Current knowledge, attitude, and practice (KAP) towards physical activity (PA) and its impact on obesity management in Bangladesh: A cross-sectional study

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Abstract

Background and Aims: The purpose of this study was to evaluate the Bangladeshi people’s current knowledge, attitude, and practice (KAP) on obesity and physical activity (PA), as well as the associated factors.

Methods: The KAP was evaluated using a standard questionnaire among 429 individuals, of whom 75.5% were men and had a mean age (±SD) of 28.9 ± 7.9 years. Using a mobile-based KoBo toolbox v.25.0 program, information was gathered from respondents who resided in various districts. A Chi-square test and a linear regression test were performed to determine the relationship between the variables, and a one-way analysis of variance (ANOVA) was conducted to determine differences in means.

Results: The study showed that more than 95% of participants had good knowledge level, although the attitude and practice levels were low. Based on ANOVA test, the mean knowledge score was significantly different (p < 0.05) with age, marital status, and education; attitude levels with education and body mass index (BMI); and practice levels with education, residence, marital status, and BMI. Linear regression analysis exhibited: the level of knowledge was associated with age (β = -5.34), BMI (β = 3.67), and attitude (β = 0.46) while the level of attitude was associated with education (β = 2.26), BMI (β = -2.42), knowledge (β = 0.2) and practice levels (β = 0.18); and finally, the level of practice was associated with education (β = -3.29), BMI (β = -4.5) and attitude (β = 0.35).

Conclusion: The increased prevalence of obesity among the Bangladeshi population was indicated by optimal levels of knowledge but inadequate levels of attitude and practice toward PA. So, proper initiatives should be taken to educate people on the importance of regular PA to manage obesity by policymakers and the government.

KEYWORDS
attitude, knowledge, obesity, physical activity, practice
INTRODUCTION

Obesity and overweight pose serious health risks and are associated with an array of chronic illnesses, including as diabetes, heart disease, and cancer.\(^1\) It is estimated that, 38% of the total world population will be suffering from being overweight by 2030.\(^2\) Obesity is a well-established risk factor for noncommunicable diseases (NCDs) like cardiovascular disease (CVD), cancer, diabetes, hypercholesterolemia, asthma, and poor health conditions.\(^3\) In both developed and developing nations, the major cause of mortality and morbidity is CVD.\(^4\) Obesity is a buildup of fat that is abnormal or too much and poses a health risk.\(^1\) When a man gains more than 20% of weight than the ideal body weight, he can be defined as obese.\(^5\) Obesity can be calculated using quetelet’s index or body mass index (BMI). According to World Health Organization (WHO), the category of BMI is different for the global population and for the South Asian population.\(^6\) However, it largely depends on several factors such as age, sex, lifestyle, body composition etc.\(^7\)

Physical activity (PA) could play a significant role in reducing the risk of NCDs, including obesity.\(^7\) It has been found that, the risk of developing chronic disease can be reduced by 50% with the help of PA.\(^8\) However, only 40% of the population is physically active enough to induce health benefits globally. As a result, the occurrence of chronic diseases is rising every day.\(^7\) According to WHO, PA is defined as any physical movement that consumes energy,\(^9\) and it is recommended that, 150–300 min of moderate PA and 75–150 min of vigorous PA per week are required to achieve and maintain excellent health and health benefits for adults.\(^9,10\) There is a strong relationship between PA and in the development of obesity. PA helps to maintain body weight and provides social, physical, mental, and economic benefits.\(^11\)–\(^13\)

Bangladesh is listed to be a low and middle-income country, recently facing the problem of increasing overweight and obesity over the last few years.\(^13\)\(^14\) According to the Bangladesh Demographic and Health Survey (BDHS) 2017–18 report, the prevalence of obesity and overweight among men aged 18 years and over was approximately 18%, and over 32% of ever-married women aged 15–49 years were overweight and obese.\(^15\) The prevalence of overweight and obesity almost doubled among men and women from BDHS 2011 to BDHS 2017–18 reports,\(^15\)\(^16\) just within a few years, and this high prevalence of obesity and overweight also increased the risk of developing NCDs among the Bangladeshi population. However, there are limited studies examining how obesity or being overweight is associated with NCDs in Bangladesh. Human lifestyle and poor physical movement contribute to increasing obesity around the globe, so as in Bangladesh.\(^17\) Therefore, appropriate levels of knowledge, attitude, and practice (KAP) towards regular PA could help manage overweight and obesity. However, socioeconomic and cultural circumstances, preparedness for learning, family support, and care constraints have a significant impact on KAP.\(^18\) There is a lack of appropriate evidence regarding KAP on regular PA and its impact on obesity management among Bangladeshi people. Thus, the purpose of this investigation was to ascertain the level of KAP on PA and its impact on overweight and obesity, as well as the significant factors affecting the KAP regarding this issue among general people.

METHODS

2.1 Study settings and design

A descriptive cross-sectional study among both urban and rural populations of different districts in Bangladesh was carried out from May 2022 to June 2022. The current study’s map is depicted in Figure 1. As the study was observational in nature, STROBE Guideline was followed.\(^19\)

2.2 Inclusion and exclusion criteria

Data were collected from people who were suffering from obesity or were at risk of developing obesity (overweight), agreed to participate in this study, aged more than 16 years, and with no chronic illness (hypertension, diabetes, and others). Information on having any chronic illness was obtained from the existing medical history of the participants via verbal communication. The exclusion criteria were: (a) malnourished or underweight population, (b) aged less than 17 years, and (c) having any other chronic illness.

2.3 Sample size

Information from a total of 429 people was collected from different districts of Bangladesh following a convenient sampling technique. The sample was calculated using Cochrane formulae. \(n = \frac{z^2p(1-p)}{d^2}\) Where, \(z\) is the reliability level at 95%; \(p\) is the population proportion (24.2%),\(^20\) and \(d\) is the acceptable sampling error (0.05). So, the total value of \(n\) is about 282. Adding a 10% nonresponse rate, the total number of \(n\) is about 311. However we collected data from 429 participants.

2.4 Data collection tools

Information from the subjects was gathered using a self-administered, validated questionnaire. The questionnaire was validated using a reliability test (\(\alpha = 0.874\)). Mobile-based KoBo toolbox software was used to collect data. Interviewers from each district collected data from the respondents, all of whom were literate (at least read and write). The questionnaire contained a total of 24 questions, among which “ten questions” were “knowledge-based,” “six questions” were “attitude-based,” and the remaining “eight questions” was “practice-based.” Scoring of each question was based on the Likert scale, a 2-point scale for assessing the level of knowledge and a 3-point scale for assessing both attitude and practice levels.\(^21\) The category of BMI is presented in Table 1.\(^6\)
2.5 | Statistical analysis

SPSS software version 23.0 was used for analyzing the data. Descriptive statistics were done to assess the frequency of data. To assess correlation and association between KAP with demographic variables, Chi-square ($\chi^2$) test and linear regression test were performed. One way analysis of variance was administered to assess mean differences among the variables.22

2.6 | Ethical approval

The research was carried out after gaining approval from the Ethics Board of Noakhali Science and Technology University. Informed consent was taken from all of the participants before the data collection and all the pros and cons of the study were also discussed.

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**FIGURE 1** Map of the survey area (prepared by QGIS v.3.10.2)

**TABLE 1** BMI category for global and South Asian population

| BMI (kg/m²)          | South Asia | Weight status | Range       |
|----------------------|------------|---------------|-------------|
| Global               |            |               | Normal      |
| 25                   | 23         |               | Normal      |
| 25–30                | 23–27.5    | Overweight    |             |
| 30–35                | 27.5–32.5  | Obese class I |             |
| 35–40                | 32.5–37.5  | Obese class II|             |
| Above 40             | Above 37.5 | Obese class III|            |

Abbreviation: BMI, body mass index.
3.1 Education were higher than those with primary education, secondary education, and higher secondary education and were also higher than the total scores. There were statistically significant differences between marital status, residence, educational level, and BMI scores with obesity and PA-related practice ($p < 0.05$). The mean scores in terms of practice were higher among married participants compared to unmarried participants. The scores were lower in unmarried respondents than the total mean scores. The average scores of rural respondents were greater than those of their urban counterparts, and additionally were higher than the total score.

3.2 KAP regarding obesity and PA

The mean scores for obesity and PA-related knowledge of respondents based on age, gender, marital status, residence, educational level, occupation, and BMI were presented in Table 3. The total mean score of obesity and PA-related knowledge in case of age was found to be $86.6 \pm 19.1$. There were statistically significant variations in age, marital status, education level, and total nutrition-related knowledge scores ($p < 0.05$). The mean scores of participants between the ages of 17 and 30 were the greatest in each section, which exceeded the total mean score, but the scores of people older than 40 were the lowest. The total mean score for obesity and PA-related attitude in case of age was found to be $57.08 \pm 12.86$. Education level and BMI scores showed significant differences in attitude towards PA and obesity ($p < 0.01$). The scores for participants having university education were higher than those with primary education, secondary education, and higher secondary education and were also higher than the total scores. There were statistically significant differences between marital status, residence, educational level, and BMI scores with obesity and PA-related practice ($p < 0.05$). The mean scores in terms of practice were higher among married participants compared to unmarried participants. The scores were lower in unmarried respondents than the total mean scores. The average scores of rural respondents were greater than those of their urban counterparts, and additionally were higher than the total score.

3.3 Multiple linear regressions to identify factors that affect obesity and PA related KAP

Table 4, the multiple linear regression model was demonstrated, where significant variations were observed among age, BMI, marital status, and education level with obesity, and PA-related KAP among respondents. The knowledge score of respondents decreased with the increment of age. It was also found that people with normal-weight had better knowledge compared to others. However, no statistically significant differences were found among marital status, level of education, sex, residence, occupation, and practice score with the level of knowledge related to PA and obesity. It had also been observed that, people who got secondary level education had a more focused attitude towards PA and obesity compared to those having primary or secondary levels of education. Underweight and normal weight people showed more adherence towards improved attitude than those obese people. Similarly, respondents having a secondary level of education also showed an increased level of practice scores compared to the other participants. No statistically significant variations were observed among age, sex, residence, occupation, and knowledge score with the scores for practice related to PA and obesity.

4 DISCUSSION

The study aimed to identify the level of KAP on PA for reducing the risk of obesity and also identified the associated factors influencing the KAP among general people in Bangladesh. The level of KAP among both general and obese people presenting with various lifestyle related conditions was the most pertinent. Overall, the current study found better levels of knowledge among study participants than their compliance in attitude and practice towards regular PA, and some typical factors like age, education, occupation, BMI also showed some significant association with KAP in terms of PA and obesity.

Here, the participants were reported to have a better or optimum level of knowledge on proper management of overweight and obesity via PA (75%). On a similar note, around 67% of the participants had good knowledge, and only 20% had a poor knowledge level. The mean score for knowledge was $86.57 \pm 19.07$, which represented that the majority of the participants had a better knowledge level.
| Demographic variable (n) | K       | 95% CI (L.B-U.B) | A       | 95% CI (L.B-U.B) | P       | 95% CI (L.B-U.B) |
|-------------------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Age                     |         |                 |         |                 |         |                 |
| 17–30                   | 89.3 ± 16.9<sup>a</sup> | 87.23–91.33 | 57.64 ± 12.99 | 56.07–59.22 | 42.91 ± 17.15 | 40.83–44.99 |
| 31–40                   | 84.5 ± 18.1<sup>a</sup> | 80.87–88.11 | 56.01 ± 11.79 | 53.64–58.37 | 46.73 ± 17.38 | 43.25–50.22 |
| above 40                | 79.1 ± 25.4<sup>a</sup> | 72.98–85.26 | 56.45 ± 13.86 | 53.10–59.81 | 47.28 ± 18.13 | 42.89–51.67 |
| Total                   | 86.6 ± 19.1<sup>a</sup> | 84.76–88.38 | 57.08 ± 12.86 | 55.86–58.30 | 44.48 ± 17.44 | 42.82–46.13 |
| Gender                  |         |                 |         |                 |         |                 |
| Male                    | 86.5 ± 18.6 | 84.45–88.51 | 56.81 ± 13.11 | 55.37–58.24 | 44.98 ± 17.72 | 43.05–46.92 |
| Female                  | 86.9 ± 20.6 | 82.86–90.85 | 57.94 ± 12.08 | 56.59–60.27 | 42.90 ± 16.51 | 39.71–46.10 |
| Total                   | 86.6 ± 19.1 | 84.76–88.38 | 57.08 ± 12.86 | 55.86–58.30 | 44.48 ± 17.44 | 42.82–46.13 |
| Marital status          |         |                 |         |                 |         |                 |
| Unmarried               | 89.4 ± 16.7<sup>a</sup> | 87.20–91.69 | 58.05 ± 12.86 | 56.33–59.77 | 42.15 ± 17.34 | 39.82–44.48 |
| Married                 | 83.7 ± 20.8<sup>a</sup> | 80.85–86.47 | 56.10 ± 12.82 | 54.37–57.83 | 46.83 ± 17.23 | 44.50–49.16 |
| Total                   | 86.6 ± 19.1<sup>a</sup> | 84.76–88.38 | 57.08 ± 12.86 | 55.86–58.30 | 44.48 ± 17.44 | 42.82–46.13 |
| Residence               |         |                 |         |                 |         |                 |
| Urban                   | 87.1 ± 18.8 | 84.91–89.29 | 57.17 ± 12.80 | 55.68–58.66 | 42.42 ± 16.65 | 40.47–44.35 |
| Rural                   | 85.5 ± 19.6 | 82.28–88.76 | 56.92 ± 13.02 | 54.76–59.07 | 48.60 ± 18.27 | 45.58–51.62 |
| Total                   | 86.6 ± 19.1 | 84.76–88.38 | 57.08 ± 12.86 | 55.86–58.30 | 44.48 ± 17.44 | 42.82–46.13 |
| Education level         |         |                 |         |                 |         |                 |
| Primary                 | 71.7 ± 36.7<sup>a</sup> | 53.43–89.90 | 51.54 ± 14.36<sup>a</sup> | 44.40–55.69 | 42.50 ± 16.47<sup>a</sup> | 34.31–50.69 |
| Secondary               | 87.3 ± 18.1<sup>a</sup> | 84.45–90.17 | 55.94 ± 12.21<sup>a</sup> | 54.02–57.88 | 46.31 ± 16.83<sup>a</sup> | 43.65–48.98 |
| Higher                  | 88.1 ± 15.5<sup>a</sup> | 85.78–90.36 | 57.24 ± 12.78<sup>a</sup> | 55.32–59.17 | 45.94 ± 17.41<sup>a</sup> | 43.31–48.56 |
| University              | 85.4 ± 21.5<sup>a</sup> | 80.68–90.03 | 60.05 ± 13.40<sup>a</sup> | 57.14–62.95 | 38.51 ± 17.73<sup>a</sup> | 34.65–42.36 |
| Total                   | 86.6 ± 19.1<sup>a</sup> | 84.75–88.38 | 57.08 ± 12.86<sup>a</sup> | 55.86–58.30 | 44.48 ± 17.44<sup>a</sup> | 42.82–46.13 |
| Occupation              |         |                 |         |                 |         |                 |
| Unemployed              | 87.3 ± 19.4 | 84.55–89.95 | 57.11 ± 11.99 | 55.44–58.78 | 43.30 ± 17.40 | 40.87–45.73 |
| Business                | 85.0 ± 18.8 | 80.52–89.48 | 54.76 ± 13.85 | 51.46–58.06 | 44.64 ± 17.47 | 40.48–48.81 |
| Private employee        | 87.5 ± 19.0 | 83.81–91.19 | 58.17 ± 13.20 | 55.61–60.74 | 44.04 ± 16.47 | 40.83–47.24 |
| Govt. employee          | 84.4 ± 18.6 | 79.33–89.40 | 57.88 ± 13.89 | 54.12–61.63 | 49.36 ± 18.86 | 44.27–54.46 |
| Total                   | 86.6 ± 19.1 | 84.76–88.38 | 57.08 ± 12.86 | 55.86–58.30 | 44.48 ± 17.44 | 42.82–46.13 |
| BMI                     |         |                 |         |                 |         |                 |
| Underweight             | 73.3 ± 32.0 | 48.72–97.94 | 59.88 ± 16.14<sup>a</sup> | 47.47–72.29 | 55.00 ± 14.79<sup>a</sup> | 43.63–66.37 |
| Normal                  | 87.6 ± 20.8 | 82.30–92.86 | 62.28 ± 13.43<sup>a</sup> | 58.87–65.69 | 52.18 ± 17.59<sup>a</sup> | 47.71–56.65 |
| Overweight              | 86.4 ± 20.2 | 82.17–90.58 | 58.24 ± 11.61<sup>a</sup> | 55.82–60.66 | 46.81 ± 18.70<sup>a</sup> | 42.92–50.71 |
| Obese                   | 86.9 ± 17.6 | 84.73–88.98 | 55.39 ± 12.71<sup>a</sup> | 53.86–56.92 | 41.54 ± 16.28<sup>a</sup> | 39.57–43.50 |
| Total                   | 86.6 ± 19.1 | 84.76–88.38 | 57.08 ± 12.86<sup>a</sup> | 55.86–58.30 | 44.48 ± 17.44<sup>a</sup> | 42.82–46.13 |

<sup>a</sup>Statistical significance (p < 0.05).

Note: Data were collected from 429 people, mostly young male (75.5%) from different districts throughout Bangladesh. ANOVA and Mann-Whitney U test were used to compare differences in continuous variables. K: Knowledge, A: Attitude, P: Practice, L.B.: Lower bound, U.B.: Upper bound. Abbreviations: ANOVA, analysis of variance; BMI, body mass index; CI, confidence interval; SD, standard deviation.
Concerning obesity and regular PA. However, one study evaluating KAP on obesity that involved type 2 diabetes patients found that the majority of the respondents had low level of knowledge about the management of obesity, which is not in line with the findings of the current study. A maximum number of the respondents did not know about ideal body weight, obesity management, and adequate energy requirement for the body. Another study conducted in Bangladesh showed that around 64.6% of the participants believed that obesity is a sort of disease. From the responses received, 33.9% stated that, they consumed frequent snacks, 36.8% believed that, they had a typical body shape, and 44.6% desired to reduce their weight to a sort of disease. From the responses received, 33.9% stated that, they consumed frequent snacks, 36.8% believed that, they had a typical body shape, and 44.6% desired to reduce their weight to achieve a better body weight, BMI, and self-esteem.

Attitudes to PA were identified in terms of physical, mental, and social aspects of health. It is possible for these individuals to make positive changes toward a healthier and more robust lifestyle by improving their self-awareness regarding the dangers of overweight and obesity, gaining an understanding of the factors that contribute to overweight and obesity, understanding the significance of regular PA in one's life, and maintaining a diet that is nutritionally sound.

The mean practice score of 44.47 ± 17.43 in the present study represented that, the majority of participants had a poor level of practice regarding PA for obesity management, which is inconsistent with another study conducted in Karachi, Pakistan, where the researcher found that the attitude about obesity management is quite satisfactory, but the practice level of respondents toward balanced diet and regular PA were inappropriate. Although regular PA is crucial to maintain one's health and ability to perform normally in daily life, adherence to regular PA is not popular among general people in this part of the world. Therefore, it is high time for people to make sure that they engage themselves in some kind of regular physical exercise of a high enough intensity to maintain better health, improved physical functioning, and ability to perform more productively at work.

Concerning the relationship of knowledge, and other demographic factors towards obesity management through PA in the present study, there were significant associations existing between the level of knowledge with age, BMI, and attitude towards regular PA and obesity. It was also evident that knowledge regarding PA and obesity management increased with age, BMI, and positive level of attitude. According to the findings of a Pakistani study, knowledge of the relationship between PA and obesity was adequate among participants. Levels of attitude in that study also showed significant association with education, BMI, knowledge and practice level of the respondents. A cheerful outlook fosters acceptable behavior and raises knowledge levels. The level of attitude and practice was much lower among respondents than the levels of knowledge in this present study. These results are contradicted by some of those findings, which showed that changes in attitudes and actions would result from increased information, and an increased level of knowledge itself may be the primary driver for making changes in people's habits and behavior.

The practice level of respondents was significantly associated with education level, current weight status or BMI, and the level of attitude towards PA and obesity presented in this study. Practicing regular PA is significantly associated with lowering the risk of obesity. However, in the present study, the levels of practicing PA and obesity-related knowledge and attitude were lower. Obese people, especially children and adolescents, tend to have low self-esteem and less self-confidence due to social structure and conditions.

### TABLE 4 Multiple linear regressions to identify factors that affect obesity-related knowledge, attitude, and practice

| Demographic variables | K | SE | t | p  | A | SE | t | p  | P | SE | t | p  |
|-----------------------|---|----|---|----|---|----|---|----|---|----|---|----|
| Age (years)           | -5.34 | 1.61 | -3.31 | 0.001* | 1.53 | 1.06 | 1.45 | 0.149 | 1.11 | 1.46 | 0.76 | 0.449 |
| Gender                | -0.69 | 2.26 | 0.3 | 0.761 | -2.42 | 1.462 | 1.65 | 0.099 | -1.88 | 2.02 | -0.93 | 0.351 |
| Marital status        | -0.97 | 2.51 | -0.39 | 0.699 | -2.49 | 1.625 | -1.53 | 0.126 | 4.64 | 2.23 | 2.08 | 0.038 |
| Residence             | -0.47 | 1.93 | 0.24 | 0.808 | -0.12 | 1.252 | -0.96 | 0.34 | 2.86 | 1.72 | 1.66 | 0.097 |
| Education level       | -0.21 | 1.16 | -0.18 | 0.855 | 2.26 | 0.743 | 3.04 | 0.003* | -3.29 | 1.02 | -3.22 | 0.001* |
| Occupation            | -0.21 | 0.92 | 0.23 | 0.822 | 0.1 | 0.6 | 0.17 | 0.864 | 1.16 | 0.82 | 1.4 | 0.162 |
| BMI (kg/m²)           | 3.67 | 1.16 | 3.15 | 0.002* | -2.42 | 0.755 | -3.21 | 0.001* | -4.5 | 1.03 | -4.38 | 0.000* |
| Knowledge score       | - | - | - | - | 0.2 | 0.03 | 6.47 | 0.000* | 0.05 | 0.04 | 1.07 | 0.284 |
| Attitude score        | 0.46 | 0.07 | 6.47 | 0.000* | - | - | - | - | 0.35 | 0.07 | 0.25 | 0.000* |
| Practice score        | 0.06 | 0.06 | 1.07 | 0.284 | 0.18 | 0.03 | 5.29 | 0.000* | - | - | - | - |

Note: Data were collected from 429 people, mostly young male (75.5%) from different districts throughout Bangladesh. K: Knowledge, A: Attitude, P: Practice. Here, beta or β represents standardized coefficient, a unit free measure of effect size. SE represents standard error of regression; the t statistics is the coefficient divided by its standard error. A p value of <0.05 is considered statistically significant.

Abbreviation: BMI, body mass index.

*Statistical significance (p < 0.05).
This research revealed the existing level of KAP of the overweight and obese participants and the current trend in terms of their management in Bangladeshi population. In addition, the study had some shortcomings. As it was a cross-sectional study, it did not estimate the causal inference on the variables of interest, and as the data were collected at the same time, it was not possible to make a temporal relationship between exposure and outcome. Another limitation is that the present study did not use International Physical Activity Questionnaire (IPAQ) to measure the level of PA among study participants, and future research should utilize this IPAQ to have a better understanding of regular PA for obesity control. Participants’ living conditions environmental factors, and dietary intake patterns are other areas that did not cover in this study and need to incorporate into future studies as well.

5 CONCLUSION

Obesity linked with poor PA among people is an emerging public health issue in our country, like in other developing nations. KAP towards regular PA and adequate knowledge regarding the adverse consequences of obesity could help in the proper management of obesity in the long run. However, the levels of KAP are still suboptimal (50%–75% of the total score) among people and are connected with some social factors. Along with KAP towards obesity, a change towards a healthy life-style is important to become fit and active. The study exposed that the levels of KAP among participants need to be improved to lower the prevalence of obesity and other co-morbidities in this country. For the prevention of the health hazards associated with obesity, further research is needed to determine what factors prevent people from adopting a healthy mindset and engaging in regular, effective PA. Health promotion experts and policymakers should focus on the results of the study to evaluate the necessity of successful implementation of KAP programs and other factors to manage obesity at both local and national levels.

AUTHOR CONTRIBUTIONS

Mohammad Asadul Habib: conceptualization; data curation; formal analysis; methodology; supervision; visualization; writing—original draft. Mounmita Dey: formal analysis; methodology; writing—original draft; writing—review & editing. Akibul Islam Chowdhury: data curation; formal analysis; methodology; writing—original draft; writing—review & editing. Tanjina Rahman: supervision; writing—original draft; writing—review & editing. Rajib Kumar Kundu: methodology; visualization; writing—review & editing.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data will be made available upon reasonable request.

TRANSPARENCY STATEMENT

The lead author Mohammad Asadul Habib affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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