



CPS Paper

**Predictors of depression and anxiety among urban adults during COVID-19: An online cross-sectional study in Dhaka city, Bangladesh**

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**Brief Description**

Application of statistics in Health Science

**Abstract**

The growing urbanization creates many health related problem originating from the urban social or physical environment, contributing to increased anxiety and depression level. The objective of this study was to investigate the prevalence of depression and anxiety symptoms among urban adults in Bangladesh, and their socio-demographic predictors. An online cross-sectional survey was conducted during March-May 2021 among the adults living in Dhaka city, Bangladesh, using a standard questionnaire designed using Google Forms and sent via a unique uniform resource locator (URL). Symptoms of mental health issues were measured using the shorter version of the Depression Anxiety Stress Scale 21 (DASS-21). The survey covered 993 respondents. Both descriptive and inferential statistical techniques were used for data analysis. The results indicate that about 40% of the urban adults had moderate-severe anxiety symptoms, while about 46% had depression symptoms. The higher level of education, women, students, birth place and asset quintiles were found to be significantly associated with increased anxiety and depression among the urban adults. The findings stressed on the need for developing effective mental health services and educational programs for the urban people to meet their mental health needs and its prevention mechanism. Population-specific mental health interventions are urgently needed to meet demand during such outbreak.

**Figures/Tables**

Table 1

**Table 1:** Distribution of the respondents according to demographic and socio-economic characteristics

| Demographic Characteristics                        |                      | n           | %    |
|--|----------------------|-------------|------|
| Age in years                                       | <30                  | 673         | 67.8 |
|  | 30-45                | 260         | 26.2 |
|  | >=46                 | 60          | 6.0  |
| Gender   | Male                 | 494         | 49.7 |
|  | Female               | 499         | 50.3 |
| Level of education                                 | Up to Secondary      | 108         | 10.9 |
|  | Higher Secondary     | 235         | 23.7 |
|  | Graduate or above    | 650         | 65.5 |
| Occupation   | Health care provider | 440         | 44.3 |
|  | Service/Business     | 252         | 25.4 |
|  | Student              | 214         | 21.6 |
|  | Others               | 87          | 8.8  |
| Monthly family income in BDT                       | Up to 15,000         | 210         | 21.1 |
|  | 16,000-30,000        | 354         | 35.6 |
|  | 31,000-50,000        | 271         | 27.3 |
|  | 51,000 or above      | 158         | 15.9 |
| Mean, Median                                       |                      | 40545.30000 |      |
| Socio-economic standard                            | Low                  | 200         | 20.1 |
|  | Middle               | 587         | 59.1 |
|  | High                 | 206         | 20.7 |
| Place of birth                                     | Urban                | 817         | 82.3 |
|  | Rural                | 176         | 17.7 |
| Self/family member/relative suffered from COVID 19 | No                   | 623         | 62.7 |
|  | Yes                  | 370         | 37.3 |

Table 2

**Table 2:** Descriptive statistics of Anxiety and Depression among respondents

| Variables        |          | n=993 | %    |
|------------------|----------|-------|------|
| Anxiety level    |          |       |      |
|                  | None     | 256   | 25.8 |
|                  | Mild     | 344   | 34.6 |
|                  | Moderate | 305   | 30.7 |
|                  | Severe   | 88    | 8.9  |
| Depression level |          |       |      |
|                  | None     | 223   | 22.5 |
|                  | Mild     | 318   | 32.0 |
|                  | Moderate | 254   | 25.6 |
|                  | Severe   | 198   | 19.9 |

Table 3

**Table 3:** Bivariate analysis of moderate-severe level of anxiety according to socio-demographic characteristics.

| Background variable                              |                   | Moderate-severe level anxiety |                 | p-value |
|--|-------------------|-------------------------------|-----------------|---------|
|  |                   | Yes <u>n</u> (%)              | No <u>n</u> (%) |         |
| Age in years                                     | <30               | 295 (43.8)                    | 378 (56.2)      | 0.000   |
|  | 30-45             | 71 (27.3)                     | 189 (72.7)      |         |
|  | >=46              | 27 (45.0)                     | 33 (55.0)       |         |
| Gender   | Male              | 180 (36.4)                    | 314 (63.6)      | 0.044   |
|  | Female            | 213 (42.7)                    | 286 (57.3)      |         |
| Level of education                               | Up to Secondary   | 28 (25.9)                     | 80 (74.1)       | 0.000   |
|  | Higher Secondary  | 72 (30.6)                     | 163 (69.4)      |         |
|  | Graduate or above | 293 (45.1)                    | 357 (54.9)      |         |
| Occupation                                       | Health worker     | 188 (42.7)                    | 252 (57.3)      | 0.014   |
|  | Service/Business  | 80 (31.7)                     | 172 (68.3)      |         |
|  | Student           | 94 (43.9)                     | 120 (56.1)      |         |
|  | Others            | 31 (35.6)                     | 56 (64.4)       |         |
| Monthly family income in BDT                     | Up to 15,000      | 87 (41.4)                     | 123 (58.6)      | 0.609   |
|  | 16,000-30,000     | 146 (41.2)                    | 208 (58.8)      |         |
|  | 31,000-50,000     | 99 (36.5)                     | 172 (63.5)      |         |
|  | 51,000 or above   | 61 (38.6)                     | 97 (61.4)       |         |
| Self/family member/relative infected by COVID-19 | No                | 249 (40.0)                    | 374 (60.0)      | 0.744   |
|  | Yes               | 144 (38.9)                    | 226 (61.1)      |         |
| Wealth quintile                                  | Poorest           | 75 (37.5)                     | 125 (62.5)      | 0.009   |
|  | Poorer            | 69 (35.0)                     | 128 (65.0)      |         |
|  | Middle            | 74 (33.6)                     | 146 (66.4)      |         |
|  | Richer            | 83 (48.8)                     | 87 (51.2)       |         |
|  | Richest           | 92 (44.7)                     | 114 (55.3)      |         |

Table 4

**Table 4:** Bivariate analysis of moderate-sever level of depression according to socio-demographic characteristics.

| Background variable                              |                   | Moderate-severe level depression |                 | p-value |
|--|-------------------|----------------------------------|-----------------|---------|
|  |                   | Yes <i>n</i> (%)                 | No <i>n</i> (%) |         |
| Age in years                                     | <30               | 327 (51.4)                       | 346 (48.6)      | 0.000   |
|  | 30-45             | 179 (31.2)                       | 81 (68.8)       |         |
|  | >=46              | 35 (41.7)                        | 25 (58.3)       |         |
| Gender   | Male              | 287 (41.9)                       | 207 (58.1)      | 0.023   |
|  | Female            | 254 (49.1)                       | 245 (50.9)      |         |
| Level of education                               | Up to Secondary   | 73 (32.4)                        | 35 (67.6)       | 0.000   |
|  | Higher Secondary  | 145 (38.3)                       | 90 (61.7)       |         |
|  | Graduate or above | 323 (50.3)                       | 327 (49.7)      |         |
| Occupation                                       | Health worker     | 246 (44.1)                       | 194 (55.9)      | 0.000   |
|  | Service/Business  | 155 (38.5)                       | 97 (61.5)       |         |
|  | Student           | 86 (59.8)                        | 128 (40.2)      |         |
|  | Others            | 54 (37.9)                        | 33 (62.1)       |         |
| Monthly family income in BDT                     | Up to 15,000      | 112 (46.7)                       | 98 (53.3)       | 0.671   |
|  | 16,000-30,000     | 186 (47.5)                       | 168 (52.5)      |         |
|  | 31,000-50,000     | 155 (42.8)                       | 116 (57.2)      |         |
|  | 51,000 or above   | 88 (44.3)                        | 70 (55.7)       |         |
| Self/family member/relative infected by COVID-19 | No                | 328 (47.4)                       | 295 (52.6)      | 0.132   |
|  | Yes               | 213 (42.4)                       | 157 (57.6)      |         |
| Wealth Quintile                                  | Poorest           | 119 (40.5)                       | 81 (59.5)       | 0.019   |
|  | Poorer            | 119 (39.6)                       | 78 (60.4)       |         |
|  | Middle            | 122 (44.5)                       | 98 (55.5)       |         |
|  | Richer            | 86 (49.4)                        | 84 (50.6)       |         |
|  | Richest           | 95 (53.9)                        | 111 (46.1)      |         |

Table 5

**Table 5:** Multiple logistic regression analysis of anxiety

| Independent variable                                    | Coefficient | P-value | AOR** | 95% C.I. for AOR |       |
|---|-------------|---------|-------|------------------|-------|
|   |             |         |       | Lower            | Upper |
| <b>Level of education</b>                               |             |         |       |                  |       |
| Up to Secondary   | Reference   |         | 1.000 |                  |       |
| Higher Secondary  | 0.089       | 0.758   | 1.093 | 0.621            | 1.924 |
| Graduate or above                                       | 0.748       | 0.005   | 2.114 | 1.256            | 3.556 |
| <b>Occupation</b>                                       |             |         |       |                  |       |
| Service/Business  | Reference   |         | 1.000 |                  |       |
| Health Worker   | 0.205       | 0.312   | 1.228 | 0.825            | 1.828 |
| Student   | 0.339       | 0.147   | 1.404 | 0.888            | 2.219 |
| Others  | 0.234       | 0.401   | 1.264 | 0.732            | 2.181 |
| <b>Self/family member/relative infected by COVID 19</b> |             |         |       |                  |       |
| Yes   | Reference   |         | 1.000 |                  |       |
| No  | 0.019       | 0.898   | 1.019 | 0.761            | 1.365 |
| <b>Gender</b>   |             |         |       |                  |       |
| Male  | Reference   |         | 1.000 |                  |       |
| Female  | 0.228       | 0.121   | 1.256 | 0.941            | 1.675 |
| <b>Place of birth</b>                                   |             |         |       |                  |       |
| Urban   | Reference   |         |       |                  |       |
| Rural   | 0.546       | 0.002   | 1.726 | 1.216            | 2.448 |
| <b>Wealth quintiles</b>                                 |             |         |       |                  |       |
| Poorest   | Reference   |         | 1.000 |                  |       |
| Poorer  | -0.188      | 0.386   | 0.829 | 0.543            | 1.267 |
| Middle  | -0.157      | 0.453   | 0.854 | 0.566            | 1.288 |
| Richer  | 0.441       | 0.044   | 1.554 | 1.013            | 2.384 |
| Richest   | 0.333       | 0.113   | 1.395 | 0.924            | 2.106 |
| <b>Age in Years</b>                                     | .002        | 0.851   | 1.002 | 0.984            | 1.019 |
| <b>Monthly family income</b>                            | .000        | 0.633   | 1.00  | 0.912            | 1.010 |
| Constant  | -1.467      | 0.002   | 0.231 |                  |       |

Table 6

**Table 6:** Multiple logistic regression analysis of depression

| Independent variable                                    | Coefficient | p-value | OR    | 95% C.I. for EXP(B) |       |
|---|-------------|---------|-------|---------------------|-------|
|   |             |         |       | Lower               | Upper |
| <b>Level of education</b>                               |             |         |       |                     |       |
| Up to secondary   | Reference   |         | 1.000 |                     |       |
| Higher Secondary  | 0.056       | 0.838   | 1.058 | 0.619               | 1.808 |
| Graduate or above                                       | 0.652       | 0.010   | 1.919 | 1.172               | 3.143 |
| <b>Occupation</b>                                       |             |         |       |                     |       |
| Service/Business  | Reference   |         | 1.000 |                     |       |
| Health Worker   | -0.087      | 0.661   | 0.917 | 0.620               | 1.354 |
| Student   | 0.602       | 0.009   | 1.826 | 1.165               | 2.862 |
| Others  | -0.014      | 0.960   | 0.986 | 0.578               | 1.683 |
| <b>Self/family member/relative infected by COVID 19</b> |             |         |       |                     |       |
| Yes   | Reference   |         | 1.000 |                     |       |
| No  | 0.089       | 0.545   | 1.093 | 0.819               | 1.460 |
| <b>Gender</b>   |             |         |       |                     |       |
| Male  | Reference   |         | 1.000 |                     |       |
| Female  | 0.318       | 0.029   | 1.375 | 1.033               | 1.830 |
| <b>Place of birth</b>                                   |             |         |       |                     |       |
| Urban   | Reference   |         | 1.000 |                     |       |
| Rural   | 0.401       | 0.026   | 1.493 | 1.050               | 2.124 |
| <b>Wealth quintiles</b>                                 |             |         |       |                     |       |
| Poorest   | Reference   |         | 1.000 |                     |       |
| Poorer  | -0.070      | 0.743   | 0.932 | 0.613               | 1.418 |
| Middle  | 0.180       | 0.381   | 1.197 | 0.801               | 1.791 |
| Richer  | 0.353       | 0.106   | 1.423 | 0.928               | 2.184 |
| Richest   | 0.622       | 0.003   | 1.862 | 1.233               | 2.813 |
| <b>Age in Years</b>                                     | -0.008      | 0.339   | 0.992 | 0.974               | 1.009 |
| <b>Monthly family income</b>                            | 0.000       | 0.198   | 1.000 | 0.995               | 1.008 |
| Constant  | -0.907      | 0.045   | 0.404 |                     |       |