**Perception and misconceptions regarding COVID-19 in Bangladesh: A Narrative Review**

March 2023

*This thesis is submitted in partial fulfilment of the requirement for the degree of Master of Public Health*



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**Perception and misconceptions regarding COVID-19 in Bangladesh: A Narrative Review**

HSC 575: Thesis

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**Declaration**

This is, S.M. Tahsin Rahaman, declaring that this narrative overview is my own unaided work and that I have acknowledged all sources to the best of my knowledge. This narrative review is being submitted in partial fulfilment of the degree of Master of Public Health at the Independent University, Bangladesh. It has not been submitted before for any degree or examination at this or any other university.

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**S.M. Tahsin Rahaman**

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# ACRONYMS

|  |  |
| --- | --- |
| KAP: | Knowledge Attitude and Practice |
| COVID-19: | Coronavirus Disease 2019 |
| WHO: | World Health Organization |
| IEDCR: | Institute of Epidemiology Disease Control and Research |
| NGO: | Non-government Organization |
| BCC | Bangladesh Computer Council |
| UNICEF | United Nations Children’s Fund |
|  |  |

# ABSTRACT

# INTRODUCTION

In the past decade the world has passed through a challenging time due to the outbreak of novel coronavirus. The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes a disease called COVID-19. The novel coronavirus declared as pandemic on 11 March 2020 by the World Health Organization (WHO) (Huda et al., 2020; Deng, 2020; Hayat et al., 2020). Nevertheless, this is not a modern phenomenon; deadly pandemics have occurred throughout the history of civilization, e.g., as the plague, Spanish Flu, HIV, and Ebola (see Table-1). In 1666, the term "pandemic" was first applied to depict a nonstop spreading disease in a country (Sampath et al., 2021). It is assumed that the virus transmitted zoonotic interaction, e.g., human and animal interactions and the symptoms include fever, shortness of breath, cough, fatigue, and diarrhea (Pervez *et al.*, 2021)

The first outbreak of COVID-19 was identified in Wuhan, China, in December 2019 (Aklilu et al., 2020; Zhang and Shaw, 2020). The precipitous spread of the coronavirus sets a menace to the entire world (Akaninyene Otu, Egbe Osifo-Dawodu and Emmanuel Agogo, 2021). It is deemed one of the most prevalent pandemics in the world due to its high diffusion and mortality rate (Rahman *et al.*, 2020). Bangladesh has detected its first COVID-19 patient on 8 March 2020 (Islam, Zannatul and Potenza, 2020). The coronavirus has spread extensively around the globe especially, widely attacked in the United States, China, Europe, Brazil, and Southeast Asia, in fact the virus has so far infected 223 countries in the world according to the *worldometer* and Jhons Hopkins University. The number of confirmed cases of COVID-19 worldwide is 679,610,846 up to 26 February 2023 while 6,797,693 deaths.

The entire world was moved amidst the COVID-19 disease, and witnessed of the incredible distress, death, instability of everyday life. Pandemics throughout the history have had substantial health consequences and exemplified a danger to the survival of humankind. Speedily spreading infections such as COVID-19 can devastate the healthcare system and lead to limited access to health services and increased death rates for both communicable and noncommunicable diseases. They also had considerable social, economic, and political impacts (Sampath et al., 2021). This ongoing COVID-19 has threatened the health sector, social life, and education sectors of many countries (Janssens et al., 2021) raised many social and economic challenges worldwide (Wang and Zhao, 2020).

The pandemic also effected on individual’s income and their behaviors. Developing countries their fragile economy, education, and health sector severely affected due to could not take the necessary steps in time (Lai et al., 2020). Many countries have been already declared lockdown several time and have taken health safety precautions against coronavirus such as wearing face masks, frequent hand washing, and maintaining social distance. At present, there exists many drugs treating COVID-19 and vaccine for preventing this disease in the world. In Bangladesh mass vaccination has started on 7 Feb 2021 and Among the targeted of 117,856,000 people 66,283,396 has received at least one dose and 42,043,323 has been injected two doses of COVID-19 vaccine up to 1 December 2021 according to the Institute of Epidemiology, Disease Control and Research (IEDCR).

**Table 1: List of pandemics throughout the history (Sampath et al., 2021)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Pandemic | Timeline | Area of emergence | Pathogen | Vector | Death toll | Pandemic |
| Athenian Plague | 430-26 B.C. | Ethiopia | Unknown | Unknown | Unknown | Athenian Plague |
| Antonine Plague | 165-180 | Iraq | Variola virus | Humans | 5 million | Antonine Plague |
| Justinian Plague | 541-543 | Egypt | Yersinia pestis | Rodents’ associated fleas | 30-50 million | Justinian Plague |
| Black Death | 1347-1351 | Central Asia | Yersinia pestis | Rodents’ associated fleas | 200 million | Black Death |
| The Seven Cholera Pandemics | 1817-present | India | Vibrio cholerae | Contaminated water | 40 million | The Seven Cholera Pandemics |
| Spanish Flu | 1918-1919 | USA | Influenza A (H1N1) |  | 50 million | Spanish Flu |
| Asian Flu | 1957-1958 | China | Influenza A (H2N2) |  | >1 million | Asian Flu |
| Hong Kong Flu | 1968 | China | Influenza A (H3N2) |  | 1-4 million | Hong Kong Flu |
| HIV/AIDS | 1981-present | Central Africa | HIV |  | 36 million | HIV/AIDS |
| Severe acute respiratory syndrome coronavirus | 2002-2003 | China | Severe acute respiratory syndrome coronavirus | Bats | 774 | Severe acute respiratory syndrome coronavirus |
| Swine Flu | 2009-2010 | Mexico | Influenza A (H1N1) |  | 148000-  249000 | Swine Flu |
| Ebola | 2014-2016 | Central Africa | Ebola virus | Unknown | 11000 | Ebola |
| COVID-19 | 2019- July 2021  (ongoing) | China | SARS-Cov-2 | Unknown | >4 million (ongoing) | COVID-19 |

To combat with the outbreak of COVID-19, Bangladesh has to undergo through many challenges with widespread COVID-19 testing, maintain social distance, home quarantine and restrict travel to national and international levels (Anwar, Nasrullah and Hosen, 2020; Shammi *et al.*, 2021). Bangladesh enforced for the first time in its history nationwide lockdown to control COVID-19 from March 26, 2020, to the May 30, 2020. Some of the garments, all government and non-government office and educational institution were closed during lockdown period. Due to economic constraints, Bangladesh could not maintain a nationwide lockdown in the first phase. instead of this, they identified three areas as red, yellow, and green zone based on the number of infected cases according to the COVID-19 Tracker (BCC).

People think coronavirus affected every sphere of their daily life in terms of financial condition, food supply, coming to terms with an acute and chronic disease condition, and psychological status (Pervez *et al.*, 2021). The United Nations (UN) stated that COVID-19 may leave up to 25 million more people out of jobs across the world which will dramatically slash global workers’ incomes (Khaled 2020). People in Bangladesh are also confronting parallel financial challenges, especially from the private and the garments sector are encountering such privations and have been jobless or laid off. The status quo was more critical for the day laborers who were left without any income, which has created a public health crisis in Bangladesh (Pervez *et al.*, 2021).

The pandemic affected the education sector harshly, the COVID-19 outbreak altered the daily as well as the family’s daily routine, study, field works, financial issues, and leisure time of the students (Wadood, Mamun and Rafi, 2020). Though the online teaching system is being enacted by educational institutes in Bangladesh since the covid-19 lockdown, however, their remain some unavoidable concerns, different study elucidated online education‘s drawback as the guardian of a little kid, a special person, a kid with a disability, as the kid cannot hear anything by birth, as week as the correlation between financial access and online education (Farid, 2020). Approximately 40 million school going students alone in Bangladesh are out of education until the coronavirus situation returns normally. In Addition, parental capacity, access to technology and internet, very low speed of internet usage, difficulties in using online platforms, high cost of internet, and socio-economic status are major delaying factors in winning online education ranging from primary to tertiary presently (Dutta and Smita, 2020; Emon, Alif and Islam, 2020)*.*

The impact of the outbreak places a mental levy on young adults as it shapes values and harms health drastically. It is the latest catastrophe for the generation that has suffered life-shifting disturbances, because the emerging anxiety and fear about the COVID-19 are activating devastating strain for urban people (Farid, 2020) which might turns into suicidal ideation in adults of the urban (Mamun et al., 2022); additionally discovered an alarming picture of children being suffered from anxiety and depression resulting in sleeping disorder with mild to the severe psychological disturbance (Xiao et al., 2020; Yeasmin et al., 2020; Zandifar and Badrfam, 2020).

The domestic violence, in other words family-based conflicts has been risen indeed, especially in the city areas (Farid, 2020). Reportedly COVID-19 has upsurged both the incidents and potential risks of domestic violence as numerous unreported and reported cases in Bangladesh, including financial, physical, mental, and sexual abuse as well as, the violence against children and women increased amid the lockdown as a result of augmented cracks in families for financial pressure and lack of social activities (Karim, Islam and Talukder, 2020). The global scenario regarding family violence and crisis is likewise multi-level distress in different countries (Campbell, 2020).

Manifold factors include inadequate preparedness, limited screening, shortage of testing kits and Personal Protective Equipment (PPE), inadequate awareness about the spread of infection, prevention and control of coronavirus in the population, and unavailability of effective medications or vaccines are growing the risks and contributive to the speedy spread of COVID-19 (Liang and Acharya, 2020). After first identifying case in Bangladesh, the number of new patients in the country has been increasing day by day as with the procession of death is increasing with the competitively (IEDCR). Immediately every country needs to adopt new knowledge, attitude and practices to control this pandemic against the existing unawareness, rumor’s, misinformation, and misconceptions among the general people about COVID-19 worldwide; people seek information for basic four areas, however, which are extremely supplemented by rumors and false information (Geerdink 2020) (i) transmission and the symptoms of the disease, (ii) cure and prophylactics, (iii) origins and causes (iv) impacts and effectiveness of policies designed by health care organizations (Culp 2020). Rumors are in a typical form of ‘improvised news’ (Shibutani T., 1966) may bringing up fear and yielding unfounded perceptions towards the disease, geographical locations and fuel the risk and rapid spread of COVID19 (Ren, Gao and Chen, 2020). Seemingly, these spontaneous rumors and social stigma can entertainment as fences to the effective prevention of COVID-19 (Tasnim, Hossain and Mazumder, 2020; WHO, 2020). Thus, the perception, attitude and practice of people toward the COVID-19 pandemic play an essential role in its spread or prevention. Alongside, people are found reluctance, especially low- income people, to ignore the lockdown and COVID-19 preventative measures, such as wearing mask and avoiding crowded place (M. M. Rahman et al., 2021a)*.* The most essential needs to prevent COVID-19 infections are vaccination, public health measure and effective approach (Dienes et al., 2021).

Online rumoring is a global phenomenon, its showcases and tendencies may vary from region to region in terms of socio-cultural, political, and economic differences (Al-Zaman *et al.*, 2020). Like-South Asian countries are enjoying a surge of rumors and rumor-led unrest after the 2010s, and religion, unlike in other regions, plays a crucial role in rumor production (M. S. Al-Zaman, 2021). World Health Organization warned about misinformation due to an independent media usage, today, people are finding it hard to search for a reliable source of information, hindering the response efforts causing severe damage to the struggle for mitigating the outbreak (Article 19 2020). The social media platforms are mainly disseminating such false information along-with traditional media resources (Ali, 2022). Although increased access to digital media platforms facilitated exponential access to information during the current pandemic, several fabricated stories are shared without quality checking and background (Pan American Healthcare Organization, 2020). Combating rumors and myths regarding coronavirus is a major challenge for media today (Bursztyn et al., 2020). Social media companies (Facebook, Twitter, YouTube and so on) and policymakers in various countries globally have commenced measures to stamp out misinformation. Therefore, media platforms recognized the need to educate the people to bring the positive attitudinal changes as mass media are the essential resources to supply credible information (Zhong et al., 2020). The rapid transmission of the coronavirus led to numerous conspiracy theories prevailing through online resources with a popular theme that virus is artificially created to gain a particular agenda. Such information was disseminated from unknown social media account and engaged more than 20 million people worldwide (Mian and Khan, 2020).

WHO along with UNICEF (2020) stated immunization is the process of significantly considered as a crucial way to bring the pandemic under control, in the other hand vaccine is not developed yet which further worsens the situation (Cortellis 2020). One a positive note, many pharmaceutical companies already developed vaccines for coronavirus (like- AstraZeneca, Johnson & Johnson, Moderna, Pfizer, Sinopharm, Sinovac etc) which is now being applied Globally. Most of the countries have been already completed the doses of vaccinating against the coronavirus. Vaccines are being distributed, but it is most important to study the public acceptance of COVID-19 vaccinations (MacDonald et al., 2015; Reiter, Pennell and Katz, 2020; Bhopal and Nielsen, 2021). Vaccines are something which concepts vary from person to person, occupation, ethnicity, religion, or socio-economic status (Robinson, Jones and Daly, 2020). Research’s shown that, sex (female) and income (low) are steadily associated with being less willing to be vaccinated (Robinson, Jones and Daly, 2020). This is assumed that there might exist a variety of misconceptions and beliefs among the general people about COVID-19 vaccine in Bangladesh. Bangladeshi government brought Oxford–AstraZeneca the COVID-19 vaccine from India on 27th January 2021 and a nurse became the first COVID-19 vaccine recipient in Bangladesh (Dhaka Tribune, 10 Feb 2021). However, there occurred a large debate about the coronavirus vaccine among the general population of Bangladesh. Several the Bangladeshi people are wavering to take the vaccine, and some are eager to take the vaccine (The Daily Star, 10 Feb 2021). A comparison of world versus Bangladesh is given in Table-2, to get a picture on the COVID-19 infection, recovered and vaccinations.

**Table 2: Number of COVID-19 confirmed, recovered and vaccinated cases in Bangladesh (as of 26 February 2023, worldometer)**

|  |  |  |
| --- | --- | --- |
| Category | Bangladesh | World |
| Total Confirmed Case | 2,037,773 | 679,610,846 |
| Total Death | 29,445 | 6,797,693 |
| Total Recovered | 1,998,448 | 652,466,051 |
| Active Case | 9,880 | 20,347,102 |
| Total Case/1 million People | 12,138 | 87,187.70 |
| Total Death/1 million People | 175 | 872.1 |
| Total Tests | 15, 254,399 | 6,938,887,815 |
| Total Vaccine Doses | 354,990,838 | 13,223,135,400 |
| Fully Vaccinated | 136,721,925 | 5,072,448,100 |

Bangladesh is a poverty-stricken and rumor-prone South Asian country with a higher rate of social media penetration (Al-Zaman *et al.*, 2020). As of 2020, the country has 36 million social media users, and most of them use Facebook (Kemp, 2020). Rumor spread is mainly based on Facebook (M. (2020b) Al-Zaman, 2021). The COVID-19 pandemic has become another new juncture for rumor-producers and rumor-spreaders. As a repercussion, in April 2020 the government of Bangladesh had to request Facebook authorities to close down around 100 Facebook pages that were actively spreading COVID-19-related rumors (Shawki, 2020). With the growing number of COVID-19 patients in Bangladesh, the prevalence of various types of information related to the virus is also increasing. At the same time, rapid digitalization has provided the population more access to information than ever before. However, due to inadequate digital literacy, the ability to evaluate, interpret and assess the accuracy of this information is limited among the mass people. This is partly due to the availability of reliable information from ‘trusted’ sources, and partly because of the misinformation and rumors spread by people and institutions trying to take advantage from chaos. Additionally, there are also huge gaps in access to information, notably among older people, women, minorities and people living with disabilities.

COVID-19 provides a unique opportunity to address the state of information chaos, data management, data tracking, with digital technology while building the capacities of local non-government organizations (NGOs) at the national and local level. As well as the health seeking behavior at individual and community level. The mass practice of mistreatment is practicing, like- hot water treatment, taking honey and nigella etc. On the other hand, a bunch of people are not using mask to prevent COVID 19. Thus, this narrative review will be digging out the perception, rumors, misconceptions and reasons of practicing treatment or mistreatment of COVID from rural and urban Bangladesh.

# OBJECTIVE

To understand the perception and misconceptions regarding COVID-19 in Bangladeshi community.

# METHODOLOGY

The study was conducted following the narrative review methodology. The papers were selected purposively from different journals; namely, IJPHS, Plos One, SAGE, etc. Both quantitative and qualitative papers were selected based on the study timeline, targeted population, location, and publication date. The overall process of the study followed multiple stages which have been discussed in this methodology section.

The first step was searching for the papers from web, the search strategy. For this the timeframe was set 2020 and 2021, all the publications in scientific journals during the mentioned period was under the scope of the narrative review, as that was the high time for COVID-19 prevalence, and misconceptions and rumors related to pandemic spread at that time most. Mainly, the search engine was Google scholar, however, along with that SAGE, Plos One, IJPHS site has been surfed to search literature. The search strategy followed multiple keywords and focusing on the study objective; namely, COVID-19, knowledge, perception, misinformation, rumors, practice, challenges, experience, pandemic, lockdown, Bangladesh; the search strategy formulation was given in Table-1.

**Table 3: Search Strategy following multiple keywords**

|  |  |
| --- | --- |
| **Serial No.** | **Search Strategy Following Multiple Keywords** |
| 1 | COVID-19 + Bangladesh + Rural + Perception/Beliefs |
| 2 | COVID-19 + Bangladesh + Urban + Perception + Knowledge |
| 3 | COVID-19 + Bangladesh + Rural + Knowledge and Practices |
| 4 | COVID-19 + Bangladesh + Urban + Knowledge and Practices |
| 5 | COVID-19 + Bangladesh + Rural + Misinformation |
| 6 | COVID-19 + Bangladesh + Urban + Misinformation |
| 7 | COVID-19 + Bangladesh + Rural + Fake news |
| 8 | COVID-19 + Bangladesh + Urban + Fake news |
| 9 | COVID-19 + Bangladesh + Rural + Rumors |
| 10 | COVID-19 + Bangladesh + Urban + Rumors |

Based on the search strategy papers were searched and available free version papers were collected for review. Here, one that note, it is important to define the keywords to make our understanding regarding misinformation, rumors, fake news etc. See Table-2 for the definition of those keywords.

**Table 4: Definition of the keywords**

|  |  |
| --- | --- |
| **Keyword** | **Definition** |
| Misinformation | The information that are confirmed as incorrect from reliable data sources. Misinformation is all transmitting messages, stories, theories, or opinions that spread rapidly through social contacts or online media. They argue primarily with respect to intent and mode of spread. Misinformation involves information that is involuntarily false and is shared without purpose to harm (Claire Wardle and Hossein Derakhshan, 2017). |
| Beliefs | Belief are the stories that we tell ourselves to define our personal sense of reality. Beliefs are often considered are commitments or as religious beliefs as well as there are philosophical beliefs sphere of daily life. These sets of beliefs are strengthened by culture, theology, experience, and training as to how society works cultural values, stereotypes, political viewpoints etc. (Usó-Doménech and Nescolarde-Selva, 2016) |
| Fake news | Fake news is intentionally spread misinformation in the format of news which is not necessarily disinformation since it may be unintentionally shared by innocent users. Fake news is a fabricated information that mimics in news media contents [Lazer et al. (2018)](https://www.sciencedirect.com/science/article/pii/S0277953619305465#bib54). Fake news includes both spoof and information created purposefully to mislead as a means to achieve a political or other goals (Claire Wardle and Hossein Derakhshan, 2017). |
| Rumors | Rumor is unverified information that may or may not be true (Al-Zaman *et al.*, 2020). |

The second step was selecting the papers, the papers were selected purposively. PRISMA model was used for the purposive selection of the papers; however, the process was not followed systematically. The process has not followed any inclusion or exclusion criteria, that was the limitation of this narrative review. After reading the titles and abstracts of the articles the papers were selected for the narrative review under the guidance of the supervisor. Basically, based on a few key points the study papers were selected, which are location, publication time and study design. The narrative review intended to review those articles based on rural and urban Bangladesh, the time frame of the publication between 2020 to 2021 and both the quantitative and qualitative approaches. Primarily 18 articles were screened from 35 articles, and later on, 11 articles were selected based on the study titles and their abstract. Whereas five were published in 2020 and six were published in 2021.

The third step of the narrative review was data extraction from the selected papers. Data extraction and analysis was done by following the critical appraisal approach. During the data extraction the most significant questions of critical appraisal were followed, like, the relevance of the study, new contribution, research questions, study design and protocol, avoiding biasness, data analysis etc. The analysis was done accordingly, the papers were read carefully again and again until the results come. The analysis plan is given in Table-3.

**Table 5: Data extraction and analysis plan**

|  |  |
| --- | --- |
| **Category** | **Analysis Plan** |
| Study Context of the selected papers | Title, year of publications, authors, journal name |
| Methodology of the selected papers | Study location, target population, study design, sampling method and sample size, type of statistical analysis |
| Major findings of the selected papers | Rumors and misconception, knowledge, practice on COVID-19 |
| Strength and limitations of the selected papers | Strength and limitations of the studies |
| Conclusion and recommendation of the selected papers | Justified conclusion and recommendation |

# RESULTS AND DISCUSSION

This results section illustrates the findings from the narrative review for selected 11 papers. Basically, this section will describe the study context, methodology, results, and discussion of the reviewed 11 papers based on the analysis plan mentioned in the methodology. This results and discussion section contains five sub-section to recount the selected papers.

## 4.1 Study Context of the Selected Articles

Among the selected elven articles, around half (5) of the articles published in 2020 and rest of the six articles published in 2021. Mostly, the publishers were Plos One, SAGE, International Journal of Public Health Science, Journal of Public Health and so one. The title, authors, publication year, journal name and citation link of the reviewed articles is given in the Table-4.

**Table 6: Context of the reviewed articles**

| Study References | Study Title | Authors | Year of Publications | Journal Name | Search Engine | Link of the Article |
| --- | --- | --- | --- | --- | --- | --- |
| Paper 1-(Ferdous *et al.*, 2020) | Knowledge, attitude, and practice regarding COVID-19 outbreak in Bangladesh: An online based cross-sectional study | Most. Zannatul Ferdous, Md. Saiful Islam, Md. Tajuddin Sikder, Abu Syed Md. Mosaddek, J. A. Zegarra-Valdivia, David Gozal | October 2020 | Plos One | Google Scholar | https://doi.org/10.1371/journal. pone.0239254 |
| Paper 2-(Islam *et al.*, 2021) | Knowledge, attitudes and practices associated with the COVID-19 among slum dwellers resided in Dhaka City: a Bangladeshi interview-based survey | Md. Saiful Islam, Md. Galib Ishraq Emran, Md. Estiar Rahma, Rajon Banik, Md. Tajuddin Sikder, Lee Smith, Sahadat Hossain | 2020 | Journal of Public Health | Vol. 43, No. 1 | Google Scholar | <https://doi.org/10.1093/pubmed/fdaa182> |
| Paper 3- (Farid, 2020) | Experience and perception of urban community towards COVID-19 pandemic | Zawad Ibn Farid | 2020 | International Journal of Natural and Social Sciences | Google Scholar | <https://doi.org/10.5281/zenodo.4463363> |
| Paper 4- (Akon and Bhuiyan, 2020) | Rumors and Its Impact on Youth during COVID-19 Pandemic: The Case of Bangladesh | Saifullah Akon, Afnan Nur Bhuiyan | June (Spring) 2020 | Journal of Research in Education, Science and Technology; Volume 5, Number 1, | Google Scholar | https://www.researchgate.net/publication/342898360 |
| Paper 5- (Islam, Zaman and Sarker, 2020) | Beliefs About COVID-19 of Elderly Residents in Rural Bangladesh | Muhammad Nazrul Islam, PhD , Akib Zaman, and Shaoli Sarker, | 2020 | Asia Pacific Journal of Public Health Vol. 32(8) | Google Scholar | https://journals.sagepub.com/doi/pdf/10.1177/1010539520964275 |
| Paper 6 –(Bakebillah *et al.*, 2021) | Community’s misconception about COVID-19 and its associated factors in Satkhira, Bangladesh: A cross-sectional study | Md. Bakebillah, Md. Arif Billah, Befikadu L. Wubishet, Md. Nuruzzaman Khan | September 10, 2021 | Plos One | Google Scholar | https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0257410 |
| Paper 7- (Akhtar *et al.*, 2021) | Knowledge and public health practices during lockdown towards COVID-19 in Bangladesh | Sharmin Akhtar, Rubel Ahmed, Sharmin Jahan, Md. Mosharaf Hossain | 2021 | International Journal of Public Health Science (IJPHS) | Google Scholar | https://ijphs.iaescore.com/index.php/IJPHS/article/view/21053 |
| Paper 8- (Pervez *et al.*, 2021) | Perception and experiences regarding COVID-19 pandemic among urban young adults in Bangladesh: a mixed-method study | Sabbir Pervez& Shabnam Naher& Mamun Ur Rashid Pranta& Rajon Banik& Quazi Maksudur Rahman | June 2021 | Journal of Public Health: From Theory to Practice | Google Scholar | https://doi.org/10.1007/s10389-021-01600-3 |
| Paper 9 – (Begum, 2021) | Perception of COVID-19 in Bangladesh: Interplays of Class and Capital | Perception of COVID-19 in Bangladesh: Interplays of Class and Capital | 2021 | Society and Culture in South Asia, SAGE | Google Scholar | https://journals.sagepub.com/doi/full/10.1177/2393861720977049 |
| Paper 10 –(F. N. Rahman *et al.*, 2021) | Challenges in Preventive Practices and Risk Communication towards COVID-19: A Cross-Sectional Study in Bangladesh | Farah Naz Rahman, Md Al Amin Bhuiyan, Kabir Hossen, Hafiz T. A. Khan, AKM Fazlur Rahman and Koustuv Dalal, | September 2021 | International Journal of Environmental Research and Public Health | Google Scholar | https:// doi.org/10.3390/ijerph18179259 |
| Paper 11- (M. M. Rahman *et al.*, 2021b) | COVID-19 responses among general people of Bangladesh: Status and individual view toward COVID-19 during lockdown period | Md Mostafizur Rahman, Saadmaan Jubayer Khan, Mohammed Sadman Sakib, Md. Abdul Halim, Farzana Rahman, Md Moshiur Rahman, Jannate Mehjabin Jhinuk, Nadia Habib Nabila & Mir Taj Mira Yeasmin | January 2021 | Cogent psychology | Google Scholar | https://doi.org/10.1080/23311908.2020.1860186 |

## 4.2 Methodology of the Selected Articles

Most (7) of the selected articles for the narrative review are quantitative papers, two is fully qualitative paper, and another two articles followed the mixed-method approach. All the study location were either rural Bangladesh or urban areas of Bangladesh, the targeted population represents the youth, the elderly people, the internet users, the slum dwellers. Most of the study followed the convenient sampling technique, however, multi-stage purposive sampling and snowball was done in few cases. All the quantitative and mixed-method articles followed the descriptive analysis and chi-square, few of them done logistics or multivariate regression, however, thematic analysis was followed for qualitative or mixed-method articles. The detail methodology of the reviewed articles is given in the Table-5.

**Table 7: Methodology of the reviewed articles**

| Study References | Study Location | Study Design | Target Population | Sampling and Sample Size | Type of Statistical Analysis | Ethical Consideration |
| --- | --- | --- | --- | --- | --- | --- |
| Paper 1-(Ferdous *et al.*, 2020) | Bangladesh | Quantitative cross-sectional survey | Generalized | Convenient sampling and the total sample size were 2068. | Descriptive analysis, Chi-square, binary logistics regression | Formal ethical approval was taken |
| Paper 2-(Islam *et al.*, 2021) | Bangladesh (Dhaka) | Quantitative cross-sectional survey | Regional (Slum dwellers) | Convenient sampling and the total respondents were 410. | Descriptive analysis, Chi-square, *t*-tests, regression | Formal ethical approval was taken |
| Paper 3- (Farid, 2020) | Bangladesh (Dhaka) | Qualitative | Regional (Urban population) | Purposive random sampling and the total respondents were 40. | Descriptive analysis, and thematic analysis | The study has confirmed the ethical issues as per Helsinki Declaration |
| Paper 4- (Akon and Bhuiyan, 2020) | Bangladesh | Mixed-method approach | Youth (university level students) | Snowball sampling for the quantitative survey and the total respondents were 188. Academic and non-academic sources were used for qualitative data collection. | Descriptive analysis | Nothing mentioned about ethical clearance in the paper. |
| Paper 5- (Islam, Zaman and Sarker, 2020) | Rural Bangladesh | Nothing Mentioned in the paper. | Elderly people | Nothing Mentioned in the paper. | Nothing Mentioned in the paper. | Nothing mentioned about ethical clearance in the paper. |
| Paper 6 –(Bakebillah *et al.*, 2021) | Bangladesh (Satkhira) | Quantitative cross-sectional survey | Regional (The youngest person aged more than 18 and the oldest person of the family) | Multi-stage purposive sampling and the total respondents were 210. | Descriptive analysis, Chi-square test, Bivariate and multivariate logistics regression | Formal ethical approval was taken. |
| Paper 7- (Akhtar *et al.*, 2021) | Bangladesh | Quantitative cross-sectional survey | Generalized (Internet users) | Random sampling and the total respondents were 248. | Descriptive analysis, Chi-square, | Formal ethical approval was taken. |
| Paper 8- (Pervez *et al.*, 2021) | Bangladesh (urban) | Mixed-method approach | Urban young adults | Convenient sampling technique for the quantitative survey and the total respondents were 315; and snowball sampling for the qualitative data collection and the total respondents were 20. | Descriptive analysis, Chi-square, and thematic analysis | Formal ethical approval was taken. |
| Paper 9 – (Begum, 2021) | Bangladesh | Qualitative | Generalized (Urban and rural people) | Purposive sampling and the total respondents were 20. | Thematic analysis | Nothing mentioned about ethical clearance in the paper. |
| Paper 10 –(F. N. Rahman *et al.*, 2021) | Bangladesh | Quantitative cross-sectional survey | Generalized | Multi-stage cluster randomize sampling and the total respondents were 1382. | Descriptive analysis, multiple logistics regression | Formal ethical approval was taken |
| Paper 11- (M. M. Rahman *et al.*, 2021b) | Bangladesh (Dhaka) | Quantitative cross-sectional survey | Generalized | Convenience sampling technique as well as snowball and the total respondents were 616. | Descriptive analysis, Chi-square test, Kruskal-Wallis or Mann Whitney U test, Shapiro-Wilk and Kolmogorov–Smirnov tests, Post hoc analysis, Dunn’s test, Pearson’s correlation test and linear regression | Formal ethical approval was taken. |

## 4.3 Major Findings from the Selected Articles

This sub-section described the major findings of the reviewed articles in the Table-6. The major findings consisting of the statistical results of the study, the perceptions, rumors, and misconception related to COVID-19, as well as the knowledge, attitudes and practices regarding COVID-19, and the summary of each article narrated here.

**Table 8: Major findings from the reviewed articles**

| Study Reference | Major Findings | | | Summary |
| --- | --- | --- | --- | --- |
| Statistical Data | Major Rumors and Misconceptions on COVID-19 | Knowledge, Attitudes, and Practices on COVID-19 |
| Paper 1-(Ferdous *et al.*, 2020) | * Around 60% of the respondents were male. * Most of the sampled respondents were students (71%), around two-thirds of the respondents had a bachelor’s degree, almost 70% of the respondents were from urban and around half of the respondents (50%) had more than 30000 BDT income. * Reportedly, around half of the (48%) respondents had more accurate knowledge, approximately two-thirds (62%) had more positive attitudes, and a little higher than half of the respondents (55%) had more frequent practices regarding COVID-19 prevention. * Almost all the respondents (97%) found ‘COVID-19 is a dangerous disease’. * Almost all (99%) respondents used a face mask in crowded places and eventually agreed to report a suspected case to the health authorities. * A little less than 94% of the respondents reported washing their hands with soap and water. * The multiple logistic regression analyses showed COVID-19-related accurate knowledge was associated with age and residence. * Attitude and practices are associated with sociodemographic factors like being older, having higher education, employment, and having a monthly family income >30,000 BDT. | This article found out the accurate knowledge of the respondents regarding COVID-19 transmission, incubation period, symptoms, risk factors, treatments, and prevention initiatives. This article identified the misconception as inaccurate knowledge. No rumors or misconception regarding COVID-19 was reported in the article. However, reportedly,   * More than half of the respondents (57%) mentioned that their HH members don’t bother about going outside, followed by 40% thought COVID-19 was not a fatal disease and a little higher than one-fourth (26%) though mask use is not important. | * There found no significant difference between male and female regarding the COVID-19 knowledge; however, younger people (12-20 years old ~ 49%) had more than 10% accurate knowledge than the older people (aged over 30 years ~ 39%), and the similar things happened for the rural (53%) compared to urban (46%). * The more positive attitudes found 18% higher among the older (73%) compared to younger (55%), followed by higher education (74%) compared to intermediate class (52%), married (70%) vs divorced (38%). * The prevention practice was found higher among the female (59%) compared to the male (53%), followed by older age (64%) vs younger age (49%) and higher education group (64%) vs secondary education (35%). | This article not only found out the knowledge, attitude, and practices among the Bangladeshi rural and urban people about COVID-19, as well as it found out the sociodemographic factors that influenced the knowledge, attitude, and practices. Like, the place of residence, marital status, higher education, age, sex and income have significant impact on knowledge and practices to combat with COVID-19. |
| Paper 2-(Islam *et al.*, 2021) | * More than half of the respondents were male (53%) and their mean age 44.9 years. * Around three-fourth (74%) of the respondents have primary level of education and reportedly rickshaw pulling was the top profession for more than one-fourth respondents (26%). * Almost all the respondents (98%) were found not using any hand protection and 18% not wearing masks. * The mean score of knowledge, attitude and practice were respectively 6.1 ± 2.6 (out of 17), 12.3 ± 1.7 (out of 14) and 9.8 ± 1.6 (out of 12). | This article found out the knowledge, attitude, and practice of the respondents regarding COVID-19 transmission, symptoms, and prevention initiatives. No rumors or misconception regarding COVID-19 was reported in the article. | * Reportedly, the source of knowledge regarding COVID-19 for the respondents were mass media (96%), family members (49%), friends and neighbors (46%), internet (3%) and social media (2%). * The knowledge score found significantly higher among male compared to female (6.6 ± 2.6 versus 5.5 ± 2.3), followed by secondary level of education compared to no formal education (6.9 ± 2.8 versus 5.0 ± 3.5), unmarried versus divorced participants (7.7 ± 2.8 versus 4.1 ± 2.8). * The attitude score found out significantly higher among male compared to female (12.7 ± 1.5 versus 11.8 ± 1.8), followed by respondents with lower compared to upper ages (12.6 ± 1.5 versus 12.0 ± 1.8), day laborers compared to other occupation (12.8 ± 1.5 versus 11.4 ± 1.8), and unmarried versus divorced respondents (12.7 ± 1.3 versus 10.8 ± 2.1). * The practice score found out significantly higher among male compared to female (10.0 ± 1.5 versus 9.5 ± 1.6), followed by respondents with secondary level of education compared to no formal education (10.0 ± 1.7 versus 9.0 ± 2.3), day laborers compared to other occupation (10.5 ± 1.5 versus 9.3 ± 1.8), respondents living with nuclear compared joint families (9.8 ± 1.5 versus 9.3 ± 1.9). | This article revealed the correct knowledge, attitude, and practices among the Bangladeshi slum dwellers about COVID-19, as well as it found out the sociodemographic factors that associated with the knowledge, attitude and practices. Like, sex, age, educational status, marital status, occupation, family income, and family size have significant impact on the knowledge and practices to fight with COVID-19. |
| Paper 3- (Farid, 2020) | This qualitative paper stated that-   * 80% (32) reported decreased in income, while several cases found of losing income to utmost zero during the lockdown. * 75% indicated they have no idea how to cope with the approaching economic crisis and the loss of jobs/income. * 63% mentioned that during the lockdown, domestic violence has increased in urban families. * The demographic profile of the respondents was, mostly (63%) were in the 18-30 years group, a little higher than two-third (68%) were male, and most of them (83%) were Muslims, 39% were public and private job holders and 25% were students. | * A few (4) of the respondents believed that COVID-19 could not transmitted through materialistic way rather it spread divinely. | * Around three-quarter (73%) of the respondents mentioned social media as their primary sources of information about COVID-19, followed by two-third (65%) mentioned about the news media. * Around 30% of the respondents reported they use e-government (apps, website of govt.) as the source of information, followed by 27% received information through political and municipal publicity like banners, wall painting. * A little higher than 10% mentioned about the religious announcement from the urban mosque as the source of information. | This article captured the experience and perception of urban community, namely, Dhaka, during the lockdown. The study found out the perception regarding symptoms and health impact, prevention and hygiene maintenance, knowledge level of COVID-19 transmission. Along with that draw a synopsis of COVID-19’s impact on income, food security, mental stress due to fear of job loss, coping capacity and domestic violence. The study also revealed the positive consequences of the lockdown/general holidays and the better air quality in Dhaka city. |
| Paper 4- (Akon and Bhuiyan, 2020) | * Reportedly, a little higher than three-quarters (77%) of the respondents mentioned coronavirus infected only older people not the younger. * 68% of the respondents believe coronavirus would not come in Bangladesh due to hot temperature. * More than half (53%) of the respondents mentioned coronavirus would not spread in Bangladesh as it is Muslim-majority country | This study revealed four categories of rumors-   * Religious rumors: Coronavirus will not spread here as it is a Muslim country and Muslims would not infect by the virus. And there was a strong perception which spread through Facebook that coronavirus is the punishment from God for the disbelievers. * Rumors regarding the aged people: it was stated that only the elderly people would infect by the virus and only elderly would die as the result of the infection. * Rumors regarding the hot weather: there exist a rumor that coronavirus would not survive above 30 degrees Celsius. * Rumors related to food consumption: popular rumors like, drinking 3 cup of tea daily could avoid the virus infection, intake of Thankuni (Centella Asiatica), garlic also resist the virus and interestingly there spread a rumor that eating of farm chicken, Tilapia (Oreochromis niloticus) and Pangasius (Pangasius bocourti) could spread the virus. | The study described the existing rumors belongs to the Bangladeshi youth regarding COVID-19. Those rumors illustrated the knowledge level and information sharing practices of the Bangladeshi youth, who were the believers of the rumors and the mediator of spreading the rumors through social media, namely, Facebook. Despite of this few rumors like intake of Thankuni and garlic helps to create resistance in the body against diseases. | This study captured the most popular rumors regarding coronavirus among the Bangladeshi youth and categorized the rumors in four sections. And it revealed that all those rumors have negative consequences on youth people, and they were at the utmost risk of COVID-19 infection. |
| Paper 5- (Islam, Zaman and Sarker, 2020) | This article did not report any statistical results. | The study observed wrong perceptions and myths among elderly people from rural Bangladesh which can be categorized as prevention, causes and treatment.   * Prevention: Wearing any type of face mask, intake of garlic and “Thankuni” leaves could prevent the virus. * Causes: Parcels from Dhaka or affected areas could transmit the virus, young people would not infect by the virus and COVID-19 is a mosquito-borne disease. * Treatment: Gargling with hot water, salt and vinegar could disinfect the virus from the throat, hot weather could kill the virus and COVID-19 test would be possible any random hospital. | This article did not describe the knowledge, attitude and practice related to COVID-19 of the elderly people. However, the study stated that considering the economic condition, poverty, living-standard, and professional role most of the elderly people relying on their wrong perception and did not follow the preventive measures like social distancing to assure their food and living. | This article explored the belief among the elderly people of rural Bangladesh regarding the prevention, causes and treatment of COVID-19, which is actually a potential threat to the whole community. Thus it is crucially important to enhance their awareness and busting their beliefs on myths. |
| Paper 6 –(Bakebillah *et al.*, 2021) | * Reportedly, more than half of the respondents (53%) had at least one or more COVID-19 related misconception. Misconceptions were found higher among men (75%) compared to women (25%). * Eventually, respondents were not reading the newspaper (70%) had higher misconceptions, and respondents (88%) were watching television had lower misconceptions regarding COVID-19. * The study found misconceptions are higher among social media users (73%). | The major misconception captured by the study were-   * COVID-19 is not a dangerous virus. * The virus is a punishment from God. * The virus will not cause a disease. * This virus is part of virus war. | This study was only looking for the COVID-19 related misconceptions and its associated factors among rural Bangladesh. Respondents’ socio-demographic characteristics and mass and social media usage behaviors drag them towards the misconceptions on COVID-19. | This article helps to identify the common misconceptions of COVID-19 and factors associated with those misconceptions in rural Bangladesh. The common misconceptions related to COVID-19 in Bangladesh are associated with the sociodemographic, mass, and social media use of respondents. A higher level of education was significantly related to the lower misconception about COVID-19 in rural Bangladesh. The most common forms of misconception included the pandemic as a punishment of nature and the coronavirus is not a dangerous virus. Such misconceptions were promoted by religious leaders and covered in several social and mass media. In addition, another common misconception is that this virus is a man-made (laboratory-generated) biological weapon for political reasons. This existence creates a fertile ground for COVID-19-related misconceptions. Mass media campaigns and the dissemination of correct information can reduce misconceptions. |
| Paper 7- (Akhtar *et al.*, 2021) | * The demographic information of the respondents illustrated that, 46% of the respondents were female, 80% of the respondents have higher education, 30% of the respondents belongs to 26-35 years age group, around half of the respondents (48%) were job holders and more than one-quarter (28%) were students. * 88% of the respondents reported of practicing the preventive measure like wearing mask, use of tissue or handkerchief while sneezing/cough and maintain social distance and avoid crowd. * 71% agreed to stay home. | * Reportedly, around 6% of the respondent believes that staying at home could not control the transmission of the virus while around one-quarter (23%) people were confused about that preventive measure. | * Around half of the respondents (49%) mentioned internet as the source of information regarding COVID-19, followed by television 43%. * More than one-third (36%) of the respondents received the updates through television, followed by YouTube and Facebook 32% and 23% used mobile phone to get updates from their reliable sources. * Respondents (62%) with higher education having good knowledge compared to no education and age above 60 years. * Around three-quarters (of the respondents (73%) washed their hands daily less than 10 times while 27% washed their hands more than 10 times in a day. | The article aimed to evaluate the knowledge and practices in daily life to combat COVID-19 among the Bangladeshi people. It was revealed that graduation or post-graduation and age group (26-35) significantly associated with having good knowledge on COVID-19 and practicing the better health prevention measure. |
| Paper 8- (Pervez *et al.*, 2021) | * The demographic information of the respondents reported that, 55% of the respondents were male, and 59% were unmarried, 43% were students and 28% were employed. * Most of the respondents (82%) reported COVID-19 as a viral disease. * 91% of the respondent mentioned that the virus could be transmitted through the infected person | * Reportedly, nearly one-fifth of the respondents mentioned COVID-19 is a bacterial disease. * Around half of the respondents (49%) have the misconception that COVID-19 could be spread through pet animals. | * Social media, like, Facebook, whatsapp are the source of information on COVID-19, stated by 36% of the respondents, followed by 25% mentioned about news channels, 23% newspapers, govt. or health organizations’ website (9%), family and friends (8%). * The reliable source for the COVID-19 virus different news channels and govt. or health organizations’ website mentioned by 40% and 30% of the respondents, respectively. | This article portrayed the scenario of perceptions and experiences regarding COVID-19 among young Bangladeshi urban adult, a revealed that perception and knowledge on transmission, and preventive measures are higher among females compared to the males. As well as, respondents reported financial insecurity, mental stress and insufficient health facilities. |
| Paper 9 – (Begum, 2021) | This qualitative article identified COVID-19 as *coronarog* as a new Bangladeshi phenomenon. | * The article illustrated that COVID-19 is an illness of the rich people defined by the urban working-class people. * The rural working-class defined the COVID-19 as urban disease. * COVID-19 was defined as *gojob* (rumor) or the punishment from Allah. | * The source of information for the urban upper class were television, newspaper, social media and for the working-class were the employer or neighbors. * The working-class face challenges to practice the safety precautions like hand washing, social distancing due to their job nature and place of residence (slum). | This article explained nicely the perception of COVID-19, and the changes in perception over time. Class and capital like social and cultural capital influence the perceived different definitions of an object either personalistic or naturalistic. |
| Paper 10 –(F. N. Rahman *et al.*, 2021) | * The demographic information of the article stated that, the male-female ratios were approximately same, around 11% of the respondents were with minimum one disability, 57% were from urban, only 34% of the respondents have higher secondary or above education, and 30% were day laborers. * Around 71% respondents reported that they faced difficulties in practicing the recommended preventive behaviors of COVID-19. * 45% mentioned the lack of protective equipment like mask, gloves, hand sanitizer, 37% mentioned about the crowdy or congested living or workplace | This article did not report any rumor or misconceptions related to COVID-19. | * A little less than one-fourth (22%) of the respondents mentioned inadequate knowledge regarding protective measures, like, proper use of mask, hand washing techniques; followed by 17% mentioned about the negligence of family members regarding the preventive measures. * Around two-third (62%) of the respondents mentioned that they lack information regarding the treatment of COVID-19, followed by 60% mentioned about the vaccinantion. | This article revealed the reasons behind the challenges to practicing the preventive measures of COVID-19. |
| Paper 11- (M. M. Rahman *et al.*, 2021b) | * The demographic data showed that, most of the respondents (96%) belongs to the age group of 18-35, 58% were male, almost all the respondents (99%) were graduated, 97% living with their family, 57% live in Dhaka and around three-quarters (73%) were students. * Around one-third of the respondents (32%) reported their living places is unsafe. * 96% of the respondents know how to prevent COVID-19, 61% respondents reported that they know how the virus spread, 46% knew the symptoms and 51% knew the emergency number for COVID-19 assistance in Bangladesh. | * More than half of the respondents (54%) have misconceptions (unexpected response) regarding the symptoms of the virus, followed by 39% having misconception regarding the transmission of the virus | * Around half of the respondents (48%) demonstrated moderate KAP score, while 30% scored low. * Respondents (21%) with more than 5 family members have high knowledge about COVID-19 * Half of the respondents (50%) reported the moderate attitude score category while 19% of the respondents showed high attitude score category. * 38% of respondents demonstrated high practice scores. | This article illustrated the response of the general people of Bangladesh from individual viewpoints. The study revealed that female respondents were better at combatting COVID-19 compared to their male counterparts, and knowledge, attitude and practice are significantly associated with each other. |

## 4.4 Strengths and Limitations of the Selected Articles

Among the 11 articles, only five articles mentioned their study limitations, and only two articles mentioned their strengths. The rest of the articles neither mentioned their strengths nor their limitations. This sub-section of this narrative review tried to capture the strength and limitations of the reviewed articles from the reviewer’s perspective along with the strength and limitations mentioned in the articles already. See Table-7.

**Table 9: Strengths and limitations of the reviewed articles**

| Study Reference | Strength of the Study | Limitations of the Study |
| --- | --- | --- |
| Paper 1-(Ferdous *et al.*, 2020) | * This study was one of the earliest KAP study in Bangladesh on COVID-19 to capture the knowledge, attitude, and practices of Bangladeshi residents combat to coronavirus. * The study adopted the online data collection (Google form) approach during the lockdown to avoid transmission in March 2020. * The data analysis was statistically sound in manner by using excel and SPSS (Chicago IL, USA), and the results showed the associations of education, marital status, occupation, monthly income etc. are significant with knowledge, attitude, and practices, as well as there was a difference between men and women regarding to respond COVID-19. | * This study followed cross-sectional study design which cannot establish causal inferences. * The responses were self-reported, so there were chances of multiple biases. * There were sampling biases as the survey was conducted online; the sample respondents were not representing the Bangladeshi population. only those became the respondents who have internet access. * According to the authors, the checklists were not good enough to capture and analyze the true picture of knowledge, attitude, and practice of COVID-19. * Focus group discussion, and in-depth interviews were required to understand the attitude and practice towards COVID-19. |
| Paper 2-(Islam *et al.*, 2021) | * This was one of the earliest KAP studies focusing on the slum dwellers of Dhaka city. * It was an offline (in-person interview) survey, all the safety precautions were taken, and the sampling was done following the specific inclusion criteria. * The data analysis was statistically sound in the manner using excel and IBM SPSS, and the KAP analysis was done. The study showed the knowledge, attitude, and practice in scores. | * This study followed a cross-sectional design that cannot establish causal inferences. * The sample size is only representative of the selected slums of Dhaka City and might not smear to the rest of the countries. |
| Paper 3- (Farid, 2020) | * This was one of the earliest qualitative studies on COVID-19 to capture the experience and perception of urban community of Bangladesh. * A significant number of the respondents (8 out of 40) were COVID-19 survivors. * The study revealed the story behind the perception, the reaction against the government’s response, lockdown experiences and the ‘new normal’ concept of urban community. | * This was a qualitative study, and the in-depth interviews were conducted over phone calls or using messenger, viber, whatsapp, hangout, zoom etc. In-depth interview required a good amount of time and concentration of both the interviewer and interviewee. During the phone calls or other media of interviewing the respondents might lose his/her interest, or unmindful, which can easily avoid in the face-to-face or in-person interview. |
| Paper 4- (Akon and Bhuiyan, 2020) | * This study identified and categorized the popular and existing rumors on COVID-19, as well as the impact of those rumors on Bangladeshi youths. * It was an mixed-method study and the statistical analysis was sound in manner. | * There were sampling biases as the survey was conducted online; the sample respondents (188) did not represent Bangladeshi youth. The responses were self-reported, so there were chances of multiple biases. * The survey period was short, and the responses were self-reported, so there were chances of biases. |
| Paper 5- (Islam, Zaman and Sarker, 2020) | * This was one of the first study which focused on the beliefs of the elderly rural people of Bangladesh regarding COVID-19 and classified the myths and wrong perception owned by them. | * Methodology of this paper wasn’t found. * Nothing mentions about ethical clearance in the article. |
| Paper 6 –(Bakebillah *et al.*, 2021) | * This was one of the earliest studies to capture the community’s misconception and associated factors regarding COVID-19 based on the available literature, and the study followed a multi-stage sampling method. * The statistical analysis was done soundly using STATA and showed the significant associations with the COVID-19-related misconception. | * The data collection has been done cross-sectional, showing only the associations and cannot establish causal inferences. * The entire sample size (210) and the sample locations were not statistically representative. * The data was collected during the first wave of COVID-19 in Bangladesh; thus, the misconception reported in this study were common during the first wave of COVID-19. |
| Paper 7- (Akhtar *et al.*, 2021) | * This was one of the earliest studies focusing on the health practices during the lockdown. * The data collection tools, and analysis were moderated by Pérez-Fuentes *et al* method | * This study followed a cross-sectional study design which cannot establish causal inferences. * The responses were self-reported as the respondents were given a google form and unlimited time to filled out the questionnaire, so there were chances of multiple biases. |
| Paper 8- (Pervez *et al.*, 2021) | * This mixed-method study focusses on the experience and perception of urban youth of Bangladesh regarding COVID-19. * The study set and clearly stated the inclusion criteria of the respondents, as well as clearly mentioned the quantitative (SPSS) and qualitative (thematic) data analysis process. | * This study followed cross-sectional study design which cannot establish causal inferences. * The responses were self-administrative as the respondents were given a google form; thus, there were chances of multiple biases. |
| Paper 9 – (Begum, 2021) | * This qualitative paper focuses on the role of class and capital regarding COVID-19 perceptions in Bangladesh. * The sampling methodology was excellent and representative for the study objective. | * This was a qualitative study, and most (15 out of 20) in-depth interviews were conducted over phone calls. By nature, an in-depth interview required a good amount of time and concentration from both the interviewer and interviewee. During the phone interview, the respondents might lose his/her interest or become unmindful, which can easily avoid in the face-to-face or in-person interview. * Nothing mentioned about ethical clearance in the article. |
| Paper 10 –(F. N. Rahman *et al.*, 2021) | * This was one of the earliest studies focusing on the challenges in preventive practices and risk communication towards COVID-19 among the Bangladeshi people. * The study followed multi-stage sampling method and achieved a significant sample size, and the statistical analysis was done in a sound manner using SPSS. | * This study followed a cross-sectional design, which cannot establish causal inferences. * Socioeconomic information could not be collected from respondents; thus, the variation in challenges regarding COVID-19 preventive practices and risk communications across socioeconomic groups could not be determined. * The data did not adequately represent indigenous peoples and urban slum dwellers that referred it was not possible to determine how the challenges were distributed among these communities. |
| Paper 11- (M. M. Rahman *et al.*, 2021b) | * This study tools were adopted through literature review considering the Bangladesh perspective and the data analysis was done in statistically sound manner using ‘R’. * This exploratory study can provide considerable information for the relevant social, non-government and governmental organizations and stakeholders where they can disseminate knowledge, generate positive attitude, and implement that knowledge in practice. | * This study followed cross-sectional study design which cannot establish causal inferences. * The responses were self-administrative as the respondents were given a google form; thus, there were chances of multiple biases. * It only considered the personal views about safety and mental health during the COVID-19 lockdown period to evaluate their responses; no further analysis to measure safety and mental health was considered. * The questionnaire followed the English language, which might create some barriers for the respondents. * The sample might not reflect the whole country’s populations’ COVID-19 response views in Bangladesh. |

## 4.5 Conclusion and Recommendations of the Selected Articles

In this section the conclusion and recommendations of the reviewed eleven articles were illuminated briefly. Almost all the article provide recommendation for the different stakeholders mostly they ended up with a justified conclusion. Table-8 summarize that.

**Table 10: Conclusion and recommendations of the reviewed articles**

| Study Reference | Conclusion | Recommendation |
| --- | --- | --- |
| Paper 1-(Ferdous *et al.*, 2020) | The study findings concluded that after the immediate lockdown and during the rapid rise of the COVID-19 outbreak, internet users in Bangladesh showed significant differences in KAP regarding the pandemic. | * Effective and tailored health education programs is needed to be advancing COVID-19 knowledge, and thereby leading to more positive attitudes, and execution and maintenance of safe practices. |
| Paper 2-(Islam *et al.*, 2021) | The study findings uncovered that most of the slum dwellers in Bangladesh have limited knowledge of the COVID-19. Though, they demonstrate positive attitudes and favorable practices toward COVID-19. However, those practices are not satisfactory; thereby, the slum dwellers are still in a life-threatening condition due to their cramped housing condition where preventive measures such as personal hygiene and social distancing are idealistically impossible to practice. | * Faster implementation of culturally sensitive health education encompassing with better housing and delivering adequate facilities for COVID-19’s precautions are urgently needed to help people inspire positive mindset and maintain proper preventive practices. |
| Paper 3- (Farid, 2020) | The study findings unquestionably specified that knowledge, perception, and practices toward the causation, transmission, controls, and treatment process of the COVID-19 are marginally different due to distinct levels of demographic background and socio-economic status. A distinct and clear portrait was given by the urban respondents that the lockdown experience of urban people in Bangladesh imposed anxiety and fear and the reason behind was the inadequate and limited healthcare facilities and of not ensuring basic needs. As well as shutting down the business centers (except for daily necessities and pharmacies) puts immense stress on the economy. Reportedly, economic stress, unemployment, mental pressure, food insecurity, hampering of education, and domestic violence are interrelated in this time of crisis. | * It is needed to develop catchy, creative, and unique television shows and social media campaigns on preventive measures of and help to reduce rumors, misgivings, and confusions related to the spreading of COVID-19, print, social and electronic media to make people conscious. * The government’s relevant wings require addressing and concentrating on comprehensive prioritization of life and livelihood needs of people, which are not addressed yet. * To prevent increasing positive cases and deaths, social distancing should be made stricter as the vital tool to combat in forthcoming days among people as community-based action for combating COVID-19. |
| Paper 4- (Akon and Bhuiyan, 2020) | The findings of this study stated that any rumor related COVID-19 spreads very quickly in Bangladesh. The lack of information and awareness of people, low education rate, and the improper management and less monitoring activities by the government to prevent the virus helps a group of people to spreading the rumors regarding the virus through social media. The alarming concern is that the young people on whom the country’s economy and development depend, increasingly believe in these rumors and are at the utmost risk of COVID-19 infection. | * The country’s youth needed to be made aware that none of the highly hyped rumors circulated are scientifically sound, rather these rumors are putting their lives at extreme risk. * More attention should be paid to prevent any kind of rumors about the coronavirus and to inform the law enforcement agencies of the country if necessary. * As religious rumors are spreading more in the country on COVID-19, young people need to inform the public about the unscientific nature and the fact of the virus and ensure that they do not harm themselves by believing the rumors. * The government and the law enforcement agencies have to play an active role in preventing such rumors and bring those who spread these rumors under the law. * Since rumors of coronavirus are playing a big role in affecting young people, the government needs to mobilize the youth and the public to raise awareness among them. * Government agencies should publish leaflets on rumors and ways to prevent or eliminate coronavirus on their respective organizations’ websites. * Finally, the government should provide incentives to the young workers and take care of them, so they do not suffer from depression. Besides, it is necessary to strictly monitor those other institutions including garments whether they are following the government’s guidelines properly. |
| Paper 5- (Islam, Zaman and Sarker, 2020) | The study findings illustrated that elderly rural people believing in myths are a potential threat to the whole community. Due to the population density, this would be nearly impossible to ensure social distance unless the citizens themselves willingly follow the preventive measures of COVID-19. Similarly, due to their limited access to media and language gap, it is very difficult to make them correct through the existing practices, such as information provided in the official websites, newspapers, official pages of social media, and by video messages through electronic media. | * Awareness and authentic information should reach to elderly people through electronic media and as well as by the community level volunteers, (political) leaders, and Imams (community leader of Muslims) or other religion-based leaders. * Printing and distributing posters to provide appropriate messages about individual responsibilities. * Trained young volunteers from the rural community can also significantly help by providing facts about COVID-19 to maintain the health regulations. * Finally, the mainstream media and local newspapers must provide authentic information to create a positive impact on rural elderly people. |
| Paper 6 –(Bakebillah *et al.*, 2021) | The study findings indicates that misconceptions on COVID-19 are significantly prevalent among the rural people in Satkhira, Bangladesh. Respondents’ socio-demographic characteristics and mass and social media usage behaviors were associated with this misconception. | * Proper education and dissemination of correct messages through mass and social media can reduce the misconception and help to succeed in the fight against this COVID-19. |
| Paper 7- (Akhtar *et al.*, 2021) | This study concludes with the statement that the higher education has significant association with knowledge and good practices towards COVID-19 outbreak in Bangladesh. Most of the higher educated respondents have good manure, positive thinking ability and practices to safe themselves from the coronavirus. | * Researchers and the population should follow all good promotional practices for the preventive measures against coronavirus. |
| Paper 8- (Pervez *et al.*, 2021) | The study findings specifically reported that most urban young adults in Bangladesh have a good understanding of COVID-19, and the ratio is higher among female than male. Despite this level of understanding regarding COVID-19 transmission, symptoms, and preventive practices, the transmission is relatively high among young adults in Bangladesh, which indicates a level of negligence among them about preventive practices. | * Immediate implementation of health education, barrier-specific counseling and outreach, and community-based interventions should be undertaken to identify vulnerable populations, especially the young adults. |
| Paper 9 – (Begum, 2021) | The study observed and explained that everyone from urban or rural, rich, or poor perceived the coronavirus as the synonymous of death. Everyone has either a personalistic or a naturalistic etiological explanation. And this etiology is associated with their social classes, access to social and cultural capital, and geographical locations. The working-class population in urban and rural areas rely on the personalistic etiological explanation as they have poor access to capital. The urban working-class defined it as a disease of the rich, while the rural working-class subscribed it as a disease of the urban areas. However, they both believed that they would not be infected by the virus, and thus, they did not take any precautions. On the contrary, the rich subscribe to a naturalistic explanation of the disease as they were aware of through social networks. And they were taking the safety measures and praying to Allah to get rid of the virus. | * The Bangladeshi healthcare system needed to develop efficient strategies to combat the coronavirus and take care of the patients with its limited resources. |
| Paper 10 –(F. N. Rahman *et al.*, 2021) | This study revealed the unavailability of protective equipment and crowded living spaces as substantial barriers to practicing COVID-19 protective behaviors and identified those sociodemographic groups more likely to face these barriers. Persons with disabilities were identified as a vulnerable group for the challenges in COVID-19 preventive practices, highlighting the importance of focusing on the needs of marginalized communities. In addition, inadequate information regarding the proper use of protective measures was a critical challenge in both preventive practices and risk communications for COVID-19. | * Policymakers should develop intervention strategies for the vulnerable groups such as free distribution of masks and other protective equipment. * The national COVID-19 awareness campaign, risk communications, and vaccination campaign strategies is needed. * Finally, the lower comprehension of the COVID-19 awareness campaign among agricultural workers, day laborers, and people with low education levels highlights the necessity of developing risk communication messages tailored to people’s social context and need. |
| Paper 11- (M. M. Rahman *et al.*, 2021b) | The study conclude that the lockdown has been historically considered to be an effective method to control any pandemics as it has been proven to reduce the fast-spreading behavior of pandemic. However, it usually poses significant challenges to maintain properly, particularly in developing country, like Bangladesh. People need to go outside for their livelihood; social system may also be contributing factor for the ineffective implementation of this method. The community people who were not used to stay home for the long time, deficit of authentic knowledge, lack of positive attitude to prevent the COVID-19 infection and following new practice such as wearing mask have placed the situation challenging to control the COVID-19 outbreak. This study revealed that the general people of Bangladesh highly concerned about their mental health during the COVID-19 lockdown period. | * Need to track the vulnerable group against COVID-19 based on their knowledge, attitude and practice level and disseminate the comprehensive COVID-19 response and preparedness plan among them. |

The discussion part of this narrative review has been analyzed following the critical appraisal approach. To appraise a research paper critically, their need to assessment tool consisting of ten questions (Young and Solomon, 2009; Tod, Booth and Smith, 2022). This study has been followed those questions [(see Annex-I)](#_ANNEX-I) to assess the reviewed article critically.

**Paper 1 - (Ferdous *et al.*, 2020):**

This study has been conducted aiming to measure the level of knowledge, attitude, practice, and perceptions on COVID-19 among Bangladeshi people. Apparently, the findings revealed a considerable number of sociodemographic factors that affect KAP and that should be useful while planning health education programs about emerging infectious diseases. The study design was cross-sectional which can be considered as an appropriate approach considering the evolving COVID-19 pandemic, along with the research questions. This article has mentioned about the sampling biases as well as the response biases, however, the study was conducted following the research protocol and succeed to answer the research questions. This quantitative study clearly mentioned its analysis procedure in the method section and the results indicated that the analysis was done properly. In the discussion part of this article, the authors relate other pertinent articles’ findings and justified the study discussion and evidently the study conclude properly addressed the research objective. Finally, the study declared that there was no competing of interest.

**Paper 2 - (Islam *et al.*, 2021):**

This study has been conducted intending to measure the level of knowledge, attitude, and practice on COVID-19 among the slum dwellers of Dhaka city and ostensibly, the findings discovered a substantial number of sociodemographic factors that affect KAP and that would be useful while providing better housing and adequate facilities to combat with the pandemic or similar emerging infectious diseases. This quantitative study was followed the cross-sectional study protocol and deemed as proper tactic for the pandemic situation concentrating on the research questions. The article stated the potential biases, namely, the representative sampling size. Despite the limitations, the study was able to extract the results successfully based on its objectives. The methodological section of the article distinctly described the multi-stage sampling procedure and the analysis process, the analysis was done efficiently. The discussion part of this article linked their findings with others relevant articles and justified the conclusion. Lastly, the study has declared having no conflict of interest.

**Paper 3 - (Farid, 2020):**

This study has been conducted intending to understand the perception and experience of COVID-19 lockdown among the people living in Dhaka city and supposedly, the findings exposed an extensive experiences of people that were never veteran before, which were also relevant with the lockdown situation. This qualitative study followed the appropriate research protocol considering the COVID-19 outbreak. However, the study has not mentioned the potential biases; despite of few limitations, the study obtained the intending results successfully following a thematic analysis. The discussion of this article related their findings with others pertinent articles and ended up with a justified conclusion.

**Paper 4 - (Akon and Bhuiyan, 2020):**

This study has been performed aiming to understand the misconception, rumors regarding COVID-19 and the impact of believing in those rumors among the Bangladeshi youth. Evidently, the study found out the rumors and misconceptions regarding coronavirus and categorized them, this study was contemporary considering its objective in the pandemic. It was a mixed-method study, while the quantitative part was done following a cross-sectional approach and the qualitative part followed an arm-chair approach. The study followed the research protocol and gain the intended results. The statistical analysis was done in a scientific manner, and that was clearly stated in the methodology. Though the potential biases were not mentioned in the article; however, the study fulfilled its objective. No potential conflict of interest was reported in the article, moreover, the study discussed other relevant articles to strengthen its argument. Finally, the study ended up with a justified conclusion concentrated on its research question.

**Paper 5 - (Islam, Zaman and Sarker, 2020):**

This study has been conducted anticipating understanding the beliefs on COVID-19 among the elderly people of rural Bangladesh. Obviously, the study observed the myths and rumors related to coronavirus among the elderly people. This was so important to understand the research findings to take appropriate safety precautions for the elderly people of rural areas in such kind of pandemic due to infectious diseases. This article has not any methodological section, thus, the study design, analysis plan remained uncovered, as well as no discussion part. However, the article has declared having no conflict of interest and concluded with a defensible recommendation.

**Paper 6 - (Bakebillah *et al.*, 2021):**

This study has been performed intending to assess the misconception regarding COVID-19 and associated factors for Satkhira, Bangladesh. The study found out a substantial number of sociodemographic factors that associated with the misconceptions and rumors regarding coronavirus. This cross-sectional study was contemporary considering its objective in the it pandemic and followed proper research protocol. This quantitative study stated its statistical analysis clearly in the methodology, though mentioned nothing about the potential biases. The study reported of having no potential conflict of interest, as well as, discussed other important articles to strengthen its argument. Finally, the study ended up with a justified conclusion concentrated on its research question.

**Paper 7 - (Akhtar *et al.*, 2021):**

This study has been conducted aiming to measure the level of knowledge and public health practices during the lockdown declared by the government of Bangladesh towards COVID-19 among the Bangladeshi people. Across the results a significant number of sociodemographic factors that affect knowledge and health practices for safety was identified that would be useful while campaign on safety precautions against COVID-19. This quantitative study was followed the cross-sectional study protocol and deemed as proper ploy for the pandemic situation concentrating on the research questions. The study has response biases, despite of such limitations, the study was able to extract the results successfully. The methodological section of the article distinctly described the sampling procedure and the analysis process, the analysis was statistically efficient and suffice. However, the article has mentioned nothing about the conflict of interest The study discussed other significant articles aligned with its findings. and justified the conclusion.

**Paper 8 - (Pervez *et al.*, 2021):**

This study has been conducted targeting to measure the perception and experience of COVID-19 among the urban young adults in Bangladesh. Apparently, the study exposed an extensive experience of people that were not reported before and also important in such kind of pandemic. This was an mixed-method study, the quantitative survey followed the cross-sectional study protocol and the statistical analysis was done appropriately as mentioned in the article. The qualitative part was also done by the thematic analysis. The study stated no potential biases rather it clearly defines its inclusion criteria of participants, thus indicated to following the research protocol. The discussion of this article related their findings with others pertinent articles and ended up with a justified conclusion.

**Paper 9 - (Begum, 2021):**

This study has been conducted aiming to conceptualize the perception of COVID-19 and role of class and capital among the Bangladeshi people. This qualitative study followed the appropriate research design, and the objective was as relevant as the situation of the pandemic. The analysis was done by following thematic and content analysis approaches as well as uncovered few new results on COVID-19 associated with the class system; the findings exposed new perception of people that were reported earlier. The study has declared the potential biases, namely, response bias; despite of the limitations, the study placed its own argument with the contrast of similar articles and ended up with a justified conclusion.

**Paper 10 - (F. N. Rahman *et al.*, 2021):**

This study has been conducted aiming to find out the challenges in preventive practices and risk communication towards COVID-19 among the Bangladeshi adults which was very crucial during the study period. In fact, the results showed the barrier to combat against COVID-19 through this cross-sectional study, which was followed the actual research protocol considering the pandemic circumstances. This quantitative survey followed a multi-stage sampling process mentioned about response biases, though the statistical analysis was done appropriately. No conflict of interest was declared in the article and the study discussed its own argument with the contrast of relevant articles and ended up with an acceptable conclusion aligned with the research question.

**Paper 11 -** (M. M. Rahman *et al.*, 2021b)

This study has been conducted intending to understand the reaction of general people of Bangladesh through their knowledge, attitude and practices regarding COVID-19 and the findings revealed a considerable number of sociodemographic factors that affect KAP. This quantitative study was followed the cross-sectional study protocol and deemed as proper method for the pandemic situation concentrating on the research questions. The methodological section of the article distinctly described the sampling procedure, and the analysis was done statistically. The study has declared having no conflict of interest and the discussion of this article relate their findings with others relevant articles and conclude with justified arguments.

# CONCLUSION AND RECOMMENDATION

This narrative review helped to understand the perception, misconception and rumors on COVID-19 from the different part of the country as well as from the different group and class of people. The popular rumors regarding the transmission and prevention of coronavirus were reported and compiled in one document from the different articles concentrating on Bangladesh both in rural and urban, including young and older population. In addition, the knowledge, attitudes and practices were encompassing here along with the challenges of practicing the safety measurement against COVID-19, which would help to design appropriate intervention and awareness campaign to prevent such kind of virus. However, this narrative review opens the door of further research, and a systematic review should be done on similar concern in near future.

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# ANNEX-I: Ten questions to appraise research article.

1. Is the study question relevant?

2. Does the study add anything new?

3. What type of research question is being asked?

4. Was the study design appropriate for the research question?

5. Did the study methods address the most important potential sources of bias?

6. Was the study performed according to the original protocol?

7. Does the study test a stated hypothesis?

8. Were the statistical analyses performed correctly?

9. Do the data justify the conclusions?

10. Are there any conflicts of interest?