Investigating the State of Well-being of the Older Men amid COVID-19 in Bangladesh: A Cross-sectional Study

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Abstract: This study aims to explore the state of wellbeing of the olden men in Bangladesh amid the COVID-19 pandemic. Because older men in Bangladesh are more vulnerable to COVID-19 illness, this study seeks to learn more about the disease's prevalence and risk factors. The WHO Wellbeing-5 assessments were used in the study to screen the wellbeing of 204 elderly males. The study's findings show that 47.55 percent of people are in a better state of wellbeing, while 52.45 percent are in a poorer state of wellbeing. Age, educational status, work status, fear of COVID-19, having any serious ailments, and good care from family members were discovered to be key factors that might impact the welfare of the elderly men in Bangladesh. When compared to those aged 55 to 59, those aged 60 to 64 years are 3.0190 times more likely to have a lower state of well-being, while those aged 65 and up are 3.5114 times more likely to have. Furthermore, participants with fewer than ten years of education are 2.8068 times more likely to have the lowest degree of well-being than men with at least ten years of education, according to the study. Similarly, persons who are unemployed or have retired from work are 2.2916 times more likely to be unhappy than those who work in any economic activity. Those who are somewhat afraid of getting infected with COVID-19 are 3.7722 times more likely to have a lower level of well-being than those who are worried of a lot. According to the study, persons with any of the main diseases are 3.3094 times more likely to be unhappy than those who do not have any major ailments. Finally, the study revealed that people whose family members do not give adequate care are 26.1562 times more likely to suffer from bad health than those who receive adequate care from their family members. As a result, policymakers should take these findings into account when developing a strategy to promote the well-being of the elderly.

Keywords: Covid-19, Pandemic, Well-being, Geriatric men, Bangladesh.

1. Introduction

The Covid-19 outbreak ravaged the whole globe in 2020, resulting in an unthinkable calamity that no one could have foreseen. It has wreaked havoc on people's physical and mental health all across the world. Covid-19 has caused psychological stress, loss of life, physical sickness, social disorder, separation of friends and family, loss of work and

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money, economic sluggishness, food and pharmaceutical shortages, and other problems (Mamun et al., 2020; Sakib et al., 2020; Epifanio et al., 2021). The situation was substantially worse during the outset of the pandemic due to uncertainty, fear of infection, and a lack of information regarding prevention and care. Covid-19 has a considerable detrimental influence on quality of life as a result of this.

This Covid 19 was detected for the first time in Wuhan, China, near the end of December 2019. (WHO, 2020b). The World Health Organization (WHO) expressed worried about public health as a result of this outbreak. After the disease had spread widely across numerous nations, the WHO proclaimed a serious worldwide pandemic in mid-March 2020. (WHO, 2020a). This covid-19 pandemic suddenly became a worldwide health problem. As a result, global and federal health organizations have adopted several steps to combat it, including quarantine and lockdown. Furthermore, international and domestic flights have been postponed, the physical distance has been maintained, face masks have been imposed, and all companies, government offices, and educational institutions have been shuttered, among other things. Aside from that, several programs are undertaken to persuade people to stay at home. Although the outbreak started in China, it has already spread to the majority of the world's countries.

Bangladesh reported the first incidence of COVID-19 on March 8, 2020 (worldmeters, 2021), with the first fatality coming on March 18. (worldmeters, 2021). As of June 18, 2021, the number of persons who tested positive with Covid-19 has surpassed one lakh (worldmeters, 2021). Several strategies have been put in place by the government to lower infection rates. Bangladesh's government announced on March 23, 2020 that the General Holiday (General Shutdown) will begin on March 26 and finish on April 4, 2020. (Dhaka Tribune, 2020). However, due to the severity of the epidemic, the public vacation (lockdown) was extended many times until May 30, 2020. (Hindustan Times, 2020). Finally, on September 1, 2020, all limitations on public mobility were lawfully eliminated (The Daily Star, 2020). On August 5, 2020, in response to a government intervention, the confirmed cases were reduced to less than 1000. (worldmeters, 2021). However, it has shown an increasing tendency again in the fourth quarter of 2020.

The elderly made up around 6.7 percent of COVID-19 patients (>60 years old), and they accounted for about 39 percent of all fatalities (IEDCR, 2020). In addition, men accounted for nearly 71% of all COVID-19 cases (IEDCR, 2020). Regardless, it's still unknown why males are more prone than women to develop severe COVID-19. Diabetes and hypertension, the major risk factors for severe COVID-19 (Zhou et al., 2020), however, afflict more than one-fifth of elderly Bangladeshis (Rahman et al., 2015). Furthermore, more than half of elderly Bangladeshis (BBS, 2015) have several comorbidities, placing them at risk for the severe COVID-19 strain. It's reasonable that older Bangladeshi males are having a variety of psychological disorders because they're now more prone to COVID-19. COVID-19 infection causes elderly men to be scared, anxious, and depressed. Individual well-being of the elderly is jeopardized as a result of these psychological disorders. This is true not only in Bangladesh, but in a number of other nations as well. This study intends to learn more about the well-being of older Bangladeshi males living in COVID-19 in this environment. This study also intends to identify risk factors for worse well-being and propose policy suggestions based on the findings.

2. Methods and Materials

Dealing with a large population is not only expensive, but also time consuming and difficult. As a consequence, we take a representative sample from the population and try to forecast the population based on the sample's results. To draw a sample from a population, a formula or procedure is used. A substantial sample size is essential for accurate and reliable estimate. The Taro Yamane approach, developed by Taro Yamane, a mathematical statistician, is one of the most widely used sample size selection methods. Taro Yamane developed a method for estimating an adequate sample from the population being studied, allowing for precise and trustworthy deductions and conclusions.

The Taro Yamane statistical formula is

$$n = N / (1 + N(e)^2)$$

Where,

n = the required sample size from the population under study

N = the whole population that is under study

e = the precision or sampling error which is usually 0.10, 0.05 or 0.01.

For example, we can draw a sample for a population of 3000 under study by using this formula. If the precision is 0.05 then

N = 3000, e = 0.05, e^2 = 0.025

Therefore, n = 3000/ (1+ 3000(0.0025)) = 3000/ 8.5 = 353.

So, 353 will be the adequate sample size for a population of 3000 and precision is 0.05.

Assume the population has more than one million observations. Taro Yamane Table proposes 400 observations with a 5% margin of error and 100 observations with a 10% margin of error as an appropriate sample size. Therefore the study requires at least 100 observations within a 10% margin of error. However, in order to be methodologically sound, this study utilized the data of 204 participants.

Bangladeshi males aged 50 and up were the study's target group. A closed questionnaire was used for a face-to-face survey that took less than 20 minutes to complete. The convenience sampling method was employed to collect data. To collect the necessary data, two well-trained research assistants (both of whom graduated from the Department of Economics) were employed as surveyors. Data was collected from both rural and urban regions using the convenience sampling approach.

To determine the wellbeing of the older men, the present study has employed the "WHO (five) wellbeing index" measurement. It is a 5-item scale and its internal reliability is excellent. The five items of this scale are- (i) I have felt cheerful and in good spirits, (ii) I have felt calm and relaxed, (iii) I have felt active and vigorous, (iv) I woke up feeling fresh and rested, and (v) My daily life has been filled with things that interest me. The participants get six options for each question to answer- (0) At no time, (1) Some of the time, (2) Less than half of the time, (3) More than half of the time, (4) Most of the time, (5) All of the time. By summing the score of each question a total score can be obtained from 0 to 25. The total score of 0 represents the worst possible state and the score 25 represents the best possible state of wellbeing. The questionnaire's questions were translated from English to Bangla using the forward-backward translation method. This process was completed by two specialists who are fluent in English and Bengali. To

explore the wellbeing of older men in Bangladesh, this study has used various statistical tools such as descriptive statistics, the Chi-Square test, logistic regression analysis, etc. The empirical analysis is carried out using the STATA15.0 edition of statistical software.

During data gathering, the Helsinki Declaration of 1975 was strictly adhered to. All respondents were informed about the study's objectives and scope from the start. They may be certain that any information they supply for this study will be kept private and will not be associated with them. The questionnaire began with a consent question, in which they were asked if they were willing to provide the needed information. They went over the rest of the questions after verifying the "yes" answer.

Age, residence, educational status, work status, monthly family income, and adequate care from family members were among the socio-demographic items in the questionnaire. Furthermore, certain COVID-19-related questions were added (e.g., whether monthly family income was reduced during the lockdown and vacant situation or not, afraid of COVID-19, etc.). In addition, one health-related question was included to determine whether the person had any of the main illnesses: (1) hypertension, (2) heart disease (including coronary heart disease and other heart conditions), (3) stroke, (4) hyperlipidemia, (5) liver disease, (6) diabetes mellitus and another endocrine disease, (7) respiratory disease, (8) urinary and reproductive disease, (9) musculoskeletal disease, (10) gastrointestinal disease, (11) dermal diseases, and (12) dental caries or other dental diseases (Ping et al., 2020). Those who had anyone answered 'yes', and those who had not answered 'no'.

3. Results and Discussions

Descriptive Statistics

Table 1 depicts the descriptive statistics for the age variable. The average age of the participants is 63.46 years, with a standard deviation of 4.56 years. Older males have an average life expectancy of 55 years, with a maximum of 71 years.

In this study, the age variable was split into three groups. The first group consists of men aged 55 to 59 years old. Males aged 60 to 64 are classified as second, and males aged 65 and up are classified as third. In this study, 58 men (28.43 percent) belong to the first group, 62 men (30.39 percent) to the second group, and 84 men (41.18 percent) to the third.

Table 1: Descriptive statistics of age

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum
Age	204	63.4559	4.5586	55	71

Table 2: Descriptive statistics of the age group

Age Group	Frequency	Percent
55 to 59 years	58	28.43
60 to 64 years	62	30.39
65 and above years	84	41.18

Table 3 displays the descriptive statistics for the residency variable. The rural area is home to 110 (53.92 percent) of the 204 participants, while the city is home to 94 (46.08 percent).

Table 3: Descriptive statistics of the Residence

Residence	Frequency	Percent
Rural Area	110	53.92
Urban Area	94	46.08

Table 4 displays the descriptive data for the educational status variable. 155 (75.98%) of the 204 participants had an educational level lower than class 10, while 49 (24.02%) had an educational level equal to or better than class 10.

Table 4: Descriptive statistics of the Educational Status

Educational Status	Frequency	Percent
Below class 10	155	75.98
Equal to or more than class 10	49	24.02

Table 5 displays the descriptive statistics for the employment status variable. Among the 204 males who participated in the survey, 79 (38.73 percent) are employed (full-time or part-time), while 125 (61.27 percent) are jobless or retired.

Table 5. Descriptive statistics of the Employment Status

Employment Status	Frequency	Percent
Employed in any economic activities	79	38.73
Unemployed or Retired from work	125	61.27

The participants were separated into three income groups based on their monthly household income. The incomes of 67 (32.84 percent) participants were less than 15,000Tk, 91 (44.61 percent) participants' incomes were between 15,000Tk and 40,000Tk, and 46 (22.55 percent) participants' incomes were greater than 40,000Tk.

Table 6. Descriptive statistics of the Income Status

Family income status	Frequency	Percent
Lower income family (monthly income is less than 15,000Tk)	67	32.84
Middle income Family (monthly income is between 15,000TK to 40,000TK)	91	44.61
High income family (monthly income is more than 40,000Tk)	46	22.55

Table 7 displays the descriptive statistics for the income decrease variable. We questioned the participants if the COVID-19 epidemic had affected their monthly family income. Ninety-four percent of those polled claimed their monthly family income had not

been affected or had been affected just little, by less than a quarter of a percent. During the pandemic, the 110 (53.92 percent) participants' salaries were reduced by more than 25%.

Table 7. Descriptive statistics of the Income reduction variable

Monthly family income reduced during the pandemic	Frequency	Percent
Didn't reduce or reduce less than 25%	94	46.08
Reduce more than 25%	110	53.92

This study has also investigated whether participants have any major diseases. 79 participants (38.73%) have claimed that they are not suffering from any major diseases, while 125 participants (61.27%) have claimed that they are suffering by any major diseases.

Table 8. Descriptive statistics of the having major diseases

Do you have any major diseases?	Frequency	Percent
No	79	38.73
Yes	125	61.27

Table 9 contains information about COVID-19 phobia. We asked the participants whether they were concerned about COVID-19. 29 individuals (14.22%) indicated they were unconcerned with COVID-19, while 46 people (22.55%) said they were concerned. While 59 individuals (28.92%) were highly worried, 70 people (34.31%) were really terrified.

Table 9. Descriptive statistics of the 'Afraid of COVID-19' variable

Afraid of COVID-19?	Frequency	Percent
Not at all	29	14.22
Slightly	46	22.55
Moderately	59	28.92
A lot	70	34.31

The elderly expect their family members to offer enough care. If family members do not give enough care, the older adult's health will deteriorate swiftly. We asked if their family members took excellent care of them. 49 participants (24.02 percent) believe their family members appropriately care for them, whereas 107 participants (52.45 percent) say they do not.

Table 10. Descriptive statistics of the 'family members care' variable

Do you think your family members take proper care of you?	Frequency	Percent
Yes	49	24.02
No	155	75.98

Finally, we utilize the WHO-5 Wellbeing scale to measure the health of older males. Among the 204 participants, we determined that 97 men (47.55 percent) are in a better state of wellbeing, whereas 107 men (52.45 percent) are in a poorer state of wellbeing.

Table 11. Descriptive statistics of the State of the Wellbeing

State of Well-being	Frequency	Percent
Better State	97	47.55
Worse State	107	52.45

Prevalence of Worse State of Wellbeing across different groups

According to the study, 107 participants were found to be in bad health. 16 individuals (14.95 percent) are 55-59 years old, 33 (30.84 percent) are 60-64 years old, and 58 (54.21 percent) are 65 or older. Pearson Chi-Square is 23.6704, and the p-value is 0.01. As a result, it's logical to assume that men's health deteriorates with age. A man's health deteriorates as he ages. Of the 107 males in poor health, 55 (51.40 percent) resided in rural regions, while 52 (48.60 percent) lived in urban areas. The Pearson Chi-Square has a p-value of 0.448 and a value of 0.5750.

In terms of the poorest state of well-being, 90 males (84.11 percent) have fewer than ten years of education, while just 17 (15.89 percent) have more than or equal to ten years of education. The Pearson Chi-Square value has a p-value of 0.004 and a Pearson Chi-Square value of 8.1535. As a result, those with less education are more likely to be sick.

Furthermore, the survey revealed that 33 working men (30.84 percent) are happier than 74 unemployed or retired males (69.16 percent). The Pearson Chi-Square value has a p-value of 0.015 and a Pearson Chi-Square value of 5.8952. As a result, jobless or retired men are more likely to be in bad health than working men. When it comes to any of the major diseases, 24 men (22.43 percent) who have no major diseases have a lower level of happiness than 83 men (77.57 percent) who have at least one major disease. Pearson Chi-square is around 25.1829, with a p-value of less than 0.001. As a result, it may be argued that those who have at least one severe disease are more likely to be in poor health.

Seven men (6.54 percent) were in poor health in the 'not at all frightened of COVID-19' group, compared to 18.69 percent (20 men) in the 'somewhat fearful' of group, 29.91 percent (32 men) in the moderately terrified of group, and 44.86 percent in the extremely afraid of group (48 men). 0.001 is the p-value. The Pearson Chi-Square value is 18.1856, and the p-value is 0. As a result, those who are afraid of COVID-19 are more likely to be sick. In terms of income, the lower income group has 31.78 percent (34 men), the medium-income group has 42.99 percent (46 men), and the upper income group has 25.23 percent. The p-value is 0.628, and Pearson Chi-Square is 0.9293. As a result, income status is not a significant predictor of poor health.

Table 12. Prevalence of Worse State of Wellbeing across different groups

Variables	Total; *n* (%)	State of Wellbeing; *Worse* (%)	Pearson χ^2 value	df	*p*-value
Age Group					
55 to 59 years	58 (28.43%)	16 (14.95%)	23.6704***	2	0.000
60 to 64 years	62 (30.39%)	33 (30.84%)			
65 years and above	84 (41.18%)	58 (54.21%)			
Residence					
Rural area	110 (53.92%)	55 (51.40%)	0.5750	1	0.448
Urban area	94 (46.08%)	52 (48.60%)			
Educational Status					
Below Class 10	155 (75.98%)	90 (84.11%)	8.1535***	1	0.004
At least class 10	49 (24.02%)	17 (15.89%)			
Employment Status					
Employed	79 (38.73%)	33 (30.84%)	5.8952***	1	0.015
Unemployed/ retired	125 (61.27%)	74 (69.16%)			
Have any major disease					
No	79 (38.73%)	24 (22.43%)	25.1829***	1	0.000
Yes	125 (61.27%)	83 (77.57%)			
Afraid of COVID-19					
Not at all	29 (14.22%)	7 (6.54%)	18.1856***	3	0.000
Slightly	46 (22.55%)	20 (18.69%)			
Moderately	59 (28.92%)	32 (29.91%)			
A lot	70 (34.31%)	48 (44.86%)			
Family members take proper care					
Yes	91 (44.61%)	17 (15.89%)	75.1193***	1	0.000
No	113 (55.39%)	90 (84.11%)			
Family monthly income					
Lower income	67 (32.84%)	34 (31.78)	0.9293	2	0.628
Middle income	91 (44.61%)	46 (42.99%)			
Upper income	46 (22.55%)	27 (25.23%)			
Family income reduced during COVID-19 pandemic					
Not at all/less than 25%	94 (46.08%)	52 (48.60%)	0.5750	1	0.448
More than 25%	110 (53.92%)	55 (51.40%)			

(*** implies the significance at less than 5%)

In the context of income loss during the pandemic, it was observed that the prevalence of a worse level of wellbeing is 48.60 percent (52 males) in the no reduction or small (less than 25 percent) income reduction group, and 51.40 percent in the more than 25 percent

reduction group (55 men). The p-value for the Pearson Chi-Square is 0.448, and the Pearson Chi-Square value is 0.5750. As a result, income loss as a result of the pandemic is not a significant factor in a worsening condition of health.

When it comes to the care of family members, those who receive adequate care have a prevalence rate of 15.89%, while those who do not receive good care have a prevalence rate of 94.11%. The Pearson Chi-Square value is 75.1193 and the p-value is less than 0.001. As a result, sufficient care from family members is an important factor that can increase an elderly man's sense of well-being.

As a result, age, educational status, employment status, fear of COVID-19, having any of the major illnesses, and the care of family members are all essential individual variables that might impact the wellness of senior men in Bangladesh during the COVID-19 pandemic. We also looked at the related components using logistic regression analysis.

Results of Logistic Regression Analysis

The outcomes of the logistic regression are summarized in Table 13. The logistic regression results also show that age, educational status, work status, fear of COVID-19, having any of the main illnesses, and good care of family members are linked determinants of older men's welfare in Bangladesh during the COVID-19 pandemic. The findings show that individuals aged 60 to 64 years are 3.0190 times more likely, and those aged 65 and more are 3.5114 times more likely to be unhappy than those aged 55 to 59 years. Furthermore, the study found that males with less than ten years of education are 2.8068 times more likely to be unhappy than men with at least ten years of education. Similarly, persons who are jobless or retired from employment are 2.2916 times more likely to be unhappy than those who are employed in any economic activity.

The study also found that people who are somewhat fearful of getting infected by COVID-19 are 3.7722 times more likely, and those who are very afraid are 4.7137 times more likely, to have a lower level of happiness than those who are not afraid of being infected by COVID-19. Furthermore, people who have any significant ailments are 3.3094 times more likely to be unhappy than those who do not have any major diseases, according to the study. Finally, the study discovers that people whose family members do not provide adequate care are 26.1562 times more likely to be unhappy than those whose family members provide adequate care.

Table 13. Results of Multivariate Logistic Regression Analysis

Variables	Adjusted model Number of observations = 204 Log likelihood = -77.1446 LR χ^2 (9) = 128.02 p-value of χ^2 = 0.0000		
	Adjusted odds ratio (AOR)	95% confidence interval (CI)	*p*-value
Age group			
Reference category (55 to 59 years)			
60 to 64 years	3.0190***	0.9881-9.2237	0.052
65 years and above	3.5114**	1.0935-11.2754	0.035
Educational Status			
Reference category (Educated)			
Uneducated	2.8068***	0.9915-7.9453	0.052
Employment Status			
Reference category (Employed)			
Unemployed	2.2916***	0.9619-5.4592	0.061
Afraid of COVID-19			
Reference category (Not at all)			
Slightly	2.7288	0.6240-11.9325	0.182
Moderately	3.7722***	0.9350-15.2185	0.062
A lot	4.7137**	1.1059-20.0914	0.036
Have any of major diseases			
Reference category (No)			
Yes	3.3094*	1.4120-7.7128	0.006
Family members take proper care			
Reference category (Yes)			
No	26.1562*	10.6689-64.1251	0.000

(***, ***, and * indicates the 10%, 5%, and 1% significance level, respectively)

4. Conclusion

The researchers investigated the health of old men in Bangladesh during the COVID-19 epidemic. The WHO Wellbeing-5 questionnaires were utilized in the study to measure the wellbeing of elderly men, and data from 204 people was collected. According to the study's findings, the better level of wellbeing is 47.55 percent, while the worse state of wellbeing is 52.45 percent. Age, educational status, work status, afraid of COVID-19, having any of the major illnesses, and the care of family members are all important variables influencing the well-being of elderly males in Bangladesh during the COVID-19 pandemic.

When comparing those aged 55 to 59 years to those aged 60 to 64 years, the logistic regression findings suggest that those aged 60 to 64 years are 3.0190 times more likely to have a lower level of wellbeing, while those aged 65 and up are 3.5114 times more probable. Furthermore, men with fewer than 10 years of education are 2.8068 times more likely to have the lowest degree of well-being than men with at least 10 years of education, according to the study. Similarly, persons who are unemployed or have retired are 2.2916 times more likely to have a lower quality of life than those who work in any economic activity.

Those who are somewhat scared of being infected by COVID-19 are 3.7722 times more likely to have a lower level of wellbeing than those who are not fearful of being infected by COVID-19, while those who are terrified of a lot are 4.7137 times more likely to experience a worse state of wellbeing. According to the study, persons who have any of the main diseases are 3.3094 times more likely to be unhappy than those who do not have any major ailments. Finally, the study revealed that people whose family members do not give adequate care are 26.1562 times more likely to suffer from bad health than those whose family members provide adequate care. As a result, governments should take these findings into account when devising a strategy to increase the well-being of the elderly.

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