

**Analysis of mental health and influencing factors of Chinese university students during  
the COVID-19 pandemic: A rapid review**

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**A dissertation submitted to Auckland University of Technology  
in partial fulfilment of the requirements for the degree of  
Master of Public Health (MPH)**

**School of Public Health and Interdisciplinary Studies**

**2023**

## **Abstract**

**Background:** Since the outbreak of the coronavirus (COVID-19) in December 2019, people have been under unparalleled psychological stress all around the world. Activities such as work, education, and social interaction have been impacted. To prevent and control the pandemic, the Chinese Ministry of Education proposed online teaching activities for universities. For the first time, the learning of the entire curriculum shifted completely online, which had consequences for university students who are used to classroom learning.

**Aim:** The research has its purpose to address the data gap about the mental health and coping mechanisms of Chinese college students during the duration of COVID-19. It also influences the creation of policies and interventions that can enhance the mental health of college students and offers advice to those already working in the field.

**Method:** The literature search strategy employed the use the PICO model to determine the search terms. From the 349 articles found across the five databases, 25 met the inclusion criteria for analysis. Thematic analysis was used to identify six sub-themes, organized under two main themes: the impacts of COVID-19 on the mental health of Chinese university students and how they dealt with it.

**Results:** Mental health of Chinese university students during the duration of the epidemic was studied in the literature, as were their coping mechanisms. The psychiatric health issues included: (i) anxiety (ii) post-traumatic stress disorder (PTSD) and acute stress disorder (ASD) (iii) suicidal ideation and depression. Meanwhile, a summary and analysis of the coping mechanisms used by Chinese college students were identified, including (i) social support (ii) family support (iii) negative and positive response.

**Conclusion:** Heightened stress, anxiety, and depression appeared in Chinese university students during the pandemic, which may have been compounded by their isolation and the disruptions to their studies. Even though COVID-19's effect on Chinese college students' studies is waning, this study emphasizes the potential long-lasting impact on their mental health, which requires further investigation, particularly regarding gender differences. Moreover, the primary methods of dealing with stress among college students were evaluated. The strategies of seeking social and family support and participating in sports activities had significant alleviating effects, while negative coping strategies did not. This rapid review could provide health policymakers, university psychologists, and relevant educators with greater in-depth knowledge and direction on how to deal with Chinese college students' mental health concerns.

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### **Attestation of Authorship**

I hereby declare that this submission is my work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgments), nor material which to a substantial extent, has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signature

Date: 24/8/2023

## **Acknowledgements**

After experiencing the difficult COVID-19 pandemic, my master's degree program is also coming to an end. Throughout this extraordinary learning experience, I would like to thank everyone who has assisted me with my dissertation.

Firstly, I would like to thank my supervisor, Dr Jalal, who provided me with profound insights and advice on my research project, allowing me to acquire a deeper understanding and greater expertise in my field of study. Second, I would like to thank Professor Ailsa for her assistance in concluding my degree program and for her support during the online learning period. Thirdly, I would like to thank Teacher Andrew for your guidance in finding sources for my thesis.

Additionally, I would like to credit my classmates Cherry and Rachel for helping me understand New Zealand culture and for allowing me to quickly adapt to life in Auckland.

Lastly, I wish to express my sincere appreciation to my family and my fiancée for their care and understanding during my study period. Thank you all again for your support and help, which has been invaluable to me.

## **Chapter 1 Introduction**

### **1.1 Introduction**

Pandemics have disrupted social order and affected public health throughout human history (Morens et al., 2020). The coronavirus disease (COVID-19) has rapidly spread across China and other nations since it was identified in Wuhan, China (Hajivalili et al., 2020; World Health Organization, 2020). Subsequently, a significant public health emergency of international concern (PHEIC) has been triggered by COVID-19, posing not only a threat to human life but also to mental health, as mounting evidence indicates (World Health Organization, 2020; Zhong et al., 2021). As of November 2022, 634 million cases of coronavirus and 6.6 million deaths have been reported worldwide (World Health Organization, 2022). As pandemic outbreaks continue, health systems in many countries have been overwhelmed, and health care for millions of people has been delayed (Kiss et al., 2021). While COVID-19 has become a long-term chronic disease, there is still a lack of knowledge of viral mutations and effective measures for prevention and treatment (Lopez-Leon et al., 2021). Although government authorities and individuals in many countries are no longer as concerned about the outbreak as they were at the start of the pandemic, coronavirus remains to be considered a dangerous threat to health by various regional public health organizations (Lazarus et al., 2022).

To prevent the rapid spread of coronavirus, most people have altered their daily routines and spent less time interacting with others. Additionally, a dearth of information has repeatedly

stimulated people with an increasing number of people have reporting emotional irregularities (such as psychological reactions including panic, excessive anxiety, irritability, etc.,) and cognitive imbalances that have affected their ability to pay attention and remember what they have read (Amerio & et al., 2020). There has also been a rise in reports of changes in behavior and physical symptoms such as nausea, vomiting, and diarrhea (Zhao & et al., 2020). It is typical to demonstrate proper physiological and psychological responses in public health emergencies and help people adapt to their new surroundings. Overreactions, however, can amplify the emotional toll and pose health risks physically and mentally (Rosenbaum, 2010; Fergusson et al., 2014). As a result, their mental health can be worse due to this type of response mechanism appearing in college students during the epidemic. In research by Patias (2021) on coping strategies for mental health among Brazilian college students, it was found that social withdrawal led students to learn more independently, and improving self-control and access to social support were potentially effective coping strategies.

As the subject of continuous research, mental health issues of university students can be broken down into the following categories: firstly, self-care for university students. This includes the timely adjustment of one's mental state, the maintenance of a good night's sleep, and the development of a positive lifestyle (Burke, 2010; Penedo & Dahn, 2005). Secondly, when university students are facing mental health problems, staying in touch with family and friends is essential for them as well. Seeking social help and family support is a very important approach to addressing mental health issues (Cohen & Wills, 1985a; Walen & Lachman, 2000). Thirdly, when university students run into issues they can't handle alone, they often consult the support services

available on campus, such as counselling centers and health clinics (Eisenberg et al., 2007; Lipson et al., 2019). Such conventional coping strategies for addressing mental health issues among university students have been validated; nevertheless, to accommodate the varying degrees of mental health issues faced by college students, these strategies must be modified during and after the pandemic time. To lessen the toll on the mental health of students, we must identify and implement the best coping mechanisms.

Therefore, several researchers have studied university students' mental health around the world during a pandemic and the elements that can affect it (Amerio et al., 2020; K. Chen et al., 2022). Even though there are several contradictions in the data, this research aims to formulate a brief overview of the challenges surrounding the mental health of university students during the duration of a pandemic by way of literary analysis.

The research question answered through this study:

1. What is the impact of the COVID-19 pandemic on the mental health status of Chinese university students, and what are the effective coping strategies?

This study conducts a rapid evaluation of the current evidence to identify factors in the process of a pandemic that affects the mental health of Chinese college students. The elements that have been found to generate an effect on the mental health of college students will also be used to provide an analysis of what kinds of coping mechanisms are most likely to be helpful. The study aims to advise stakeholders involved in supporting mental health for university students and inform policy and intervention development.

## **1.2 Organisation of the Dissertation**

Five chapters make up this dissertation: The Introduction chapter, demonstrates an overview of the global influence due to the pandemic, and how university students' mental health changes based on these effects. The background chapter describes how coronavirus spread globally, particularly in China, and summarizes the preventative measures taken by China at various periods in time. An overview is provided to explain the mental health status of Chinese university students and their coping strategies during the duration of the pandemic, along with the identification of knowledge gaps. Subsequently, in the methodology chapter, the rapid review is identified as the research method for this dissertation, while the advantages and disadvantages are also outlined. The literature search keywords are identified within the PICO framework and the thematic analysis method is used as the most appropriate method of analysis. In the findings chapter, a literature review is summarized, and presented in two broad areas; the mental health status of Chinese university students during the pandemic; and their coping strategies, emphasizing the psychological conditions experienced by Chinese university students and the corresponding coping mechanisms. In the discussion chapter, the primary factors that can influence issues related to the mental health of Chinese university students during the pandemic period are thoroughly discussed and analysed, as are the relevant approaches to resolve these issues. These findings will assist government health departments and university educators in developing policies or implementing measures to mitigate the effect caused by the pandemic on the mental health of students in Chinese universities during and following the pandemic. In

addition, the limitations and suggestions are presented at the conclusion.

## **Chapter 2 Background**

### **2.1 Introduction**

Following the COVID-19 outbreak in China, anxiety and fear showed up worldwide due to pandemic in a short time due to the pandemic, which could result in a spike in the incidence and severity of health issues mentally (Brief, 2020). In late 2019, the Chinese government adopted strict control measures to resolve the infection, such as expanded legal holidays, lockdowns, and strict post-closure measures to prevent a second wave of COVID-19 (Nurunnabi et al., 2020). Although these measures were extremely effective at the time, it can not be denied that they hurt the mental health of Chinese university students. Two sections are contained in this chapter. In the first section, the current status of the pandemic is introduced and China's control measures are listed. The second discusses what kind of impact the recent COVID-19 outbreak generate, and how these impacts can influence the mental health of university pupils. These factors will set the stage for the study's discussion, based on these foundation, how the mental health of Chinese college students was impacted by the COVID-19 pandemic and how they dealt with it.

### **2.2 COVID-19: An Overview**

In January 2020, Chinese officials informed the World Health Organization about a cluster

of "unexplained viral pneumonia" cases in Wuhan, which were determined to have been brought on by a novel coronavirus (World Health Organization, 2022). Similar cases were reported in Southeast Asia, North America, and Europe the following month. To avoid inaccuracy and stigmatization, the World Health Organization (2020) announced that COVID-19 would be the name of the illness induced by the novel coronavirus.

COVID-19-infected individuals are likely to have symptoms ranging from mild to severe, including fever (83 per cent), cough (82 per cent), and dyspnea (31 per cent) (Wang et al., 2020). However, most of those infected may be asymptomatic carriers of the virus who could transmit it (Ciotti et al., 2020). Chest X-rays in patients with COVID-19 often show multiple mottled and ground glass images (Wang et al., 2021). Around two to ten per cent of COVID-19-infected people also had gastrointestinal symptoms including diarrhea, vomiting, and abdominal pain, and in 10 per cent of cases diarrhea and nausea precede the onset of fever and respiratory symptoms (Chen et al., 2020). Similar to other respiratory viruses, the respiratory tract is the main transmission method of coronavirus, and it is highly infectious and efficient. Droplet transmission is recognized as one of the major routes of transmission, while aerosols are considered to be another significant transmission mode (Han et al., 2020).

## **2.3 COVID-19 Pandemic in China**

### **2.3.1 The Spread of COVID-19 in China**

In December 2019, infected cases of COVID-19 were identified in Wuhan city of Hubei Province in south China, and the pandemic began after that December (Huang et al., 2020). While

unconfirmed, the initial cases are estimated to be in the dozens. However, it was confirmed that the initial cases have a clear association with the Huanan Seafood Wholesale Market in Wuhan, which is believed to have been a site of animal-to-human virus transmission (Zhu et al., 2020). By January 2020, the number of cases in Wuhan had increased significantly, with hundreds of new cases reported each day (National Health Commission, 2021). The virus also spread to other parts of China, with cases reported in other provinces and major cities, such as Beijing and Shanghai. The Chinese government instituted a lockdown covering some cities with a large number of infected cases of COVID-19 on January 23, 2020, which effectively quarantined tens of millions of people (National Health Commission, 2020). At this point, the number of confirmed cases in China had reached over 800, and the number of deaths had risen to 25. Over the next several weeks, the number of cases in China continued to increase, peaking in mid-February at over 15,000 new cases per day (WHO, 2020). The vast majority of cases were concentrated in Hubei Province, particularly in Wuhan. As of March 4, 2023, according to WHO, 106,737 cases were identified as infected by COVID-19 in China, with 4,847 deaths (WHO, 2023).

### **2.3.2 Prevention Policy of COVID-19 Pandemic in China**

At the onset of the outbreak, China adopted a strict outbreak prevention and control strategy, which included intensive patient detection and isolation, investigation, and strict management to prevent close contact between people. To restrict the spread, the flow of people was decisively restricted where widespread community transmission had already occurred. Through the establishment of additional designated treatment hospitals, isolation treatment hospitals, the

problem of treating patients in the community have effectively solved, so that this most important source of infection can be effectively controlled (Li et al., 2020). On December 11, 2021, the Chinese government proposed the "Dynamic Zero COVID-19" policy, which refers to implementing comprehensive measures to prevent and control the spread to rapidly contain local cases (National Health Commission, 2021). This was deemed the optimal choice and general guideline for China's pandemic prevention and control. The policy was announced to end in December 2022. Subsequently, in February 2023, the Chinese government announced its success in fighting against the COVID-19 epidemic, and social and economic life has gradually returned to normal (National Health Commission, 2023). Table 1 displays the Chinese Governments pandemic control and preventive responses.

Table 1. Specific developments in China's efforts to contain the spread of the COVID-19 pandemic.

Date	Prevention Measures	Details
January 2020	Lockdown	A strict lockdown was imposed in certain cities in Hubei Province including Wuhan. This has effectively quarantined tens of millions of people and helped to cut the spread of coronavirus.
February 2020	Wartime Strategy	This included measures such as ramping up production of medical supplies and equipment, building new hospitals, and mobilizing medical personnel from across the country to Wuhan.

March 2020	(1) COVID-19 Test (2) Contact Tracing (3) Travel Restrictions	(1) Chinese government ramped up testing for COVID-19 and announced that it would test all 11 million residents of Wuhan. (2) Tracing people who contact individuals whose tested results are positive for COVID-19 through health code systems or digital data. (3) Isolating individuals coming from high-risk areas and restricting travel between different regions within the country.
December 2021	"Dynamic Zero COVID-19"	(1) Severe restrictions on the movement of people (2) Large-scale nucleic acid detection (3) Fast tracking and isolation (4) Promoting vaccination (5) Strengthening health protection
February 2023	End of COVID-19 pandemic in China	Prevention and control measures for Class B infectious diseases

Note: Based on data from People's Republic of China's National Health Commission.

### 2.3.3 Prevention and Control Measures

Chinese Education institutions acted swiftly during the COVID-19 outbreak, implementing various precautions to protect their students' safety and health (Ministry of Education, 2020). As one of the earliest and hardest hit countries, Chinese universities were at the forefront of efforts to control the pandemic. Many universities implemented online learning to replace in-person classes in response to the outbreak. They expected such methods to help control the coronavirus spread between students and teachers (China Daily, 2020). Students and faculty members would have otherwise been at a higher risk of contracting the virus through close contact in crowded classrooms and lecture halls. Additionally, Chinese universities implemented strict entry and exit controls, such as temperature checks and health screening questionnaires, to identify potential cases and prevent

infected individuals from entering campus (Chen et al., 2020). These measures were crucial in the early identification of potential cases early on and in preventing further spread within the university community.

To further reduce the risk of transmission, many universities required students, faculty, and staff who had travelled to areas with high numbers of COVID-19 cases or who had come into contact with infected individuals to quarantine for 14 days before returning to campus (Wang et al., 2020). This strategy ensured that those who may have been introduced to the virus could be isolated and, if necessary, receive medical care, reducing the risk of further transmission within the university community. These control measures aimed were instrumental in preventing the spread of the virus on campus and protecting students, faculty, and staff. However, on the other hand, the stringent measures and COVID-19 altered the normal academic life of Chinese university students, as a result, their mental health were impacted.

## **2.4 Mental Health Context**

In the first fifty years of the twentieth century, Maslow argued that all people are potentially motivated to meet physiological needs that support endocytosis, and this hierarchy of human motivation has been frequently cited in psychotherapy practice since then (Healy, 2016). Thus, mental health was first conceptualized by Maslow in terms of the satisfaction of basic human needs (Vaingankar et al., 2022). The World Health Organization (2017) defines psychological wellness as "a subjective sense of well-being", a sense of personal effectiveness, autonomy, interaction with others, and the ability to realize one's intellectual and emotional potential". Moreover, it more

specifically stated that the happiness of an individual includes the capability to address various stresses; arising mainly from productive work, people's ordinary life, and personal involvement in the community (WHO, 2014).

Mental health issues, also known as mental imbalance, are localized abnormalities in normal mental activity. Mental state does not have pathological changes, usually associated with a certain condition, a certain scenario can be triggered, the individual's mental activity is extremely normal out of the scenario (Li et al., 2009). Common psychological issues include depression, moodiness, anxiety, fear, personality disorders, psychopathy, and other negative and undesirable psychology. In 2018, the World Health Organization (WHO) selected China and seven other countries to conduct a survey on the basis of nearly 14,000 students and discovered that over 35 per cent of students have one symptom or more of a health disorder (Li & Chu, 2021).

#### **2.4.1 Mental Health Issues of University Students Globally**

UNESCO (2020) claimed that nearly 60 per cent of students worldwide were impacted by national lockdowns. The replacement of face-to-face with online instruction at universities may adversely impact the students' mental health (Zhai & Du, 2020). There is accumulating evidence highlighting that COVID-19 can impact students' mental health. Research by Amerio et al. (2020), which involved 8,177 university students discovered that social conditions during isolation also impacted their health mentally. Mental health problems and behaviour changes frequently emerge due to psychological pressures. For example, the pandemic led to 90 per cent of the 3,040 respondents' increased hand cleansing reported by a study of Turkish university students, and 50 per

cent expressed that they desire to wear protective gloves at all times (Akdeniz et al., 2020). In Spain, Greece, and Albania, 787 nursing students participated in a survey conducted by Patelarou et al., (2021) revealing that nearly one-third of them experienced moderate depression during the COVID-19 pandemic. At 59.1 per cent, Spanish pupils had the highest rate of depression, followed by the Albanians (34.5 per cent) and the Greeks (21.8 per cent). Additionally, A survey of 505 university students in Bangladesh revealed that during the COVID-19 pandemic they felt increased levels of agitation (28.5 per cent), anxiety (33.3 per cent) and depression (46.92 per cent) (Khan et al., 2020).

Closer to China, in the East Asian context, a Japanese online survey revealed that the direct health effects of COVID-19 are not the only element that can impact university student's mentally; economic consequences of the pandemic were also a factor (Ueda et al., 2020). Similarly, Lee et al. (2020) indicated that Daegu students in South Korea encountered more depression and anxiety during the pandemic period.

#### **2.4.2 Mental Health Status**

As the coronavirus spread continually, according to Chen et al. (2020), 69 per cent of 992 Chinese students were at high or moderate risk of stress management, psychological state, risk perception, behavioral patterns, family relationships, academic stress, and peer relationships. During the pandemic, Chinese medical students also experienced an increase in anxiety, melancholy, and sleep disturbances, according to a study by Zhang et al. (2021). The prevalence of post-traumatic stress disorder (PTSD) in Wuhan, the region of China most affected by the

pandemic, was 7 per cent (Liu et al. 2020). According to a survey of 3,881 college students in Guangdong, China, the rate of depression was 21.16 per cent and the rate of anxiety was 26.60%, and the ratio of depression and anxiety of whole Chinese university students is lower than in Guangdong (Chang et al., 2020). According to Gao's (2020) findings from an online survey of 4,872 Chinese participants, depression levels during the pandemic were 48.3 per cent, anxiety levels 22.6 per cent and depression and anxiety levels combined was 19.4 per cent. Consistent with previous research findings, these findings indicate that the students may experience mental health issues when exposed to severe public health events.

## **2.5 Conclusion**

University students around the globe experienced negative mental health effects to varying degrees during the pandemic. However, there is extremely limited information about the mitigating mechanisms employed by Chinese college students during the COVID-19 period. This research seeks to address this knowledge gap by investigating mental health problem coping strategies among students in Chinese universities during the lockdown period. The research will enhance our knowledge of Chinese university student's mental health and the mitigating strategies they employ during the pandemic. Despite China's vast region and different prevention and control policies, the findings of this investigation could provide the Chinese public health department with valuable information. This study will also inform stakeholders involved in supporting mental health for university students and aid in policy and intervention development.

## Chapter 3 Methodology

### 3.1 Introduction

This chapter outlines the rapid review method, the search strategy adopted, including keyword search and database selection, and the steps for data analysis as well as the synthesis of the literature. A rapid review is a form of knowledge synthesis within the framework of systematic review, where parts of the process are simplified or omitted to generate usable information promptly (Dobbins, 2017).

Rapid reviews have become a modified method of evidence synthesis that can provide timely data for decision-makers in public health (Khangura et al., 2012), while allowing the review to be conducted in a rigorous, explicit, and systematic manner, but with some concessions in terms of the breadth and depth of the process (National Library of Medicine, 2005). The advantages of a rapid review are summarized in four main points. Firstly, they are time-efficient and can be completed in a much shorter time frame of four to six months compared to the one to two years or more it can take for traditional reviews (Watt et al., 2008). Secondly, they are resource-efficient, requiring less extensive searches, screening, and data extraction, resulting in cost savings and freeing up resources for other areas (Hartling et al., 2015). Thirdly, they are flexible and can be tailored to the specific needs of stakeholders, producing evidence that is directly relevant to decision-makers (Featherstone et al., 2015). Finally, rapid reviews can provide timely evidence, which is essential in rapidly evolving fields such as healthcare. These advantages make rapid reviews a valuable tool for policymakers and researchers who need evidence quickly and efficiently

to inform their decisions (Tricco et al., 2015).

However, there might be risks of introducing biases by reducing the breadth and depth of the review process. The disadvantages of a rapid review can be summarized in general terms in the following four points., Firstly, due to the abbreviated timeline and reduced resources, rapid reviews may have less comprehensive search strategies, limited study selection, and fewer data extraction than traditional systematic reviews, which may lead to reduced rigor (Pollock et al., 2019). Secondly, to produce evidence quickly, rapid reviews may rely on easier access studies, which can lead to selection bias. Thirdly, due to time constraints, rapid reviews may focus on a specific aspect of a topic or may be limited to a certain type of evidence, such as randomized controlled trials, resulting in a narrower scope (Harker & Kleijnen, 2012). Finally, since rapid reviews are often conducted under tight timelines, there may be less time for peer review or for other researchers to scrutinize the review methods and findings, leading to less transparency (Watt et al., 2008). These disadvantages emphasize the importance of carefully considering the appropriate review method for a given research question and context, to balance speed and rigor and produce high-quality and relevant evidence.

A rapid review is suited for this study which aims to investigate a phenomenon that is evolving, and for which publications are limited. A rapid review will provide a timely opportunity to investigate the literature on the mental health status of Chinese university students during the pandemic period, in addition, the literature on their coping strategies to address mental health issues can be studied timely.

To lessen the influence of preconceptions and bias, a systematic approach will be

undertaken to reduce biases, further documented in section 3.2. Using the methodological steps outlined by Dobbins 'Rapid Review Guidebook' (2017) will assist in minimizing any biases, and ensuring reliability and validity. Using this approach, the identity the research questions are identified in the PICO framework to ensure neutrality. This will also allow the research question to be broken down into search terms. During the evidence search phase, a focused search of available published quantitative and qualitative evidence will be conducted to ensure that the search is effective and efficient. The third step is to implement a critical evaluation to decide that the study results are credible and meaningful. In the synthesis step, the results of all the high-quality and relevant evidence collected are aggregated, which will assist in explaining the study's practical implications.

### **3.2 Method**

A strategy for identifying literature on the psychological status and coping strategies of Chinese university students during the pandemic period was implemented. Online searches of the PsycINFO, Scopus, Medline, Cochranes databases, and CNKI were conducted using a defined search strategy.

The first part of conducting medical health research is to develop a focused question (Schardt et al., 2007). A specialized framework called PICO, explained as population Intervention Comparison and Outcome, is often used by relevant practitioners for literature searches (Villanueva et al., 2001). The PICO framework can help clarify the focus of health issues and can be used as an effective search strategy to simplify the search process (Snowball, 1997). This study used the PICO

model to set the search terms. Search terms as follows were used to locate literature on the psychological well-being and coping strategies of Chinese university students: 'China' or 'Chinese\*' or 'Asia' and 'mental health' or 'emotional' or 'psychological\*' and 'university students' or 'postgraduate' or 'undergraduate\*' or 'college students' and 'adaptation' or '(coping strategies)\*' or 'coping skills' and 'COVID-19\*' or '2019 nCov infection' or 'SARS- Cov-2' or 'coronavirus disease-19'. Literature search results were restricted to peer-reviewed articles and the year of publication was limited from 2019 to 2023. During the search process, the use of an asterisk (\*) symbol after a keyword were used as truncations to facilitate the capture variations of the term. In addition, the use of Boolean operators such as "or" and "and" were used to obtain an exact search range, including articles that match any of the search terms. As the target group of this study was Chinese university students, both Chinese or English language articles could were included in the review.

### **3.3 Data Analysis and Synthesis**

Following the search for literature, screening, and inclusion of search results were undertaken. First, only literature that met the criterion for screening and inclusion were included in this study (See Figure 1.) A PRISMA diagram was used to systematically document the search results as well as how studies were screened and selected using the inclusion and exclusion criteria. Specifically, following database searches, duplicate articles were deleted. Subsequently, the titles and abstracts of the studies were evaluated for their applicability, and any article that was not relevant was excluded. This process avoided collecting repeated data, so as to not bias the outcomes

(Tramèr et al., 1997).

The search yielded 479 articles: Scopus=42, PsycINFO=9, Cochrane=10, Medline=288, and CNKI=130. (See Figure 1). Of these, 38 duplicate articles were then removed from the identified articles. At the screening stage, articles that did not contain the keywords of this study in their titles or abstracts were first removed, a total of 398 articles. Articles that were relevant to this study but had unspecific outcomes or whose research data sources could not be verified were then also screened out. Twenty-five articles were finally identified for inclusion in this study, all examined the mental health of Chinese university students and their coping strategies during the pandemic time.

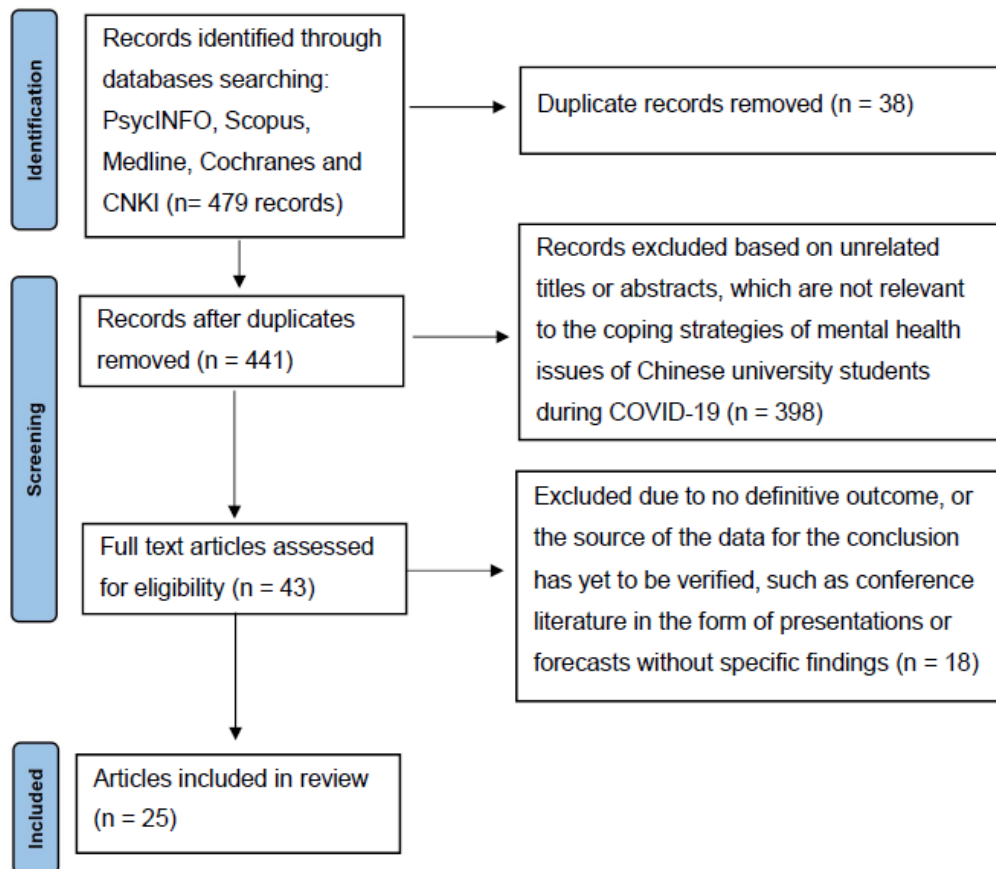


Figure 1. PRISMA Flow diagram of the research

### **3.4 Thematic Analysis**

Thematic analysis (TA) can be described as an approach to analysing qualitative data that involves identifying patterns, organizing them, and drawing insights. It is a flexible and popular method that is easy to use and provides meaningful insights (Braun & Clarke, 2012). The six steps to TA as noted by Braun and Clarke were employed in this study. During the first step, the researcher studied the textual material multiple times to develop familiarity with the data. Following this, initial codes were generated, and the data were analysed systematically by coding. In the third step, themes were generated from the code. This allowed for the analysis to take shape. In the fourth step, the themes were reviewed. Some themes were expanded while others were collapsed following the review. The themes were then named and defined, clearly stating what makes each topic unique and specific. During the final step, a report was generated based on the analysis.

The use of this approach allowed for the minimization of biases in the analysis process. The themes of the review articles were coded and organized according to different categories. Analyses of the literature revealed two broad themes. The first is the impacts of COVID-19 on the mental health of Chinese college students, and the second is how they dealt with it. Under each of these themes, three subthemes were indefinite. For the first theme, despair, anxiety, and stress were all common, and three different types of coping strategies.

### **3.5 Conclusion**

In this chapter the method of conducting a rapid review was presented. The advantages and disadvantages of rapid reviews were discussed, highlighting the importance of carefully considering the appropriate review method for a given research question and context. The PICO framework was used to identify search terms from the research questions. Keyword searches of databases revealed 479 records which were then screened using the inclusion/exclusion criteria. Twenty-five articles were analysed using thematic analysis guided by Braun and Clarke's six steps. In Chapter 4, the findings of the analysis of themes will be elaborately discussed.

## **Chapter 4 Findings**

### **4.1 Introduction**

This chapter examines the mental health issues of Chinese university students during the pandemic period, and the coping strategies are utilized by them. The results are presented under two overarching themes with subthemes. These are the mental health status of university students and their coping strategies. The six sub-themes that make up the above two main themes are anxiety, post-traumatic stress disorder (PTSD) and acute stress disorder (ASD), suicidal ideation and depression, social support, family support, and negative and positive response. The number and sources of review articles are shown in Tables 2 and 3.

### **4.2 Mental Health Status**

During the COVID-19 period, and the lockdowns and subsequent restrictions in movement and gathering, the mental health relevant to Chinese university students impacted. The literature revealed three broad impacts, forming subthemes: (i) anxiety (ii) post-traumatic stress disorder (PTSD) and acute stress disorder (ASD) (iii) suicidal ideation and depression, as shown in Table 2.

Table 2. Mental health issues among Chinese college students during the COVID-19 pandemic.

Subthemes	English literature	Chinese literature	Source
Anxiety	8	3	(Cao et al., 2020; Chinna et al., 2021; Huang et al., 2021; Li et al., 2021; Li & Peng, 2021; Nurunnabi et al., 2020; Sun et al., 2021; Wang & Zhao, 2020; Lin et al., 2020; Tian H., 2022; Wang & Hu, 2021)
Post-traumatic stress disorder (PTSD) and acute stress disorder (ASD)	5	0	(Li et al., 2021; Liao et al., 2021; Sun et al., 2021; Tang et al., 2020; Ye et al., 2020)
suicidal ideation and depression	5	1	(Huang et al., 2021; Huang et al., 2022; Sun et al., 2021; Tang et al., 2020; Zhao et al., 2021; Zhang et al., 2021)

#### 4.2.1 Anxiety

Pandemics and natural disasters had the potential to elicit long-term negative impacts on mental health among various population groups (Mak et al., 2009). The stringent containment measures implemented in China meant that students were not only facing academic stress but also uncertainty about their future career prospects.

Before the introduction of the Dynamic Zero COVID-19 policy in 2020, Cao et al. (2020)

indicated that roughly one-fourth of students from colleges expressed being apprehensive, with 0.9% experiencing severe anxiety and 21.3% experiencing mild anxiety. The results demonstrated that the rise in the number of confirmed and suspected cases and as more provinces were impacted by COVID-19, sparking public concern about contracting the disease, there was also heightened anxiety among students. In addition, anxiety was related to their parental income sources, whether they lived with their parents, and whether they have relatives or acquaintances to be confirmed as COVID-19 positive. The results were not significantly associated with student gender. After the spring semester of 2020 started, a series of pandemic control measures began to be implemented, and many university students were unable to return to school on time. Their anxiety symptoms began to become severe, and the proportion of affected students increased (Nurunnabi et al., 2020; Wang and Zhao, 2020; Li and Peng, 2021; Chinna et al., 2021). Online courses began to be provided in the second month by the majority of universities during the pandemic. As a result of the uncertainty about future learning, the proportion of sleep problems and nightmares also began to increase. At the same time, due to isolation at home, students had been neglecting proper exercise and social life, leading to a more closed and isolated mentality, which made it easier for college students to experience symptoms of stress. Unlike previous results from Cao et al. (2020), gender differences were significant, with female students showing stronger anxiety emotions compared to male students. However, the study conducted by Lin et al. (2020) showed some different results. It was discovered that college students experience less anxiety during domestic isolation, but the perceived stress was higher. Compared with first-year university students, those who were in a later stage of studies reported being more stressed. This difference could be related to the heavier

academic workload and factors such as employment and further studies. Medical students experienced greater stress than non-medical students, which may be due to a larger number of medical students participating in this study or a greater focus on COVID-19 among medical students. The study conducted by Wang and Hu (2020) found that anxiety scores were higher in August as compared to March, with August marking the normalization of pandemic prevention and control measures, leading to uncertainty among students about their return to school.

#### **4.2.2 Post-traumatic Stress Disorder (PTSD) and Acute Stress Disorder (ASD)**

In the wake of the pandemic, several studies have explored PTSD and ASD among Chinese university students. PTSD is a psychological disorder that often arises in individuals who have experienced extreme stress, fear, or violence (Plexousakis et al., 2019). ASD is considered a precursor to PTSD (Bryant, 2010), and therefore this chapter also included and analysed the research on ASD among students at Chinese universities. When specific preventive measures have not been implemented at the very beginning stage of the pandemic, research showed that less than five per cent of college students had symptoms of PTSD (Ye et al., 2020; Tang et al., 2020). The survey showed that long-term home isolation was not related to PTSD or depression, but there was a direct correlation between stressors association with the pandemic and elevated ASD symptom levels. Liao et al. (2021) conducted a study in August 2020, after the dynamic zero policy had been implemented, which showed that the PTSD level among Chinese university students reached a moderate to high level, with approximately 24.4% showing a trend toward PTSD. While PTSD symptoms at the early stages of the pandemic could be attributed to misdiagnoses and attributed to

other stressors, the study by Liao et al demonstrated a direct impact of the dynamic zero policy on Chinese university students. Anxiety did not vanish in students, instead more symptoms associated with PTSD showed up in them over time. Meanwhile, similar results after about four months after the outbreak, indicated that COVID-19-infected university students were more likely to have PTSD compared students who are COVID-19 negative (Li et al., 2021; Sun et al., 2021).

#### **4.2.3 Suicidal Ideation and Depression**

During the pandemic period, a series of measures have been implemented by the Chinese health department to swiftly control the spread of the coronavirus at an early stage, mandated that all Chinese citizens remain at home and quarantine. Consequently, typical university education activities were abruptly halted. These measures unquestionably impacted the mental health of people, with university students being impacted more easily (Jiang et al., 2020). This section will focus on depression symptoms and suicidal tendencies that appear in university students in China.

A study conducted in February 2020 suggested that there could be as much as nine per cent of university students who have depression. In March 2020, a follow-up survey revealed that nearly half of the university students had substantially worsened symptoms of depression. The study found that students who reported extreme dread during the outbreak, those who resided in areas with high infection rates, and senior students had the highest risk of developing depression. However, different results were observed in gender differences, which might be related to the different pandemic prevention policies of the surveyed universities. Additionally, the study found a significant link between shorter sleep duration and poor mental outcomes. Furthermore,

approximately one-fifth of university students reported having suicidal thoughts to varying degrees between March and April 2020, and analysis showed that social and economic status, COVID-19-related family financial pressure, perceived social support, along with perceived COVID-19 danger were all significantly related to the above results.

### 4.3 Strategies for coping with the psychological impact

Coping strategies were categorized into three main themes: (i) social support (ii) family support (iii) negative and positive response, as showing in Table 3.

Table 3. Mental health coping strategies among Chinese university students during the COVID-19 pandemic.

Subthemes	English literature	Chinese literature	Source
Social support	4	2	(Cao et al., 2020; Chinna et al., 2021; Li & Peng, 2022; Ye et al., 2020; Chen, 2021; Yang et al., 2020)
Family support	4	0	(Huang et al., 2021; Huang et al., 2022; Li et al., 2021; Li & Peng, 2021)
Negative and positive response	4	3	(Huang et al., 2021; Li et al., 2021; Liao et al., 2021; Zhao et al., 2021; Wang & Yan, 2022; Guo et al., 2022; Zhu & Hu, 2021)

#### 4.3.1 Social Support

As described by Moak and Agrawal (2010), both the emotional and practical assistance an

individual receives from their social networks is social support. It has been shown to act as a go-between in the connection between mental stress and physical consequences. Having a strong social network can help reduce your chances of developing mood disorders including sadness and anxiety (Xiao et al., 2020). Based on the aforementioned studies, this article discusses how social support affected Chinese college students' mental health during the pandemic period.

There is a negative correlation between the prevalence of anxiety and depression symptoms for university students and social support. In addition, anxiety and social support have the strongest correlation (Li and Peng, 2021; Yang et al., 2020). Social support mediates the relationship between cognitive and behavioural coping strategies and anxiety, confirming the dominant function of social support in anxiety reduction. The research also stated that social support reduced psychological stress among patients during the pandemic and changed students' attitudes toward seeking social support (Cao et al., 2020). Similarly, in comparing coping mechanisms among students in China, Bangladesh, Malaysia, Saudi Arabia, and Pakistan, Chinna et al. (2021) discovered that Chinese university students have more possibilities to use social support-seeking skills, which may be attributed to the widespread application of social media in China. Ye et al. (2020) explored the mediating function of social support and resilience in the relationship that exists between stress exposure and ASD symptoms, and concluded that adaptability, social support, and resilience could be used as a strong individual and social protection methods in reducing the incidence of ASD symptoms after the pandemic.

These findings highlighted the significance of enhancing one's social relationships and personal networks to support psychological health and resilience in difficult situations. Focusing on

critical intervention measures for individuals and communities impacted by the COVID-19 pandemic could be guided by a better understanding of protective variables that mitigate the negative impact of stress on mental health. Furthermore, Chen (2021) found that social support was a predictor of loneliness, with higher baseline social support associated with lower subsequent loneliness. The study supports the findings that social support and loneliness among university students demonstrate a negative correlation, indicating that social support is an anti-loneliness factor.

#### **4.3.2 Family Support**

After the COVID-19 outbreak, many students were at home due to the quarantine policy in the early stages. This section focused on family support and its function as a coping strategy for Chinese university students' mental health. Consequently, it is highlighted in this section that family support can impact Chinese university students' health mentally.

Anxiety, depression, stress symptoms, and suicidal tendencies all have substantial negative associations with family support (Huang et al., 2021; Huang et al., 2022). Furthermore, family support had great potential in reducing mental illness severity, especially anxiety (Li & Peng, 2021). Perceived family support was an essential protective factor in preventing college students from experiencing negative mental health consequences and the exacerbation of suicidal tendencies during the pandemic. Good family functioning may have included a strong ability to adapt to pandemics and supportive communication among family members, which could have strengthened social connections. Strong social connections may have helped prevent university students from

developing suicidal tendencies during long periods of staying at home. The study results also emphasized the importance of family support as a protection method for university students during the pandemic period. Family members were more inclined to support each other emotionally and have empathy for one another. Additionally, family members were better able to communicate and support one another's social and health needs thanks to the assistance of family carers, and this support played a special role in social support. Since family members were more sensitive to one another's needs and more equipped to provide individualized care and support, support from family appeared to demonstrate a more promising effect on lessening the severity of mental illness than help from a spouse or friend. Therefore, family support may be viewed as a crucial barrier that mitigates the psychological difficulties that university students may face during the pandemic period. This discovery might aid in the creation of improved coping mechanisms to enhance university students' psychological health.

Contrasting the above findings, Li et al. (2021) suggested that family support and anxiety have an indirect relationship rather than a direct one. In their study, the indirect pathway revealed that cognitive, emotional, and behavioral coping strategies could be helpful in mediating the relationship that exists between anxiety and family support. The strong mediating effect suggests that living with family members may not be a key factor in reducing anxiety, but rather the adoption of appropriate coping strategies is necessary to activate the transmission of family support and reduce anxiety.

### 4.3.3 Negative and Positive Response

Coping mechanisms were crucial to how people react to stress, in line with the transactional stress model theory (Yang et al., 2016). Individuals could employ cognitive and behavioural coping strategies to control, lessen, or face the internal or external demands of a stressor (Folkman & Moskowitz, 2004a). Dynamic reactions to hardship assist people in avoiding the emergence of psychiatric diseases. Active coping and avoidant coping are the two main types of coping mechanisms. While avoidant coping involves running away, withdrawing from social situations, and blaming oneself, all of which can worsen anxiety, active coping involves problem-solving, quick response to stressors, and stress reduction. Applying positive or negative coping strategies during the pandemic time can lead to extremely different results, and this section will examine the effect on the mental health status of Chinese university students caused by these two opposite coping strategies.

Positive coping strategies clearly reduced Chinese university students' mental health problems, particularly depressive symptoms (Zhao et al. 2021 and Li et al. 2022). This suggested that active coping strategies can be supportive for students to address challenges and problems more rationally and may alleviate stress, thereby preventing depression. During the pandemic period, mental health issues and hazardous behaviours caused by alcohol and cigarette abuse emerged as a new public health concern that can, particularly among undergraduate students who were still developing their social and intellectual skills. Using unhealthy coping strategies like smoking and excessive drinking can harm the moderating process of mental health for students. Teenagers from

14 to 35 years old frequently employed passive defence strategies. According to their poll, 29.4 per cent of participants admitted to utilizing coping skills including "smoking, drinking, taking drugs, or overeating to reduce worry" during COVID-19. If students have mental health issues or are under stress, this could result in harmful behaviours. In contrast, adopting positive coping strategies could make a positive contribution to regulating psychological distress and alleviating negative emotions. Moreover, women students exhibited significantly higher levels of positive coping strategies than men. Women students also showed better emotional regulation, higher cognitive evaluation, and lower expression inhibition than men (Li et al., 2022). The study further revealed that male students experienced greater psychological stress than female ones. Additionally, university students who used coping skills that entail seeking out social and familial support through confiding in friends, family, or coworkers had a higher reaction to PTSD symptoms (Liao et al., 2021). Students might learn how to encourage themselves and the people around them when resolving general stress.

During COVID-19, physical activity was identified as a positive coping strategy for Chinese college students to reduce their negative mental health effects. During this period, several studies investigated the connection that existed between psychological health and physical exercise. 70.63 per cent of students reported that physical exercise helped them relax and manage psychological stress, and psychological stress and physical exercise were confirmed to have a significant negative association (Guo et al., 2022; Zhu & Hu, 2022) Additionally, A study by Wang and Yan (2022) found a correlation between physical exercise and psychological health, suggesting that psychological health issues resulted by the COVID-19 pandemic can be alleviated by increasing awareness of physical exercise could help alleviate. Furthermore, they found that male

students had better mental health and exercise behavior than female students. In conclusion, these studies demonstrated the beneficial function of physical activity for Chinese university students in relieving the detrimental psychological symptoms of the pandemic. Therefore, promoting physical exercise among university students, particularly female students, was an important strategy to improve their psychological well-being during that challenging time.

#### **4.4 Conclusion**

In this chapter, the literature on Chinese university students' psychological health status and their coping strategies during the duration of the pandemic were highlighted, revealing the psychological conditions Chinese university students experienced including anxiety, PTSD and ASD, suicidal ideation, and depression. Several coping strategies were also identified. These findings provided a basis for the discussion section that follows.

## **Chapter 5 Discussion**

### **5.1 Introduction**

The mental health issues of Chinese university students, and what coping strategies they applied during the COVID-19 period are outlined in this chapter in two sections: The first section discusses and analyses the main factors that impact Chinese university students in relation to the psychological concerns and the related approaches to address them. The second section discusses strategies for coping with psychological issues at the societal, family, and individual levels. During COVID-19, such findings can be helpful assistance for government health authorities and university educators in formulating policies or implementing measures.

### **5.2 Mental Health Impacts and Interventions**

#### **5.2.1 Prevalence, Impact, and Interventions of Anxiety**

The pandemic has caused numerous stressors and challenges, such as the implementation of stringent containment measures and future uncertainty. These stressors have an influence on people's mental health, including those of university students. It is, therefore, necessary to understand how often Chinese university students feel anxious and the severity of the anxiety.

Before the COVID-19 pandemic, anxiety issues among Chinese university students were already a significant concern. Though, during the pandemic, Chinese college students experienced substantially higher anxiety levels than average (Liu et al., 2019; Zhang et al., 2007). For Chinese university students, mental health has been significantly impacted by the pandemic, as seen by their

elevated anxiety levels. While the level of anxiety symptoms differs somewhat between studies, all indicated that a sizable proportion of students experience severe or extreme anxiety (Nurunnabi et al., 2020; Cao et al., 2020; Wang & Zhao, 2020; Li & Peng, 2021). These results indicated that Chinese university students had experienced a substantial effect on their mental health due to the pandemic. However, it is essential to note that the reviewed studies employed various assessment methods, which may have contributed to the observed variances in anxiety levels. For instance, Lin et al. (2020) discovered a low extent of anxiety but a high extent of perceived stress among university students during home isolation. On the other hand, Chinna et al. (2021) discovered that China had the highest proportion of university students with severe to extreme anxiety levels. However, a qualitative study showed that approximately 70 per cent of American college students also exhibited severe anxiety during the pandemic. Their anxiety symptoms were mainly caused by worries about their own health, sleep disturbances, social isolation, and academic performance (Son et al., 2020). These similar findings demonstrate that high levels of anxiety were experienced during the pandemic by university students across the globe and not just in China alone.

However, there were some differences in the stressors affecting university students during the pandemic. The main stressors affecting Chinese university students were financial constraints, distance online learning, ambiguous academic performance, future career prospects, and academic completion (Chinna et al., 2021). The uncertainty surrounding their future careers contributed to the anxiety levels observed, as students faced the challenge of adjusting to a rapidly changing job market in the wake of the COVID-19 pandemic. During the pandemic time, female university students displayed more significant anxiety symptoms. Such differences were attributable to several

factors though research has not yet identified their causes. Future research is needed to better understand the difference between male and female students' anxiety levels during the pandemic.

To mitigate the impacts on the mental health of Chinese university students effective coping strategies and emotional control techniques are needed. The reviewed studies provided important insights into the Chinese university students' mental health impacted by COVID-19 and could inform the development of interventions designed to support student's mental health. For example, Wang and Hu (2020) identified that significantly higher anxiety levels appeared in August (post-COVID), as compared to March (pre-COVID), which highlights the need for ongoing university student support throughout the pandemic. Additionally, attention and research are needed as university students will continue to face mental health issues once the pandemic is over due to the persistence of anxiety symptoms and the unpredictability of their potential consequences. Providing students with resources and support for their financial, academic, and career-related stressors might also help to mitigate anxiety levels. Moreover, interventions aimed at promoting effective coping strategies and emotional control techniques could help reduce anxiety levels among Chinese university students.

The findings highlighted the need for ongoing support and interventions to mitigate the effect on these individuals' mental health due to COVID-19. As COVID-19 continues to evolve, it will be crucial to continue monitoring Chinese university students' mental health and implementing targeted interventions to promote their wellbeing.

### **5.2.2 PTSD, ASD and the Role of Intrinsic and Interpersonal Factors**

During the pandemic, a significant proportion of Chinese university students experienced anxiety at the early stage, and some also exhibited symptoms of ASD and PTSD, albeit to varying degrees. Similarly, international studies revealed PTSD symptoms during the pandemic, as seen in Italy (Rossi et al., 2020) and the United States of America (Czeisler et al., 2020). This indicated that not only in China but also internationally, university students were at risk of developing PTSD during the pandemic. Therefore, it was extremely important to develop and implement screening tools for COVID-19-related psychological risk factors to identify PTSD symptoms related to COVID-19 early. This would allow for early clinical intervention, which might prevent the development of PTSD from ASD. Notably, the results of the studies conducted in the early stages of the pandemic showed lower levels of PTSD compared to later studies, suggesting that PTSD symptoms may have gone unrecognized and been attributed to other stressors. The reasons for this situation were complex. Chinese healthcare workers showed that they experienced symptoms of post-traumatic stress disorder (PTSD) in the early stages of the pandemic, but due to a lack of awareness or shame related to mental health issues, they did not seek help or were not diagnosed (Duan & Zhu, 2020). This suggested that early studies may have underestimated the prevalence of PTSD symptoms among individuals affected by COVID-19. The same may also hold true among Chinese university students. Many people who experienced pandemic-related stressors, such as quarantine and social isolation, reported symptoms of anxiety and depression, but not necessarily PTSD. This suggested that early studies may have overlooked the unique effect on mental health

due to COVID-19, particularly regarding PTSD symptoms. In addition, Shevlin et al (2021) found that studies conducted in the later stages of the pandemic often reported higher rates of PTSD, indicating that as the pandemic progressed, individuals continued to experience stressors such as loss of relatives and long-term isolation, which may have made PTSD symptoms more apparent. This supported the view that PTSD symptoms may have gone unrecognized in early studies because these studies did not capture the full range of the influence on mental health because of COVID-19. However, as the pandemic continued, the prevalence of PTSD grew in university students group, highlighting the necessity for ongoing mental health monitoring and the implementation of appropriate interventions. The findings of the studies also suggested that individual intrinsic and interpersonal factors, such as social support, adaptive coping strategies, and resilience could mitigate the connection that exists between stressors related to COVID-19 and higher levels of ASD symptoms. The above discussion provided significant indications for the formulation of effective coping strategies and emotional control techniques for university students in China, as well as the provision of appropriate social support.

In conclusion, the studies discussed in this article provided valuable insight and emphasized the importance of continuous mental health surveillance and the implementation of appropriate interventions to prevent mental disorders including PTSD. The results also suggest that individual and interpersonal factors show a crucial effect in attenuating the connection existing in COVID-19 relevant stressors and elevated levels of ASD symptoms. Consequently, the development of effective coping strategies, emotional control techniques, and the provision of social support are crucial for mitigating the mental effect on students' health.

### **5.2.3 Prevalence and Risk Factors of Depression and Suicidal Tendencies**

The sudden outbreak of the coronavirus has induced dread and uncertainty, resulting in increased reports of depressive and suicidal tendencies. Although, prior to the COVID-19 pandemic, research on depressive symptoms and suicidal tendencies among Chinese university students already indicated concerning trends (Guo et al., 2017; Lei et al., 2016). According to the "China National Mental Health Report 2022" (2023), the proportion of Chinese university students at risk of depression and anxiety was 21.5% and 45.2%, respectively, by 2022. Mental health issues, including depression and suicidal ideation, were recognized as challenges affecting the well-being of this student population. During the pandemic, the research reviewed provides evidence that Chinese university students have a high prevalence of depressive symptoms and suicidal tendencies.

The studies consistently demonstrated that male university students had a greater risk of developing depressive symptoms than females, suggesting that women have more possibilities to seek support than men when facing issues relevant to mental health (Addis & Mahalik, 2003). It might also be related to cultural and societal factors, as men are expected to be more stoic and less emotional in many Asian cultures (D. F. Chang et al., 2009). Various risk elements associated with depression symptoms and suicidal tendencies in university students during the pandemic period were also identified. During global pandemic, with a scale such as COVID-19, students mental health can be affected by social and economic factors. It is therefore essential to recognize that financial stress and social support can play crucial roles in either mitigating or exacerbating the effects of a crisis on mental health. However, it is crucial to mention that social and economic

support may not be equally accessible or available to all students. Those from lower socioeconomic circumstances, for instance, may have less access to resources such as financial aid or mental health services, making them more susceptible to the negative impacts on their health mentally. This disparity in access to resources can result in worse effects, for instance, detrimental effects on mental health due to the COVID-19 can be exacerbated, and as a consequence, a pernicious cycle of inequality can appear during the pandemic. Therefore, it is necessary to consider and resolve how existing social and economic inequalities that contribute to the negative impacts on mental health because of the coronavirus. This could involve the implementation of policies and programs that prioritize the needs of vulnerable populations and increase access to mental health resources, particularly for those who may face additional barriers in accessing them. Overall, a more comprehensive approach to addressing the social and economic factors that impact mental health during crises such as COVID-19 is required to ensure that individuals and communities can effectively navigate the obstacles and emerge stronger. During the pandemic time, shorter sleep duration has been associated with negative psychological outcomes, including symptoms of melancholy, among Chinese university students. The disruption of daily routines and increased stress caused by the pandemic might have contributed to the shorter sleep duration among students. Baglioni et al., (2011) found that sleep deprivation can contribute to negative psychological consequences including depression and anxiety. However, it is also essential to consider the two-way relationship that exists between mental health and sleep. Poor mental health could also lead to sleep disturbances, which could further exacerbate mental health problems. In addition, the increasing number of Chinese university students who demonstrated depressive symptoms over

time was especially alarming. It was suggested that the pandemic could have a cumulative influence on mental health and that mental health interventions should be implemented immediately to prevent further deterioration.

In addition, it was important to note that sleep disturbances and depressive symptoms have been reported in other populations affected by COVID-19, such as healthcare workers and individuals in quarantine (Baglioni et al., 2011; Wang et al., 2020). COVID-19 has generated a substantial global impact on mental health, highlighting the necessity for a holistic and comprehensive method of mental health care that addresses sleep, stress, social support, and access to mental health services. The connection that exists between reduced sleep duration and negative psychological outcomes during the pandemic highlighted the significance of promoting healthy sleep habits and addressing sleep disturbances as part of mental health interventions within the context of the pandemic.

### **5.3 Coping Strategies and Social Support**

#### **5.3.1 The Role of Social Support in Promoting Psychological Well-being**

Consistently, the research notes that social support is important in supporting the impact on the mental health of Chinese university students. Social support can mediate the relationship between psychological stress and health outcomes, and sufficient social support can help mitigate depression and anxiety. Moreover, a negative correlation exists between social support and the prevalence of anxiety and depressive symptoms among university students. Social support decreased psychological stress among students and altered their attitudes toward seeking social

support. These findings suggested that social support helps reduce the incidence of psychological disorders during the pandemic.

Moreover, it was discovered that Chinese university students were more likely to employ social online support-seeking techniques, potentially due to the widespread application of social media platforms in China. Chinese university students who sought social support from peers and family when they felt depressed or anxious during COVID-19, were found to have used online mediums such as WeChat and QQ and other social media platforms (Zhao et al., 2022). This suggested that social media may provide a convenient and accessible way for Chinese university students to seek social support during times of crisis. This highlighted the significance of utilizing technology and social media to promote social support and increase university students' awareness of the benefits of pursuing social support. It was interesting to note that social support and anxiety demonstrate the strongest connection among the coping strategies analysed. Social support was the most important factor in reducing anxiety among university students during the pandemic.

Additionally, social support and resilience could operate as potential protective factors against the occurrence of ASD symptoms in the wake of the pandemic, providing further supportive evidence for the necessity and importance of social support in anxiety reduction. (Ye et al., 2020). Similar results have been noted in other nations. There are also positive correlations that exist between social support and stress levels, with social support reducing anxiety and depressive symptoms associated with the pandemic (Asmundson et al., 2020). Shevlin et al. (2020) found that the mental health of United Kingdom residents was severely affected and that social support could reduce the likelihood of mental health problems during COVID-19. Globally, social support has been noted to

alleviate the psychological tension associated with the impacts of the pandemic.

COVID-19 had disrupted the traditional university experience, with many students having to adjust to online learning and limited opportunities for social interaction. This has made it even more crucial for universities to provide support services that promote social connections and reduce loneliness among students. The pandemic highlighted the significance of social support as a mental health protection method (Chen, 2021), and educational institutions could play a vital role in facilitating these connections, particularly in the absence of traditional face-to-face interactions. In conclusion, the importance of social support in enhancing college students' psychological health during the pandemic is evident globally. The findings clearly show the protective factors that can lessen the impact of stress on mental health, as well as the significance of social relationships in promoting resilience and reducing loneliness. To aid students in coping with the challenges posed by the pandemic, educational institutions should focus on fostering social support and establishing a supportive community. Additionally, greater awareness of the benefits and advantages of pursuing social support and the application of social media platforms and technology to promote social support could mitigate the negative psychological impacts on students.

### **5.3.2 The Effects of Family Support on Mental Health Status**

The outbreak of coronavirus demonstrated a deep effect on Chinese university students' mental health, necessitating the development of protective factors to mitigate and relieve the negative effects on their mental health. The impact of family support provided to Chinese university students' relevant psychological well-being during COVID-19 has been investigated in recent

research.

There is clear evidence that family support had a substantial effect on Chinese university students' psychological health. Huang et al. (2021) and Li and Peng (2021) noted that perceived family support was a protection against negative mental health consequences. Additionally, Huang et al. (2022) found that improved family functioning can effectively protect against the exacerbation of suicidal tendencies. These results highlighted the significance of investigating the role of family support as a protective factor during the pandemic period. In addition, Li et al. (2021) found that an indirect relationship exists between family support and anxiety, implying that appropriate coping strategies are required to activate the transmission of family support and reduce anxiety. Social support, including family support, can function as a buffer against the detrimental effects of stress, as demonstrated by previous research (Cohen & Wills, 1985b; Uchino, 2006). Family members could provide emotional and practical support, such as listening, understanding, and helping with daily tasks, which could reduce feelings of loneliness and anxiety among students. Furthermore, good family functioning, which includes a strong ability to adapt to pandemics and supportive communication among family members, could strengthen social connections and help prevent suicidal tendencies among college students during extended periods spent at home. The supportive family environment might be particularly important for Chinese university students, as cultural values strongly emphasise family ties and filial piety. Family relationships have been strongly emphasised in Chinese culture, and the concept of filial piety is deeply ingrained in Chinese society. Filial piety referred to the Confucian principle of respecting and caring for one's parents and ancestors is considered a fundamental virtue in Chinese culture (Bedford & Yeh, 2019). The strong

emphasis on family relationships and intergenerational support in Chinese society reflects the importance of filial piety, which has significant implications on social support function in Chinese university students' mental health. During the pandemic, familial ties and support were especially pertinent for Chinese university students, who may have experienced stress and uncertainty. The social distancing measures and quarantine policies implemented in China during the pandemic could have disrupted traditional family structures and support systems, leading to feelings of isolation and loneliness among some students. However, the strong emphasis on family ties in Chinese culture could also be a protection method for Chinese university students' mental health, as they might be more likely to seek support from family members during times of crisis.

However, it is essential to note that family support alone might not be enough to address mental health issues that appear in university students during the pandemic period. According to Li et al. (2021), anxiety and family support have an indirect relationship, and appropriate coping strategies were required to activate the transmission of family support and decrease anxiety. Therefore, in addition to promoting family support, it was essential to equip university students with effective coping strategies that can help them manage stress and reduce anxiety. Applying cognitive, emotional, and behavioural coping strategies could be effective in reducing anxiety levels, as well as increasing resilience. The findings from these studies reviewed provided important insights for educational institutions and mental health professionals to develop interventions that promote family support as a coping mechanism for university students during the pandemic. For instance, educational institutions could provide support services such as family counselling, peer support, and mentoring programs to help students build stronger family relationships and create a more

supportive community. Additionally, mental health professionals could train students in appropriate coping strategies that activate the transmission of family support and reduce anxiety.

In conclusion, the reviewed literature emphasized the importance of family support to the enhancement of university students' mental health during the pandemic period. The findings provided critical insights into the protective factors that can relieve and mitigate the negative impacts of stress on mental health, including the significance of social relationships, strong family functioning, and appropriate coping strategies. Educational institutions and mental health professionals can develop interventions that promote family support and create a more supportive community to help university students cope with the difficulties posed by the pandemic.

### **5.3.3 Negative and Positive Coping Strategies**

Folkman and Moskowitz (2004) found that active coping helps to enhance mental health outcomes more than avoidant coping. During pandemics, positive coping strategies can be helpful to generate an extremely useful and supportive effect on Chinese college students' mental health. In contrast, negative coping mechanisms, such as alcohol and cigarette abuse, have been linked to hazardous behaviours and mental health issues.

Positive coping strategies were negatively correlated with depression, indicating that active coping strategies can help students deal with problems more rationally, reduce stress, and thereby prevent depression (Zhao et al., 2021). Li et al. (2022) also found that positive coping strategies could clearly influence university students' mental health, with women exhibiting a significantly higher extent of positive coping strategies than men. This finding demonstrates that men exhibit a

lower extent of positive coping strategies than women. Women also showed better emotional regulation, higher cognitive evaluation, and lower expression inhibition than men. In contrast, men experienced greater psychological stress than women, highlighting the need for gender-specific support and intervention strategies. In addition, negative coping strategies were also used by some university students, such as smoking, drinking, drug use, or overeating, to reduce worry (Huang et al., 2021). Such coping strategies lead to harmful behaviours and worsen mental health outcomes. Instead, seeking social and familial support through confiding in friends, family, or co-workers had been associated with a lower reaction to PTSD symptoms, according to Liao et al. (2021). Therefore, students should learn how to encourage themselves and the people around them when dealing with general stress.

During the pandemic, physical activity was identified as an effective coping mechanism for reducing negative mental health effects among Chinese university students. Guo et al. (2022) found that physical exercise could help them relax and cope with psychological stress, with a significant negative correlation between psychological stress and physical exercise. Similar findings were reported by Zhu and Hu (2021) and Wang and Yan (2022), suggesting that physical exercise could effectively reduce negative emotions during the pandemic. However, Wang and Yan (2022) found that male students had better mental health and exercise behaviour than female students, highlighting the need for interventions that specifically target female students to promote physical exercise.

During the pandemic, buffering strategies demonstrated an important function in how Chinese university students responded to stress. Positive coping strategies including problem-

solving and stress reduction, have been linked to better mental health consequences. Seeking social and familial support through confiding in friends, family, or co-workers has been associated with a higher reaction to PTSD symptoms. Physical exercise is a positive coping strategy in reducing the negative mental health effects of the pandemic appeared on Chinese university students. However, more gender-specific support and intervention strategies are needed, particularly for female students, to promote physical exercise and improve their mental health outcomes during this challenging time.

#### **5.4 Limitations**

Some limitations to this review should be noted. First, due to the rapid nature of this review, we may have missed some relevant studies that were not included in our search. Additionally, the studies' reviewed varied in quality and there were some inconsistencies in the methods used to measure mental health and coping strategies. This could impact the accuracy of our findings and conclusions. Finally, the review focused solely on Chinese university students and may not be generalisable to other populations or settings, given the uniqueness of the Chinese dynamic zero policy.

Although limitations still exist, the review formulates a useful summary of the current research on the coping strategies and mental health of Chinese university students. By synthesizing the existing research, it is possible to identify research gaps and devise targeted interventions to support the mental health of students during and after the pandemic.

## **5.5 Recommendations**

It is crucial to understand and address the mental health challenges Chinese university students face during the COVID-19 pandemic. Government health authorities could formulate policies prioritising students' well-being and implementing measures to support their mental health. This includes establishing mental health support services within universities, conducting regular monitoring, and reducing the stigma associated with seeking help. Additionally, educators play a vital role in promoting students' psychological well-being by incorporating coping strategies into their curriculum, facilitating social connections, and receiving training on mental health issues. Additionally, the role that technology can play among students to maintain social connections and how technology can assist in seeking assistance when needed, needs to be factored into strategy. Collaboration between health professionals and educators is essential to ensure a coordinated and effective approach to addressing students' mental health concerns. By implementing these policy recommendations, the necessary support to Chinese university students can be provided, fostering resilience, and mitigating the negative impacts on their mental health. Importantly, ongoing monitoring and targeted interventions are critical not only during the pandemic but also beyond, to ensure these students' well-being and academic success.

## **5.6 Conclusion**

This chapter examines the mental health issues faced by Chinese university students during the COVID-19 pandemic and the coping strategies they utilized. The first section discusses the

factors influencing the psychological concerns of Chinese university students, while the second section focuses on coping strategies at the societal, family, and individual levels. The pandemic has significantly impacted the mental health of Chinese university students, particularly in terms of increased anxiety levels. Various studies have reported high levels of anxiety among Chinese university students, which can be attributed to stressors such as financial constraints, online learning, career prospects, and academic completion. Similar levels of anxiety have been observed globally among university students during the pandemic. PTSD and ASD symptoms have also been reported, highlighting the need for early identification and intervention. Depression and suicidal tendencies are prevalent among Chinese university students, with males being at higher risk. Factors such as social support, financial stress, sleep disturbances, and access to resources play a role in depression and suicidal tendencies. Social support has been found to be crucial in promoting psychological well-being, and social media platforms have provided a means for seeking support. Family support also plays a significant role in protecting the mental health of Chinese university students during the pandemic. Overall, the findings underscore the importance of ongoing support, interventions, and social support networks in mitigating the mental health impact on Chinese university students during the COVID-19 pandemic.

## Chapter 6 Conclusion

In conclusion, this review emphasizes the significant effects of COVID-19 on Chinese college students' mental health. During COVID-19, numerous students experienced elevated levels of anxiety, depression, stress, social isolation and academic disruptions possibly exacerbated these issues. Chinese university students' coping strategies focused on seeking social and family support and participating in positive coping strategies such as physical activity. However, the review also identified several limitations in the available literature, including limited studies and the lack of standardized measurements for mental health and coping strategies. Despite these limitations, this review provides essential insights into the mental health needs of Chinese university students during the pandemic and highlights the significance of providing adequate resources and support to meet these needs. This study addresses a gap by bringing together what is known about Chinese university student's mental health and subsequent coping strategies during the COVID-19 pandemic. It also provides an understanding for further research to be conducted in this area.

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**Appendix: Detailed information about the review literature**

Authors, (year)	Title	Study Design; Sample size	Location	Identified barriers
Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J, (2020)	The psychological impact of the COVID-19 epidemic on college students in China.	Mixed qualitative and quantitative research N=7143	China, Changzhi	Having relatives or acquaintances infected with COVID-19 was a risk factor for increasing the anxiety of college students. Economic effects, and effects on daily life, as well as delays in academic activities, were positively associated with anxiety symptoms. However, social support was negatively correlated with the level of anxiety
Chen, S, (2021)	A study on the impact of the new crown pneumonia epidemic on college students' loneliness, social support and coping styles.	Mixed qualitative and quantitative research N=3373	China, Gansu	Social support and positive coping styles were all negatively associated with loneliness. Social support directly affects loneliness, and coping styles mediate the effect of social support and loneliness.
Chinna, K., Sundarasan, S., Khoshaim, H. B., Kamaludin, K., Nurunnabi,	Psychological impact of COVID-19 and lock down measures: An online cross-sectional multicounty	Cross-sectional study N=3679	Malaysia, Saudi Arabia, Pakistan, Bangladesh, China, India and Indonesia	Females from Bangladesh, China, Malaysia, Pakistan and Saudi Arabia experienced significantly higher levels of anxiety compared to their

M., Baloch, G. M., Hossain, S. F. A., Sukayt, A., Dalina, N., Rajagopalan, U., Kumar, R., & Memon, Z, (2021)	study on Asian university students			male counterparts. Acceptance was the most used and Seeking Social Support was the least used coping strategies among the students.
Gan, Y., & Fu, Q, (2022)	Risk perception and coping response to COVID-19 mediated by positive and negative emotions: A study on Chinese college students.	Questionnaires and descriptive statistics N=1038	China, Hubei; Guangdong; Shandong	Regarding COVID-19 pandemic, the positive emotion or negative emotion of Chinese university students could have potential associations with specific coping behaviours.
Guo Y., Shen H., Zhang M., Fang Y. & Long X, (2022)	An analysis of the effectiveness of physical exercise in regulating college students' psychological stress under sudden public events.	Mixed qualitative and quantitative research N=303	China, Xian	Mental cues and stress were important factors affecting mental health, and physical exercise could effectively regulate the mental health of individuals.
Huang, S., Wang, D., Zhao, J., Chen, H., Ma, Z., Pan, Y., Liu, X., & Fan, F, (2022)	Changes in suicidal ideation and related influential factors in college students during the COVID-19 lockdown in China.	Cross-sectional study N=36616	China, Guangdong	Junior-year undergraduates, postgraduates, only-child families, mental health history, confirmed cases in the community of residence, depressive symptoms, and negative coping

				strategies were significant predictors of distinct suicidal ideation trajectories, whereas greater social support, more positive coping strategies, and better family functioning were associated with a lower probability of developing delayed or persistent dysfunction during the lockdown period.
Huang, Y., Su, X., Si, M., Xiao, W., Wang, H., Wang, W., Gu, X., Ma, L., Li, J., Zhang, S., Ren, Z., & Qiao, Y, (2021)	The impacts of coping style and perceived social support on the mental health of undergraduate students during the early phases of the COVID-19 pandemic in China: A multicenter survey.	Cross-sectional study N=558	China, NA	Active coping style and family support were protective factors while passive coping style could aggravate psychological problems among Chinese university students
Lin, H., Yao, L. Y., Zhang, R. S. & Li, D, (2020)	Impact of new crown pneumonia epidemic situation on mental health of college students and its adjustment measures.	Mixed qualitative and quantitative research N=1315	China, NA	Chinese university students have high levels of stress, low levels of anxiety and average coping skills; perceived stress is positively related to anxiety and negative coping, and negatively related to positive coping.
Li, N., Fan, L., Wang, Y.,	Risk factors of psychological	Cross-sectional study	China, Sichuan	The incidence of psychological distress

Wang, J., & Huang, Y, (2022)	distress during the COVID-19 pandemic: The roles of coping style and emotional regulation.	N=6027		was found to be 35.34%. Negative coping style and expressing panic about COVID-19 on social media were the most important predictors of psychological distress. In addition, being male, being a “left-behind child” or having a monthly household income lower than 5000 CNY or higher than 20,000 CNY were associated with higher psychological distress.
Li, X., Fu, P., Fan, C., Zhu, M., & Li, M, (2021)	COVID-19 Stress and Mental Health of Students in Locked-Down Colleges.	Quantitative research N=4355	China, Wuhan	COVID-19 particularly affected older male master's and doctoral students living in Wuhan, especially for post-traumatic stress disorder.
Li, Y., & Peng, J, (2021)	Does social support matter? The mediating links with coping strategy and anxiety among Chinese college students in a cross-sectional study of COVID-19 pandemic.	Cross-sectional study N=2640	China, Wuhan	Students reported high levels of cognitive coping, behavioural coping, and social support. They also experienced low levels of anxiety and emotional coping. Anxiety was significantly and negatively related to coping and social

				support.
Li, Y., Peng, J., & Tao, Y, (2021)	Relationship between social support, coping strategy against COVID-19, and anxiety among home-quarantined Chinese university students: A path analysis modelling approach.	Quantitative research N=2640	China, NA	The anxiety symptoms of Chinese university students were significantly and negatively associated with subjective support and counsellor support, while family support did not show a substantial association with anxiety.
Liao, Z., Zhang, X., Wang, Y., Wang, T., Li, X., Zhao, M., & Zhuang, Q, (2021)	Delayed-Onset PTSD and Coping Strategies of Chinese College Students During the COVID-19 Pandemic.	Mixed qualitative and quantitative research N=319	China, NA	Six months after the COVID-19 outbreak, both Chinese international students and domestic university students showed moderate to high levels of PTSD, and positive and negative coping and social support had an impact on respondents' PTSD symptoms, with social support being significantly associated with students' choice of coping strategies.
Nurunnabi, M., Hossain, S. F. A. H., Chinna, K., Sundarasan, S., Khoshaim,	Coping strategies of students for anxiety during the COVID-19 pandemic in China: A cross-sectional study.	Cross-sectional study N=559	China, NA	During the COVID-19 pandemic, Chinese university students experienced psychological concerns such as lack of sleep, emotional

H. B., Kamaludin, K., Baloch, G. M., Sukayt, A., & Shan, X, (2020)				support, moral support and social attraction due to high levels of anxiety and psychological stress, they needed coping strategies and survival skills.
Sun, S., Goldberg, S. B., Lin, D., Qiao, S., & Operario, D, (2021)	Psychiatric symptoms, risk, and protective factors among university students in quarantine during the COVID-19 pandemic in China.	Cross-sectional study N=1912	China, NA	During the COVID-19 pandemic, psychiatric symptoms of traumatic stress, depression, anxiety and suicidal ideation were prevalent among Chinese university students. Financial stress, perceived COVID-19 social stigma and perceived COVID-19 threat were associated with higher symptom severity.
Tang, W., Hu, T., Hu, B., Jin, C., Wang, G., Xie, C., Chen, S., & Xu, J, (2020)	Prevalence and correlates of PTSD and depressive symptoms one month after the outbreak of the COVID-19 epidemic in a sample of home-quarantined Chinese university students.	Cross-sectional study N=2485	China, NA	Feeling extreme fear was the most important risk factor for psychological distress among Chinese university students, followed by short sleep duration, impending graduation (fourth year) and living in a severely affected area. Sleep duration mediated the link between exposure and mental health problems.

Tian H, (2021)	Feasibility study on the psychological prevention of college students from the perspective of school social work.	Mixed qualitative and quantitative research N=472	China, NA	Social work has creatively proposed practical pathways to solutions in the perspective of psychological prevention of university students. Psychological counselling, as a professional means of solving psychological problems in universities, played an important role in the social services of universities under the pandemic in terms of the lack of initiative of the service recipients, the diversified working model of social work and the proactive characteristics of the discipline.
Wang, C., & Zhao, H, (2020)	The Impact of COVID-19 on Anxiety in Chinese University Students.	Mixed qualitative and quantitative research N=3611	China, NA	Chinese university students had higher levels of anxiety about the COVID-19 pandemic and there were significant differences between males and females.
Wang, Z. & Hu, Y, (2021)	Influence of family environment on college students' mental health in the context of epidemic	Mixed qualitative and quantitative research N=2636	China, NA	The lowest levels of depression and anxiety among Chinese university students were found during the initial phase of effective

	prevention and control and countermeasures.			control of the pandemic. University students from divorced parents and reconstituted families were at greater risk of depression. Ambivalence in the family environment was a common risk factor for mental health.
Wang, C. & Yan, J, (2022)	Association of COVID-19 epidemic risk perception, physical exercise and mental health in college students.	Longitudinal study N=973	China, Zhenzhou; Beijing; Shenyang; Tianjin	There was a longitudinal causal relationship between perceived risk of COVID-19 pandemic, physical activity and mental health, and male students had better physical activity and mental health than female students.
Ye, Z., Yang, X., Zeng, C., Wang, Y., Shen, Z., Li, X., & Lin, D, (2020)	Resilience, Social Support, and Coping as Mediators between COVID-19-related Stressful Experiences and Acute Stress Disorder among College Students in China.	Cross-sectional study N=7800	China, NA	The direct and indirect effects of covid-19-related stressful experiences on ASD symptoms among Chinese university students were significant. Mental toughness, adaptive coping strategies and social support could mediate the relationship between stressful experiences associated with COVID-19 and ASD

				without significant moderation by maladaptive coping strategies.
Yang X., Gao L., Zhang S., Zhang L. & Zhou S, (2020)	Psychological status of college students during the new coronary pneumonia epidemic and its relationship with social support.	Cross-sectional study N=4139	China, NA	Mediating effect of social support, subjective and objective support on virus exposure and depression and anxiety
Zhao, L., Sznajder, K., Cheng, D., Wang, S., Cui, C., & Yang, X, (2021)	Coping Styles for Mediating the Effect of Resilience on Depression Among Medical Students in Web-Based Classes During the COVID-19 Pandemic: Cross-sectional Questionnaire Study.	Cross-sectional study N=666	China, Liaoning, Shenyang	Prevalence of depression among medical students was slightly lower during the COVID-19 pandemic, with coping methods mediating the relationship between mental toughness and depression.
Zhang, B., Sun, P. & Xia, X, (2021)	Research on the impact of closed university management on college students' psychology and countermeasures during the new coronary pneumonia epidemic	Cross-sectional study	China, Jiangsu	Depression and anxiety symptoms were experienced by university students during the college lockdown and were detected less frequently in males than in females.
Zhu, J. & Hu, K, (2022)	A study on the effect of physical exercise on the emotional	Cross-sectional study N=180	China, Wuhan	Physical activity during the pandemic was effective in reducing negative

	regulation of college students during the new coronary pneumonia epidemic.			emotions among university students, and there were no significant differences in the gender, type of major, or education level.
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