



Risk factors of Depression, Anxiety and Stress among adolescents and young adults in Bangladesh during the COVID-19 period: A Systematic Review

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1. ABSTRACT:

Background:

Depression, anxiety and stress are the most common mental disorders that affect adolescents and young adults. During the recent covid-19 pandemic, there was a significant rise in the rates of these disorders among this population across the globe. This systematic review aims to evaluate the risk factors for depression, anxiety and stress among this population in Bangladesh.

Method:

This systematic review was conducted as per the Joanna Briggs Institute (JBI) guideline. A systematic search on PubMed and a manual search on Google Scholar were performed from March 20, 2020, to March 30, 2022 after setting up the inclusion and exclusion criteria. At first, the titles and abstracts were screened for relevance followed by screening of full text articles. A systematic search was performed on PubMed from March 2020 to march, 2022. A manual search on Google scholar was conducted to identify additional relevant studies. Descriptive statistics on the characteristics of the study and populations were reported. Due to heterogeneity in data owing to the use of different classification systems and psychometric scales to assess mental disorders, meta-analysis was not done.

Results:

The age of the participants ranged from 12-29 and most of the studies (n=6) mentioned the mean age ranging from 16-22±1.81. Both male and female were included in all studies. The study population included school going adolescents (n=1), students from different universities (n=4), medical colleges (n=1) and dental colleges (n=1). Most of the studies were cross-sectional (n=6) and one was a mixed study. The studies had the following sample sizes= 206, 322, 327, 333, 425,

1000, 3122. Studies used snowball sampling method, convenience method, mixed sampling. Due to the COVID-19 pandemic, all studies collected data through online surveys. Different types of screening tools were used to detect depression, anxiety and stress such as DASS-21 scale, Zung's self-rating anxiety scale (SAS), Patient Health Questionnaire-9 (PHQ-9), General Anxiety Disorder-7 (GAD-7), Hospital Anxiety and Depression Scale (HADS), Kessler Psychological Distress Scale (K-10). Risk factors included age, gender, place of residence, income and financial status, family size, current accommodation, types of educational institutes, academic year, session jam and online class, using internet, less contact with friends and family, smoking, physical exercise, sleep dissatisfaction. COVID-19 related risk factors included Past and recent COVID-19 infection and unsure of the contact of the COVID-19 cases, academic dissatisfaction, tension of getting infected by COVID-19, fear of getting assaulted or humiliated on the way to hospital or home.

Conclusion:

Stigma and fear of being identified as an infected person were found to be associated with depression, anxiety and stress. Mass scale awareness raising activities may be necessary in the case of any epidemic or pandemic in the future.

2. INTRODUCTION:

Depression, anxiety and stress are the most common among the various types of mental disorders that affect adolescents and young adults. In a 2019 study, the percentage of disability-adjusted life-years (DALYs) attributable to depressive disorders and anxiety disorders from the teenage years through old age were ranked the 13th and 24th leading causes of disability, respectively,

whereas among adolescents and adults aged 10–24, they were the 4th and 6th leading causes(1). Research has shown that one quarter of mental disorders begin by adolescence and another quarter by the age of 25(2–4). Depression causes functional impairments and may lead to suicide in the worst-case scenario(5). Suicide is the second greatest cause of death among 15–29-year-olds(6) and suicide mortality rates occurring in low- and middle-income countries are higher than those in high-income countries(7). Stress alone can increase the risk of depression, anxiety, non-communicable diseases, and other potentially life-threatening issues(8–10). During the pandemic, the prevalence of depression, anxiety and stress among adolescents and adults rose to a higher level, across the globe compared to previous rates(11)

The increase in the rates of these disorders is of special concern for Bangladesh as it has a young population of around between the ages of 13-25(12). In addition to the huge population in this age group, the outcome of these disorders poses high concern for low- and middle-income countries like Bangladesh, due to lack of resources and high treatment gap in mental health(13–15). There are only 50 clinical psychologists and 200 psychiatrists; which means, there is 1 mental health specialists for 800,00 people(16). The mental health budget is less than 0.5% of the national health budget and 67% of this is spent on logistic maintenance (17). The distribution of available resources is not uniform across the nation(14,18) and there is no mental health policy or strategic plan to address mental health problems affecting adolescents and young adults.

The World Health Organization (WHO) declared the outbreak of COVID-19 a public health emergency of international concern on the 30th of January, 2020, and in March, 2020 declared it

as a global pandemic (19,20). To avoid widespread transmission of the disease, governments across the globe executed measures such as isolation, quarantine, closure of academic institutions and switching to online classes, virtual office, restrictions of public gatherings, mandatory wearing of face masks and so forth. Across the globe, there has been significant social and economic disruptions(21–23). There was uncertainty about future, loneliness, grief of losing loved ones, fear of losing loved one, boredom, the loss of freedom created major mental health effects(24). It has been reported that covid-19 has triggered a 25% increase in the prevalence of anxiety and depression(25)

Some of common risk factors associated with depression, anxiety and stress are gender, verbal or physical abuse, low parental education, negative parenting, parenting stress, lower level of self-esteem, feeling of loneliness, excess use of social media and so forth(26–32). Research across countries during the pandemic among the young population revealed that female gender, suburbs residents, drinking history, poor self-efficacy to prevent COVID-19, lack of access to uninterrupted internet access and excessive negative information concerning the pandemic were significantly associated with these disorders(26,33). During isolation and quarantine, young people experience significant levels of stress(34).

However, psychosocial stressors are likely to vary across settings based on social and cultural differences(35,36). In light of the fact that Bangladesh has a huge number of its population in the age range that is vulnerable to mental disorders like depression, anxiety and stress due to poor resources for mental health and high treatment gap, it is crucial to document the prevalence and synthesize psychosocial factors associated with these disorders during a global health concern.

This information would be helpful for a range of stakeholders like policymaking, school and

universities to develop effective health care measures for this group of the population. The present review has been done to identify the literature on the prevalence and co-relates of these disorders in Bangladesh published in-between March 2020- March 2022. The following was the key question posed in the current study: what are the risk factors related to depression, anxiety and stress among population aged 10-30 years during the COVID-19 period?

3. METHOD:

This systematic review was conducted as per the Joanna Briggs Institute (JBI) guideline which is an international research organization that develops and delivers evidence-based information, software, education and training designed to improve healthcare practice and health outcomes. JBI is based in Adelaide, South Australia(37).

3.1 Search strategy:

The following databases have been listed in the protocol to search for articles: PubMed, Scopus, Psych INFO, EMBASE, Google Scholar and Banglajol. However, the following databases could not be searched due to lack of access- Scopus, Psych INFO, EMBASE.

A systematic search was performed on PubMed from March 2020 to march, 2022. The search terms that were used were the following:

[(CMD OR "common mental disorders" OR "common psychological disorders" OR "psychological illness" OR "mental illness" OR "mental health" OR "psychological impact") OR (depression OR "depressive disorder*" OR "psychological depression" OR "depressive illness" OR "mental depression" OR "major depressive disorder" OR MDD) OR (anxiety OR "anxiety

disorder") OR ("mental stress" OR "psychological stress" OR "stress disorder*" OR "post-traumatic stress" OR "traumatic stress") AND (adolescent OR "young children" OR "young people" OR "young adult" OR young OR teen OR teenager) AND (Bangladesh OR Bangladeshi OR BD) AND (COVID-19 OR "covid period" OR pandemic OR "SARS COV-2" OR "coronavirus" OR "Severe Acute Respiratory Syndrome Coronavirus 2")].

A manual search on Google scholar was conducted to identify additional relevant studies. The search terms included- depression, anxiety, stress among adolescents, young adults in Bangladesh during COVID-19 period. In Google scholar, first 70 results were considered for further analysis. Two independent reviewers screened the database for eligible studies based on their titles and abstracts, followed by the screening of full texts. All disagreements among reviewers were solved through discussion between reviewers and guidance from a senior supervisor.

3.2 inclusion and exclusion criteria:

Studies were considered eligible for inclusion criteria if they: 1) followed any quantitative study design (Cross-sectional, Cohort, Case-control, interventions) 2) were available, full text; 3) articles published between March, 2020- March, 2022; 4) were written in English; 5) assessed depression, anxiety, and stress; 6) studies were done among adolescents and young adults group during COVID-19 period; 7) studies were conducted in Bangladesh.

Studies were excluded if they: 1) were written in any language other than English; 2) were conducted in any other country except Bangladesh; 3) didn't have full-text availability; 4) were published in different time frames; 5) focused on any specialized population such as depression,

anxiety and stress among patients with heart diseases, genetic diseases, cancer, stroke, pregnancy etc.

3.3 Screening process:

At first, the titles and abstracts of each article were screened for relevance. Full-text articles were accessed for eligibility after the initial screening. Then all articles whose full texts were available were downloaded and screened. For articles whose full texts were not available, the first author was contacted and requested for the full paper. Finally, a final list of articles to be used in the systematic review was made. An elaborate flow chart of the screening and selection process is given in the PRISMA flow diagram in Figure 1

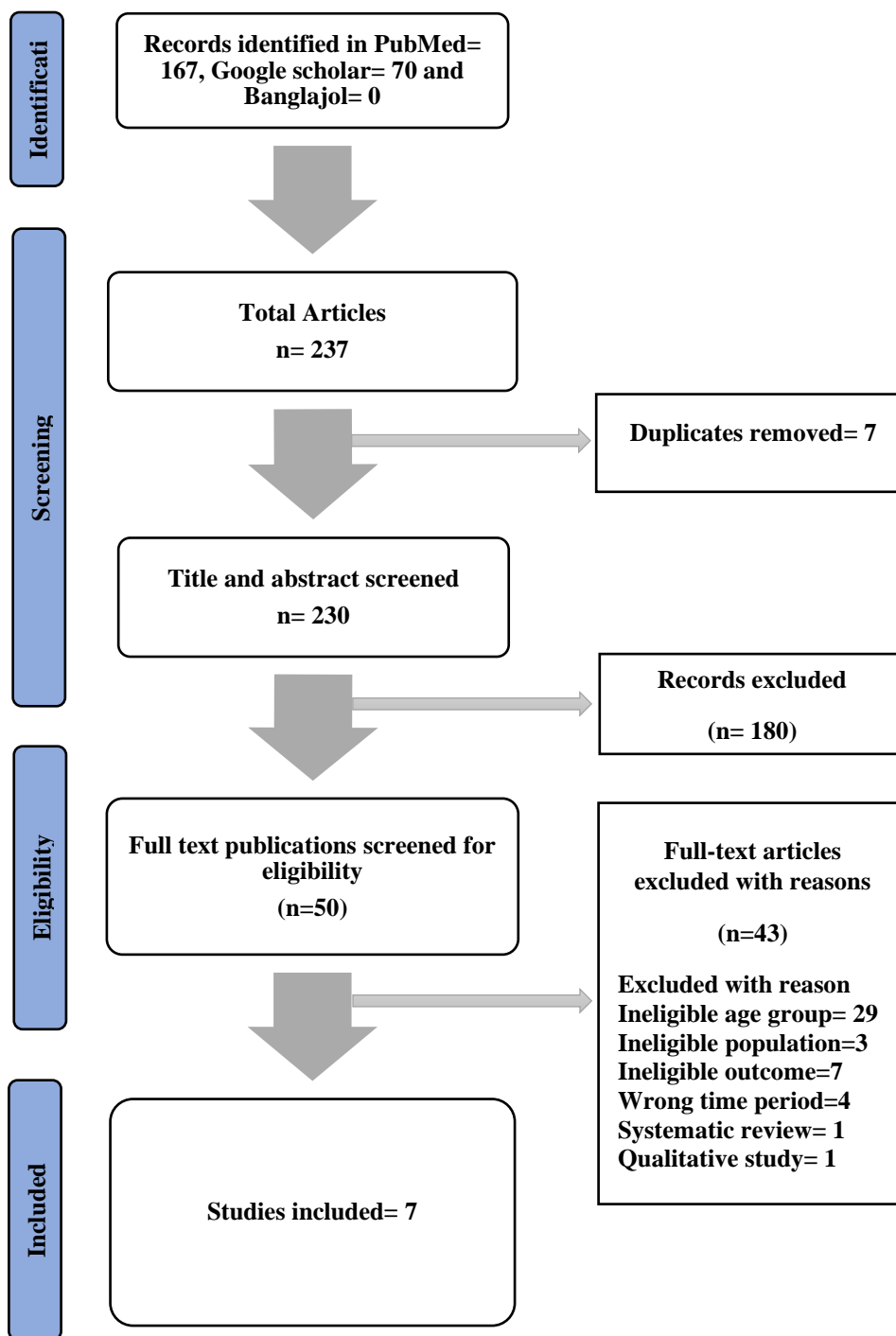


Figure 1: Flow diagram of studies that were identified using the search terms and strategy, articles screened for eligibility, included/excluded with reasons, following PRISMA guidelines.

3.4 Data extraction and risk of bias assessment:

All the relevant data were extracted independently by two teams of reviewers using manual data extraction in an excel sheet, and any disagreement among the reviewers was resolved through discussion with a senior author (NH). Title, the name of the first author, first author's institution, year of publication, journal name, study design, study population, sample size, sampling methods, data collection method, assessment tools, gender, age, mean age, geographical location, place of study, outcome measures, statistical analysis and associated risk factors were extracted.

3.5 Data analysis:

Descriptive statistics on the characteristics of the study and populations were reported. Due to heterogeneity in data owing to the use of different classification systems and psychometric scales to assess mental disorders, meta-analysis was not done.

4. RESULTS:

4.1 Description of the included studies:

According to the search strategy, a total of 237 articles were retrieved, whereas 230 articles remained after removing the duplicate ones. Then, "Titles and abstracts" screening was done and 180 articles were removed. A total of 50 full-text articles were screened for eligibility. Finally, 7 records were included for the review.

The results are presented in the context of sociodemographic factors, study characteristics, risk factors and outcome.

4.2 Sociodemographic characteristics:

Age of the study population:

The age of the participants ranged from 12-29 and most of the studies (n=6) mentioned the mean age ranging from $16-22 \pm 1.81$.

Gender:

Both male and female were included in all studies.

Study population:

The study population included school going adolescents (n=1), students from different universities (n=4), medical colleges (n=1) and dental colleges (n=1).

4.3 Study characteristics:

Date of publications:

All of the studies were conducted between the 2020- 2022 time period. Most of the studies were published in 2021(n=5).

Journals of publications:

Among the 7 published articles, the impact factors of the journals in which these papers were published ranged from 2.393 to 4.839 (BMC Psychology= 2.54, International journal of environmental research and public health= 3.39, Plos one=3.75, Journal of affective disorders=4.839, Children and Youth Services Review=2.393).

Study design:

Faria. Risk factors of Depression, Anxiety and Stress among young adults in Bangladesh during the COVID-19 period: A Systematic Review. MPH 2020. Independent University, Bangladesh.

Most of the studies were cross-sectional (n=6) and one was a mixed study.

Sample size:

The studies had the following sample sizes= 206, 322, 327, 333, 425, 1000, 3122.

Sampling method:

Three studies used snowball sampling method, among them one study chose both snowball and convenience method. One study did convenience sampling. However, mixed sampling were also used in one included studies. Two studies didn't mention the method.

Data collection method:

Due to the COVID-19 pandemic, all studies collected data through online surveys (n=7), among one of them, additionally telephone surveys and key informant interviews were also used for data collection.

Table 1: Overview of the articles

Title	Date	Gender	Age range	Sample size	Study pop	Geographical location	Place of study	Sampling method	Data collection method
Mental health status of adolescents in-home quarantine: a multi-region, cross-sectional study during COVID-19 pandemic in Bangladesh.	2022	Both	12-19	322	Adolescents	Several urban and semi-urban areas in Dhaka, Chittagon g, Sirajganj and Kushtia in Bangladesh	School & college	Mixed	Online, telephone
Psychological Distress among Bangladeshi Dental Students during the COVID-19 Pandemic.	2021	Both	19-28	327	Dental students	Dhaka	Private dental colleges	Snowball	Online

Psychological responses during the COVID-19 outbreak among university students in Bangladesh	2020	Both	18-29	3122	University students	NA	Public, private, and national universities.	Convenience	Online
Anxiety and its determinants among undergraduate students during E-learning in Bangladesh amid covid-19	2021	Both	18-24	206	Undergraduate students	NA	Different public universities.	Na	Online
Exploring the triggering factors for mental stress of university students amid COVID-19 in Bangladesh: a perception-based study	2021	Both	22-23	1000	University students	NA	Public and private universities	Na	Online
Prevalence and socio-demographic correlates of depression, anxiety, and co-morbidity during COVID-19: A cross-sectional study among public and private university students of Bangladesh	2021	Both	18-27	333	University students	NA	Public and private universities	Snowball	Online
Immediate psychological responses during the initial period of the COVID-19 pandemic among Bangladeshi medical students	2021	Both	18-28	425	Medical students	NA	Medical colleges	Snowball and convenience	Online

Geographical location of the studies:

Four out of seven studies took place in different public, private and national universities. One study conducted in several urban and semi-urban areas in Dhaka, Chittagong, Sirajganj and Kushtia. One study conducted in dental colleges in Dhaka and another one in medical colleges.

Place of studies:

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The place of studies included school (n=1), different universities (n=4), medical colleges (n=1) and dental colleges (n=1).

Screening tools used in the included studies:

Different types of screening tools were used to detect depression, anxiety and stress, whereas 2 studies utilized the DASS-21 scale. Other scales- Zung's self-rating anxiety scale (SAS), Patient Health Questionnaire-9 (PHQ-9), General Anxiety Disorder-7 (GAD-7), Hospital Anxiety and Depression Scale (HADS), Kessler Psychological Distress Scale (K-10). One study measured mental stress by preparing a questionnaire of 24 items to assess mental stress and associated factors.

Statistical analysis:

Most studies performed multiple logistic regression (n=4). Descriptive statistical analysis was conducted in one study. One study did multiple linear regression analysis and another one used the Tibot model.

4.4 Outcome measures:

Two of the total studies evaluated depression, anxiety and stress, two studies evaluated both depression and anxiety together, another 2 studies assessed only mental stress and the rest one measured anxiety.

Table 2: Presentation of the results

Title	Outcome measure	Screening tool	Prevalence	Associated Risk Factors
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Mental health status of adolescents in-home quarantine: a multi-region, cross-sectional study during COVID-19 pandemic in Bangladesh.	Depression, anxiety, stress	DASS-21	D: 67.08% A: 49.38% S: 40.68%	Age, Gender, Having less or more contact with friends than usual, Studying in college, Using the internet for entertainment more than 3 hours, Change in food, Watching television for less than 1 hour
Psychological Distress among Bangladeshi Dental Students during the COVID-19 Pandemic.	Distress	Kessler Psychological Distress Scale (K-10)	NA	Those who reported negative impact of COVID-19 over financial situation, Who were infected with COVID-19 both recently and in the past, Who were unsure of the contact with COVID-19 cases
Psychological responses during the COVID-19 outbreak among university students in Bangladesh	Depression, anxiety, stress	DASS-21	D: 76.1%, A: 71.5% S: 70.1% (mild symptoms) D: 62.9%, A: 63.6% S: 58.6% (moderate symptoms) D: 35.2%, A: 40.3% S: 37.7%, (severe symptoms) and D: 19.7%, A: 27.5% S: 16.5% (very severe)	Gender, browsing internet, living in urban area, not engaged in physical exercise, sleep dissatisfaction, Having dissatisfaction with their pursuit of their academic studies while living under COVID-19 restrictions, smoking
Anxiety and its determinants among undergraduate students during E-learning in Bangladesh amid covid-19	Anxiety	Zung's self-rating anxiety scale (SAS)	mild to extreme anxiety- 82.5%, extreme anxiety- 14.08%	Gender, academic year, living in urban area, current accommodation, low speed internet

Exploring the triggering factors for mental stress of university students amid COVID-19 in Bangladesh: a perception-based study	Stress	A questionnaire of 24 items was prepared, to find out mental stress and associated factors	NA	Closing of earning sources and financial crisis, academic year, tuition fees, session jam, online classes
Prevalence and socio-demographic correlates of depression, anxiety, and co-morbidity during COVID-19: A cross-sectional study among public and private university students of Bangladesh	Depression, anxiety	Patient Health Questionnaire-9 (PHQ-9) and General Anxiety Disorder-7 (GAD-7)	D: 59.16% A: 53.99% (Public university) D: 30.83% A: 33.33% (private university)	Poor to very poor, age, gender, academic year, family size, types of university, spent less time with family
Immediate psychological responses during the initial period of the COVID-19 pandemic among Bangladeshi medical students	Depression, anxiety	Hospital Anxiety and Depression Scale (HADS)	A: 65.9% D: 49.9%	Gender, The students, who were severely or moderately tensed to contract SAR-CoV-2 infection, Students with fear of getting assaulted or humiliated on the way to hospital or home, students who reported suboptimal study concentration after COVID-19, students who agitated more easily during the COVID-19 period than before.

4.5 Risk factors:

A number of risk factors from different studies has been listed in this review. The risk factors for Depression, anxiety and stress (DAS) can be divided into four categories namely (a) sociodemographic, (b) academic (c) behavioral and psychological, and (d) COVID-19 related risk factors.

(a) Sociodemographic risk factors:

Age:

Most of the studies didn't find any association between age and DAS (n=6). One study found that younger age group (less than or equal 22) were more likely to suffer from depression and anxiety. On the contrary, anxiety were found higher among older age group (18-20) in another study.

Gender:

Five studies predicted gender as a significant risk factor for DAS, where all studies found female to be at higher risk.

Place of residence:

Only two studies found residence as a risk factor for depression, anxiety and stress. Both studies revealed that living in urban area increases the risk of DAS.

Family size:

One study mentioned family size was associated with mental disorders. Having a nuclear family was prone to develop DAS.

Income and financial status:

The relationship between DAS and Income and financial status were found significant in four out of seven studies. Being poor to very poor, loss or closing of income increase the risk of DAS.

Current accommodation:

Current accommodation was predicated as a risk factor for DAS. Students who were not staying with their family were more likely to develop DAS.

(b) Academic factors:***Types of educational institutes and level of education:***

Types of educational institutes were significantly associated with mental health problems. Students from public universities were more likely to suffer from depression, anxiety and stress. One study found that students studying in college were at higher risk of developing mental health problems.

Academic year:

Four studies revealed that the academic year had significant effect on mental health. Students currently in 2nd, 3rd, 4th and 5th year were at higher risk of psychological sufferings.

Tuition fees and session jam:

One study reported that high tuition fees and session jam were significant risk factors of DAS.

Online class:

Online class was predicted as a risk factor for mental problems. Online classes was completely new idea to the students of many nations like Bangladesh. Due to uncertainty about how classes and exam will be taken and how grading system will work on the basis of online classes, this factor increased the risk of suffering from mental stress.

(c) Behavioral and psychological factors:

Using internet: Using the internet for entertainment more than three hours increased the risk of suffering from depression, anxiety and stress. Low speed internet also increased the risk of these problems.

Contact with friends and family:

Participants having less or more contact with friends than usual, spending less time with family were more likely to suffer from depression, anxiety and stress.

Food habit:

Food habit of this age group was one of the influential factors for developing mental health issues. The result of one study showed that any changes in the amount of the regular diet were reported as the risk factors of DAS.

Smoking and physical exercise:

The role of smoking and physical exercise on mental health were found as a significant risk factors in one study. One study revealed that those participants who were smokers were more prone to psychological diseases compared to those who were not. On the other hand, those who were not engaged in physical exercise were at higher risk of these diseases.

Sleep dissatisfaction:

Sleep dissatisfaction was found as a potential factor of DAS. The study found that having sleep dissatisfaction increased the risk of suffering from psychological problems.

(d) COVID-19 related factors:

Past and recent COVID-19 infection and unsure of the contact of the COVID-19 cases:

COVID-19 infection or contact with this disease played a significant role to develop psychological stress. The study showed that those were infected with COVID-19 both recently and in the past as well as those were unsure of the direct or indirect contact of the COVID-19 cases were more likely to report moderate to severe stress.

Academic dissatisfaction under COVID-19:

Academic dissatisfaction was highly associated with depression, anxiety and stress. While living under COVID-19 restrictions, those participants had dissatisfaction with their pursuit of their academic studies were more likely to suffer from DAS.

Tension of getting infected by COVID-19:

Tension of getting COVID-19 infection was predicted as a risk factor for DAS. One study revealed that the students, who were severely or moderately tensed to contract to COVID-19 infection, were at higher risk of suffering from anxiety compared to no or minimally tensed students.

Fear of getting assaulted or humiliated on the way to hospital or home:

Medical students with fear of getting assaulted or humiliated on the way to hospital or home during pandemic situation were more likely to suffer from anxiety.

Able to give concentration on study after the pandemic:

Students who reported suboptimal study concentration after COVID-19 pandemic were more likely to suffer from anxiety.

Table 3: Presentation of the Risk Factors Identified

Risk factors	Number of articles
1. Being female	5/7
2. Being poor to or loss of income	4/7

3. studying in higher grade	4/4
4. Residing in urban area	2/3
5. Less contact with friends and family	2/2
6. Using internet >3 hours	1/1
7. Older group (18-20)	1/7
8.Low speed internet	1/1
9. Studing in public universities	1/2
10. Nuclear family	1/1
11. Not staying with family	1/1
12. Session jam	1/1
13. Online class	1/1
14. Smoking	1/2

15. Physical exercise	1/1
16. Sleep dissatisfaction	1/1
17. Past and recent COVID-19 infection and unsure of the contact of the COVID-19 cases	1/1
18. Academic dissatisfaction under COVID-19	1/1
19. Fear of getting assaulted or humiliated on the way to hospital or home	1/1
20. Able to give suboptimal concentration on study after the pandemic	1/1

5. Discussion:

This systematic review on depression, anxiety and stress among 10-30 years age group in Bangladesh has enlisted overall risk factors including sociodemographic and psychological factors during the COVID-19 pandemic. Despite many studies on mental health problems have been conducted during this period, very little attention has been given to adolescents and young adults especially those between 10-30 years old.

Based on our present findings, risk factors related to socio-demographics included age, gender, place of residence, income and financial status, family size, current accommodation. Our systematic review identified the most common risk factor of DAS is female gender. Female are suffering from more DAS than male globally(38–40). Higher age group was found to be risk factor of DAS during pandemic. Studies in different countries revealed that more than 1 in 7 adolescents aged 10–19 has been suffering from mental disorder globally whereas 1 in 5 young people aged 15–24 feel depressed during this pandemic (41). In higher age group, examination fear, grading system, competitive education system and uncertainty of job market may be responsible to increase the chance of developing mental problems, we need to evaluate these issue in future research. Global economy has been severely affected due to pandemic(42). We found that being poor to very poor, closing of financial status increase the risk of DAS in our country. Financial uncertainty, economic loss etc. was directly linked to poor mental health of young people globally(34,43). We should have focused on financial status of this specific group. We can provide temporary allowance to poor family having adolescent members, give them flexible job opportunities in future pandemic situation. We also found that those who are residing in the urban area suffers more from depression than those residing in rural area. But studies from other countries revealed that residing in rural area increase the risk of DAS among adolescents and young people(44,45). We need to evaluate why there are different results in different countries and why Bangladeshi urban adolescents and young adults suffers more from psychological suffering whereas in other countries, rural groups suffer more.

Academic related risk factor included types of educational institutes, academic year, session jam and online class. The academic year plays an important role to mental health. Students of higher academic years are at higher risk of developing depression, anxiety and stress. Academic year of students from different countries is also associated with psychological suffering during pandemic(32). In higher academic years, there is more study pressures, more expectations, involves to new relationship make them more vulnerable to DAS. We can promote good mental health tips and psychological counselling at college and university level to lower the risk of sufferings. In education system, online class was the complete new thing for students. Not only in our country but also both in developed and developing countries, it directly increases the risk of DAS among adolescents and young population(46,47). As many of the students couldn't afford laptop or computer for attending online class, or couldn't manage uninterrupted internet services, every institution need to take proper actions to mitigate these problems.

Behavioral and psychological risk factors included using internet, less contact with friends and family, smoking, physical exercise, sleep dissatisfaction. This review identified that using internet more than three hours increases the risk of sufferings. Internet use, internet gaming have been increasing during the COVID-19 pandemic and is at risk of causing mental health problems to adolescents(48,49). This review has found that those have less contact with friends and family were at higher risk of DAS. Research shows that friendship and family support reduces the risk of depression among adolescents(50). Another research suggests that in families using more routines during COVID-19, lower adolescent depression are observed(51).

COVID-19 related risk factors included Past and recent COVID-19 infection and unsure of the contact of the COVID-19 cases, academic dissatisfaction under COVID-19, tension of getting

infected by COVID-19, fear of getting assaulted or humiliated on the way to hospital or home, able to give suboptimal concentration on study after the pandemic. We need to promote optimal level of awareness to avoid fear or stigma regarding diseases and provide social and mental support to medical students and intern doctors.

In terms of practice implications, different types of measures have been taken to promote good mental health. Family members and educational institutions should practice healthy environment which is essential to maintain good mental health of adolescents and young adult. Researcher suggests one effective tip for stop smoking during pandemic that when the urge to smoke strikes, smokers need to distract themselves by drinking water, going for a walk or chewing gum until the desire to smoke passes(52). Less screen time, lower exposure to news media about the pandemic, and to a lesser extent more time in nature and getting adequate sleep reduces the necessity of psychotherapy(53). Also taking break from social media, taking good care of body, get vaccinated, healthy diet, connection with the community or faith-based organizations help to mitigate COVID-19 related risk factors of DAS(54). Psychological help should be available in home and every educational institution, clinical referrals should be placed when anyone particularly this age group experience any sign and symptoms of DAS(55). In addition, methods of delivering mental health resources widely to youth, such as group and individual tele-mental health services, need to be adapted(56).

6. Limitations:

I only searched in two databases- PubMed and Google Scholar. Due to lack of access to the other databases, I could not search EMBASE, Psych INFO and Scopus. So it is difficult to say whether or not the 7 studies included in this review comprise of all the papers as per my inclusion and exclusion criteria.

To maintain social distancing to prevent the spreading of COVID-19 infection, all the studies were conducted in online and sampling methods were nonrandom, so it is difficult to say the results I got are complete and reliable.

Using different assessment scales and cutoff values simply explained the heterogeneity found in the review. Additionally, the risk factors associated with mental health problems were estimated from different analyses in the included studies. That's why it was not possible to do meta-analysis due to heterogeneity of the studies.

7. Conclusion:

Despite these limitations, the present review provides some important findings about risk factors during the pandemic. Stigma of having COVID-19 was found to be a risk factor for the concerned disorders. This shows the need for more awareness raising among concerned populations in the case of infectious diseases.

Although there were awareness raising information during COVID, it may be of significance to do further research to find out the degree to which stigma and fear may be associated with DAS.

It is also worth exploring if the awareness raising events may be improved to lessen stigma and fear.

8. Funding

This research received no external funding.

9. Conflicts of Interest:

The author declares no conflict of interest.

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