

Effect Of COVID-19 On College Students' Mental Health, Sleep Quality—Moderating Role of Social Support

Shumeng Chen *

Department of Applied Social Sciences, The Hong Kong Polytechnic University, Hong Kong, China

* Corresponding Author Email: shumeng.chen@connect.polyu.hk

Abstract. As a public health emergency, COVID-19 has a continuous impact that cannot be ignored. College students' mental health and sleep quality have always been the focus of society's attention. The impact of COVID-19 on it and ways to improve it need more attention. This review searched the empirical studies of databases such as Google Scholar through the literature reading method and found that college students' mental health and sleep quality have suffered because of COVID-19. However, social support can play a protective role in it. In comparison to people with low social support, those with high social support are less likely to have mental illness and have higher sleep quality. The results in this review serve as a foundation for improving college students' psychological and sleep problems in the future. The period of college is an important stage in the development of individual psychology and socialization. During this period, college students experience the role transition from juvenile to adult. Therefore, in this special period, society must take notice of the psychological and sleep problems of college students, and to improve them through scientific methods.

Keywords: COVID-19, college students, mental health, sleep quality, social support.

1. Introduction

In recent years, SARS, H1N1, H7N9, and other public health emergencies have become the focus of social attention, seriously endangering human health and affecting social psychology to a certain extent. The outbreak of COVID-19 coincides with the Chinese New Year, and it is a global pandemic that directly or indirectly affects all areas of society. The concerns about epidemics and the control of one's diseases also impact people's physical and mental health, and university students are no exception. Due to the highly competitive modern society, the times have put higher requirements on college students. College students need to learn knowledge and skills and have good psychological characteristics and the ability to resist setbacks. College students usually with great changes in cognition and social functioning and are more sensitive to changes in the external environment [1].

In order to successfully stop the virus's widespread distribution at universities, all localities have adopted regular preventive and control measures, such as strengthening campus gate management, strictly approving students' access to campuses, maintaining social distances, and organizing regular nucleic acid testing. Between 2020 and the end of 2022, the majority of universities in China have adopted closed-campus management, and the resulting stress events, such as travel restrictions, changes in learning modes, and isolation policies, have had a certain impact on the regularity of the behavior and lifestyle of university students.

Because of the abundance of news coverage during the outbreak, and university students were especially susceptible to psychological shock and influence because of their lack of social experience and life experience. Therefore, college students' mental health development and its influencing factors have been widely concerned during COVID-19. The purpose of this review was to clarify the specific relationship between social support, sleep quality, and mental health in the university student population, to provide a scientific basis for the promotion of the development of physical and mental health and aid them in better coping with the COVID-19's effects. Therefore, previous research experiences on sleep quality and mental health of college students during this special period of time around the world, as well as the role of social support, were carefully gathered, reviewed, and integrated in this review.

In the context of COVID-19, there are not so many scattered studies on the relationship between social support, sleep quality, and mental health, and there are relatively few with college students as the subject group. Under the pressure of epidemic prevention and control as well as academic and examination pressure, college students are prone to have obvious physical and mental problems, which affect their individual development. This review certainly provides feasible suggestions to alleviate the psychological problems and sleep problems of college students due to the epidemic and actively explores the protective role of social support, provides an auxiliary role to strengthen the work of mental health practice, provides certain theoretical support to alleviate the psychological problems and sleep problems of college students. Moreover, this review also encourages the attention of schools, families, and society to improve the sleep deprivation of college students, enhance their health, and deal with the impact of the epidemic in a more active way.

2. Method

A search was conducted using the databases CNKI, Google Scholar, Web of Science, and ScienceDirect using “COVID-19,” “sleep,” “sleep quality,” “psychological,” “social support,” and “college students” as search terms, supplemented by manual search access to the references of the included literature in order to make the literature complete. Studies were included if they met the following criteria: (i) contained empirical data, (ii) had access to full text, and (iii) contained some kind of analysis related to mental health, sleep, and social support. Studies referring to psychological indicators such as depression and anxiety were also included in this review.

3. Basic Constructs

3.1. COVID-19

a number of acute, unusual respiratory ailment outbreaks in Wuhan, Hubei, China, in December 2019. Severe Acute Respiratory Syndrome Coronavirus-2 (SARS CoV-2) was identified as the disease's causative agent. [2-4]. The disease is incredibly contagious and spreads rapidly to countries around the world [5]. On 20 January 2020, the National Health and Health Commission recognised COVID-19 as an infectious illness of category B and a quarantine infectious disease and implemented methods for managing infectious diseases in quarantine and for preventing and controlling Category A infectious diseases. The World Health Organisation officially named the disease-COVID-19, where “Co” stands for “Coronavirus,” “Vi” for “Virus,” “D” for “Disease,” and 19 for the year of the disease's emergence, 2019, which was announced by the World Health Organisation (WHO) on March 2020 as the official name of the disease. On March 11, 2020, the WHO proclaimed COVID-19 a global pandemic [6, 7].

3.2. Mental Health

Western scholars first developed the construct of mental health. Due to the different periods in which scholars live and the differences in the general social environment, the definition of mental health is treated inconsistently [8]. In 1946, the WHO stated that mental health is attaining an optimal state of mind, including optimal potential fulfillment [9]. The viewpoint of Chinese scholars is that mental health is the subjective feeling of an individual, which contains both positive and negative situations, and that positive psychology is a higher level of adaptation of human beings to the general environment in which they live.

The mental health studied in this article mainly refers to the mental health of negative situations brought about by COVID-19, especially depression and anxiety. Barlow DH believed that anxiety mainly refers to the physical symptoms of physiological tension and the negative emotional state of worrying about the future, which is an emotional and psychological problem [10]. Anxious individuals are often accompanied by signs of physiological strain in the body, such as perspiration, trembling, weak legs, dizziness, muscle tension, shortness of breath, nausea, and palpitations; in terms

of actions, they include hand washing, restlessness, overeating, Nail biting, chattering, and walking around [11]. Depression is a negative mood dominated by low mood, and depression is characterized by a relatively stable and persistent absence of arousal, prolonged periods of low mood, heightened negative affect, and pessimism [12]. Depression can manifest as a symptom or as a pathological disorder. In the early stages of depression, if not intervened promptly, it may develop into a psychological disorder with associated syndromes of seizures or even a depressive disorder [13]. The WHO predicts that depression may be a major contributor to the global burden of disease by 2030 [14].

3.3. Sleep Quality

Sleep as a primary physiological activity has always been a hot topic in various disciplines, and physiological and psychological medicine have attached great importance to it. Until the beginning of the twentieth century, the definition of sleep was changed by French physiologists, who believed that the organism's sensory and motor activities would appear temporarily static due to the organism's physiological needs. In this case, given the right stimulus, the organism will be able to wake up again, and this state is called sleep [15]. Pavlov advanced the conventional theory, which describes sleep as a pervasive inhibitory process that happens when the process fills the entire cerebral cortex and spreads to the subcortical regions of the brain. [16]. In addition to some sleep-related elements like "daytime physical fatigue" and "nightmares", "sleep quality" also refer to both subjective factors like the "depth" or "satisfaction" of sleep as well as more quantifiable ones like sleep length, sleep latency, or the frequency of awakenings. [17].

There are two commonly used methods for measuring sleep quality: one is the subjective method, and the other is the objective approach. The subjective approach involves using questionnaires and recording daily sleep patterns by the subjects' self-reported. Some studies have used the Buysse-created Pittsburgh Sleep Quality Index (PSQI), which has been widely used in sleep quality assessment and research and has high reliability [17]. It comprises 19 self-assessed and five other-assessed items that form a seven-dimensional scale. The other objective approach is more accurate than the first and is usually measured with the help of relevant instruments, such as sleep polysomnography and electroencephalography [18].

3.4. Social Support

The construct of social support was first proposed by sociologists, and later gained attention in psychiatry. As people paid more attention to mental health, "Social Support" began to enter the field of psychology. Cullen thought that social support should be the material and spiritual help that the individual receives, and this help can come from the community and social network or family and friends [19]; Some researchers pointed out that social support is derived from the supportive actions of others, which can increase a person's capacity for social adjustment and safeguard that person from the harm of the external adverse environment [20]; Chinese scholars proposed that social support should be a kind of behavior or information conveyed by individuals in the social network who feel the care, respect and attention from other people [21]. To sum up, social support should refer to all kinds of help and support that individuals receive in their social environment, including material support and emotional support from individuals and groups. So the social support of college students mainly refers to the support that college students get from schools, classes and their own families, including support from classmates, teachers, friends, parents and relatives.

4. The Impact of COVID-19 on College Students

4.1. The Impact of COVID-19 on College Students' Mental Health

Many studies have examined the impact of the epidemic on the mental health of college students [22-24]. a Chinese college student study discovered that during COVID-19, the rates of PTSD and depression rose by 2.7% and 9.0% respectively [22]. According to a meta-analysis, the COVID-19

detection rates for symptoms of depression and anxiety in university students exceeded 30% [23]. An online survey of 255 undergraduates' students at a local university was undertaken by researchers in Hong Kong and found that depression was high [24]. Additionally, cross-sectional research of 324 university students in India revealed that 28.7% of them suffered from moderate to severe depression and 51.5% from mild to severe anxiety, with 68.8% of them reporting a high degree of COVID-19 fear [25]. 58% of students who responded to a study of undergraduates in Britain by British researchers said that COVID-19 had worsened their mental health [26].

Moreover, in the UK, an investigation of university students by the National Union of Students found that the mental health of 52% of college students was worse than prior to COVID-19 [27]. In 2020, the Student COVID-19 Insights Survey (SCIS) was done, and it revealed that 57% of students had seen a mild to severe decline in their mental and physical health from the beginning of the fall semester, with higher levels of anxiety and lower levels of life happiness [28]. Judging from the research results worldwide, college students' mental health suffered caused by COVID-19, which also increased their vulnerability to anxiety and sadness.

4.2. The Impact of COVID-19 on College Students' Sleep Quality

The sample size of the study on university students' sleep quality during the COVID-19 period ranged from tens to thousands, and the rate of bad sleep quality ranged from 13% to 70%, with large differences. Chinese scholars used the Self-Rating Scale of Sleep (SRSS) to evaluate 3092 Chinese college students and found that 13.5% had sleep problems [29]. However, Spanish researchers utilised the PSQI to assess a sample of 75 students from several Spanish colleges, and they discovered that roughly 70.7% of the students had poorer sleep quality [30]. Some scholars conducted two cross-sectional surveys before and during COVID-19, using PSQI to assess sleep quality. The results found that college students who had poor sleep quality made up 9.3% and 14.9% of the student population, respectively, before and during COVID-19, and the proportion increased significantly. Therefore, college students' sleep quality during COVID-19 was worse than it was prior to the outbreak [1]. Marelli et al. found that sleep quality and insomnia symptoms worsened compared with before the epidemic [31]. During COVID-19, there have also been several studies on university students in various Chinese provinces. A cross-sectional Chinese study reported that 56.87% students with poor sleep [32]. 360 college students from China participated in a cross-sectional survey that revealed 22.35% have decreased sleep quality [33]. All in all, COVID-19 reduced the sleep quality of college students. As for the difference in the proportion of some research results, the possible reason is the difference in sample size and measurement tools.

5. The Moderating Effects of Social Support

5.1. Moderating Role of Social Support between COVID-19 and Mental Health

Numerous investigations on people's mental health within the COVID-19 have proved that social support can lessen the harmful psychological consequences of COVID-19 on humans [18, 34, 35]. Studies have shown that during the COVID-19, individuals' levels of depression and post-traumatic stress disorder were inversely correlated with perceived levels of social support from family [34]. In addition, a cross-sectional investigation of life quality and mental health of Chinese citizens during COVID-19 showed that increased levels of social support were effective in lessening the impact of quarantine and lowering residents' stress and anxiety levels [18]. Also, according to Qi et al., the majority (70%) of participants indicated moderate levels of social support, with 24.6% indicating high levels of support. Low and moderate levels of support are linked to greater incidence of anxiety and depressed symptoms, with 5.4% of participants reporting low levels of support [35]. This means that during the COVID-19 outbreak, Chinese people with moderate and low levels of social support had higher rates of mental health issues. In addition to Chinese scholars, many studies abroad have shown that social support is a moderating variable for COVID-19 and mental health. For instance, Grey et al. discovered that compared to individuals who reported low levels of social support, those

who reported high levels of it were 63% less likely to experience worsening depressive symptoms [36]. Ghafar et al. conducted a survey in the same year among 280 Iranian university students and discovered that the correlation between social support and mental health scores was negative during COVID-19 [37], which means the higher the social support, the lower the likelihood of psychiatric illness.

5.2. Moderating Role of Social Support between COVID-19 and Sleep Quality

Social support's impact on sleep quality was similarly analyzed in Grey's study: Those who received a lot of social support were 52% less likely to experience sleep problems than people with low social support [36]. A cross-sectional online survey discovered that the percentage of students with poor sleep quality was 80.6% before COVID-19 and reached 82.7% during COVID-19, and higher sleep quality was reported in students who received greater social support from their family [38]. In China, scholars also investigated the moderating role of social support. Wang and Gao found that the social support received by the residents could affect sleep quality [39]. Furthermore, Xiao et al. found that the PSQI score and the level of social support among medical personnel were strongly inversely associated, meaning that the better the sleep quality, the higher the level of social support [40].

6. Implications

As the detrimental consequences of COVID-19 on the human body have diminished, countries worldwide have lifted the blockade, and society has begun to return to normal functioning. However, everyone has experienced the epidemic, and the effects of these three years on people have not stopped. For college students, three years of wonderful college campus time are confined to activities at school or home, and they are affected psychologically to a greater or lesser extent. Most current studies are cross-sectional, so conducting a follow-up study on university students who had psychological and sleep problems during the epidemic is necessary to determine how their psychological and sleep changes occurred during and after the epidemic. At the same time, different interventions can be added to explore which intervention method is more effective for psychological and sleep problems arising from the epidemic. In addition, most studies use subjective reporting survey methods, and some participants' reported results may differ from the actual situation, affecting the overall research results. Therefore, it is best to use more objective measurement methods, such as with the help of related instruments. However, because of some realistic factors, it is difficult to achieve this method. If this problem can be overcome as soon as possible, all research results will be more convincing.

7. Conclusion

Based on the results of researchers around the world, college students' mental health and sleep quality have clearly been negatively impacted by COVID-19. College students have been forced to live and study at home owing to the COVID-19 outbreak, which has compromised communication with others and may be detrimental to mental health. In addition, most entertainment and activity venues are closed, college students have to stay at home every day, and they are less physically active than before. Prolonged stay at home and lack of exercise opportunities decreases the students' sleep quality. At the same time, potential negative factors such as school suspension indefinitely and uncertainty in academic development also hurt the mental health of college students. However, the moderating role played by social support can improve this situation. If they can get high social support, they are mentally healthier and have better sleep quality during COVID-19; conversely, students with low social support are prone to psychological problems and sleep poorly. Therefore, families, schools, and society need to provide social support for college students as much as possible. While paying

attention to college students' sleep status and mental health, efforts should be made to reduce the risk of poor sleep and mental illness due to COVID-19.

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