref) |
| Living area |  |  |  |
| Urban | 1(ref) | 1(ref) | 1(ref) |
| Rural | 0.98(0.85-1.13) | 0.92(0.78-1.07) | 0.90(0.75-1.08) |
| Geographical region in China |  |  |  |
| Eastern | 1(ref) | 1(ref) | 1(ref) |
| Northern | 0.91(0.82-1.01) | 1.00(0.89-1.12) | 0.98(0.86-1.13) |
| Northwest | 0.89(0.70-1.13) | 1.03(0.88-1.21) | 1.08(0.81-1.44) |
| Northeast | 1.09(0.94-1.28) | 0.96(0.74-1.25) | 1.07(0.89-1.30) |
| Central | 0.79(0.67-0.93)\*\* | 0.82(0.68-0.99)\* | 0.73(0.59-0.89)\*\* |
| Southern | 0.85(0.76-0.94)\*\* | 0.91(0.81-1.02) | 0.77(0.67-0.89)\*\*\* |
| Southwest | 0.86(0.73-1.02) | 1.00(0.83-1.19) | 0.90(0.72-1.11) |
| Marital status |  |  |  |
| Married | 1(ref) | 1(ref) | 1(ref) |
| Separated/divorced | 1.09(0.84-1.40) | 1.04(0.79-1.37) | 0.72(0.50-1.03) |
| Never married | 1.01(0.91-1.11) | 0.94(0.84-1.05) | 0.77(0.68-0.89)\*\*\* |
| Educational level |  |  |  |
| Middle school and lower | 1(ref) | 1(ref) | 1(ref) |
| College and higher | 0.96(0.86-1.07) | 0.89(0.79-0.99)\* | 1.03(0.90-1.17) |
| Monthly family income (¥) |  |  |  |
| <5,000 | 1(ref) | 1(ref) | 1(ref) |
| 5,000-7,999 | 0.81(0.73-0.90)\*\*\* | 0.95(0.85-1.06) | 0.86(0.75-0.98)\* |
| 8,000-11,999 | 0.77(0.69-0.86)\*\*\* | 0.81(0.72-0.91)\*\* | 0.74(0.64-0.85)\*\*\* |
| ≥12,000 | 0.63(0.56-0.70)\*\*\* | 0.65(0.57-0.73)\*\*\* | 0.65(0.57-0.75)\*\*\* |
| History of mental disorders |  |  |  |
| No | 1(ref) | 1(ref) | 1(ref) |
| Unknown | 2.25(1.48-3.42)\*\*\* | 1.45(0.91-2.29) | 2.32(1.31-4.11)\*\* |
| Yes | 2.53(1.36-4.73)\*\* | 1.63(0.91-2.92) | 2.51(1.19-5.29)\* |
| Family history of mental disorders |  |  |  |
| No | 1(ref) | 1(ref) | 1(ref) |
| Unknown | 1.33(0.95-1.86) | 1.45(0.91-2.29) | 1.06(0.63-1.79) |
| Yes | 0.66(0.42-1.03) | 1.63(0.91-2.92) | 0.64(0.35-1.18) |
| History of sleep problems |  |  |  |
| No | 1(ref) | 1(ref) | 1(ref) |
| Yes | 1.44(1.34-1.56)\*\*\* | 1.77(1.63-1.93)\*\*\* | 1.37(1.24-1.51)\*\*\* |
| Have you suspected or confirmed been infected during the COVID-19 pandemic? |  |  |  |
| No | 1(ref) | 1(ref) | 1(ref) |
| Yes | 4.82(2.05-11.32)\*\*\* | 4.22(1.97-9.02)\*\*\* | 2.03(0.85-4.84) |
| Have you been to the most severely COVID-19 affected region recently? |  |  |  |
| No | 1(ref) | 1(ref) | 1(ref) |
| Yes, I remain at the region | 1.34(1.09-1.66)\*\* | 1.55(1.23-1.94)\*\*\* | 1.83(1.42-2.36)\*\*\* |
| Yes, I have left the region | 1.60(1.06-2.42)\* | 1.29(0.73-2.27) | 1.56(0.97-2.50) |
| Have you ever experienced quarantine during the COVID-19 pandemic? |  |  |  |
| No | 1(ref) | 1(ref) | 1(ref) |
| Yes, quarantine duration <14 days | 1.35(1.14-1.60)\*\* | 1.46(1.21-1.77)\*\*\* | 1.42(1.15-1.77)\*\*\* |
| Yes, quarantine duration ≥14 days | 1.12(1.03-1.22)\* | 1.13(1.03-1.24)\*\* | 1.11(1.00-1.24)\* |
| Have you experienced the COVID-19 induced unemployment? |  |  |  |
| No | 1(ref) | 1(ref) | 1(ref) |
| Yes | 2.12(1.80-2.49)\*\*\* | 1.66(1.39-1.98)\*\*\* | 1.64(1.33-2.03)\*\*\* |
| Did you participate in frontline work? |  |  |  |
| No | 1(ref) | 1(ref) | 1(ref) |
| Yes | 1.21(1.10-1.33)\*\*\* | 1.21(1.09-1.34)\*\*\* | 1.22(1.08-1.37)\*\* |
| Have you got more access to psychological knowledge after the COVID-19 pandemic? |  |  |  |
| No | 1(ref) | 1(ref) | 1(ref) |
| Yes | 0.79(0.72-0.86)\*\*\* | 0.91(0.81-1.02) | 0.78(0.68-90)\*\* |
| The degree of attention to the related information about COVID-19 pandemic | 0.88(0.86-0.90)\*\*\* | 0.90(0.88-0.92)\*\*\* | 0.90(0.87-0.93)\*\*\* |
| The mastery degree of perceived knowledge of COVID-19 | 0.96(0.93-0.98)\*\*\* | 0.97(0.94-0.99)\*\* | 0.95(0.92-0.97)\*\*\* |
| The difficulty in getting access to the information about psychological interventions after the COVID-19 pandemic | 1.19(1.18-1.21)\*\*\* | 1.30(1.28-1.32)\*\*\* | 1.31(1.28-1.34)\*\*\* |
| Nagelkerke R2 | 0.109 | 0.170 | 0.166 |

\**p*<0.05, \*\**p*<0.01, \*\*\**p*<0.001