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The Relationship Between Academic Performance and Anxiety: A Multi-Angle Review

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Abstract: Academic pressure has always been a tremendous topic. With the world marching into the second decade of the 21st century, one cannot identify a single element that is affecting people's pressure and mood. The bond between students' mental health and academic performance has caused many researches which explore the potential negative outcome of unproductive and damaging relational circulation. This paper strives to discover the relationship between academic performance and anxiety from a multi-level analysis, including but not limited to Social-Emotional Competency (SEC), family conditions and the current COVID-19 pandemic. Through collecting data from different sources that examined students' mental health status and academic performance under various circumstances and cultural backgrounds, this paper finds that stress and anxiety are negatively correlated with academic performance if they are not properly coped with; different factors like language barriers and current COVID-19 pandemic, for example, can exaggerate the effect of anxiety on academic performance in different subgroups of students from different cultures. This paper calls for more attention to students' mental health under current COVID-19 pandemic, as well as those who are under high-intensity studying environment with limited psychological and social resources.

Keywords: COVID-19, academic pressure, anxiety, adolescents, emerging adults

1. Introduction

Academic performance and achievement are crucial to a student's life other than social and personal lives. But when it comes to the topic of school performance, multiple factors are either positively or negatively affecting how students can secure their achievement. Researchers have been conducting studies about identifying these factors and many of them were discovered. Among these crucial factors, anxiety is one of the most worrying elements that could potentially influence students of all ages. Currently, the whole world is being impacted by the Covid-19 pandemic. Researchers are calling for attention to the students who are under the influence of the pandemic since they believe anxiety associated with the pandemic is inducing negative effects on the students' mental health. Multiple studies have been conducted to examine the relationship between the anxiety associated with the pandemic and the academic performance of students from various age groups.

One needs to understand that anxiety can come from different sources, for example, peer pressures, family, academic workload, etc. Thus, this paper examines the relationship between

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anxiety and academic performance from a different angles, sources, and age groups, and it mostly focuses on high school and college students, and it also includes middle school students as well. This paper calls for more attention to students' mental health under current COVID-19 pandemic, as well as those who are under high-intensity studying environment with limited psychological and social resources.

2. Research on Students' Mental Health Status and Academic Performance from Different Angles

2.1. Social-emotional Competency as Predicting Factors for Emotional Status

According to Wang, Yang, Zhang, Wang, Liu, and Xin, they conducted a study in 2019 about the effect of social-emotional competency on students and children development in western China, especially its effect on academic achievement and interpersonal relationships [1]. A great number of studies have proven the positive effect of Social-Emotional Competency on students' academic achievement, what is even more important is that SEC predicts students' academic emotions and attitudes, interpersonal relationships, learning anxiety, and interest [1]. They used stratified random sampling to recruit 7106 students from 97 primary schools in western China, and the sample consists of 53.1% boys and 46.9% girls. The study measured academic performance and interpersonal relationships through analyzing class performance. The results prove that SEC is related to the learning interest of subjects and higher SEC also predicts lower mathematic anxiety, which leads to better academic performance. Peer relationships and student-teacher relationships are also predicted by the SEC scores, which means that better relationship lowers anxiety and thus lead to a better studying environment by boosting learning interest. Some of the students are lacking parents' company because the parents need to work far from home, and this poses a challenge to the development of a positive attitude and performance. But according to the authors, the SEC scores are measured through self-report questionnaires, thus the accuracy may be compromised due to the social desirability of these subjects; moreover, the study is unable to infer casual relationships because of the cross-sectional design [1].

2.2. Personality, Gender, and Environment-related Factors

Another group of researchers conducted a study of factors influencing academic achievement of middle school students in 2003. The study claims that factors that impact academic performance include both intellectual and non-intellectual elements, and personality-related factors are among the most potent ones [2]. The study used random, stratified, and cluster sampling to collect data from a total of 1069 middle school students in He Fei City, China. The sample includes students across from 7th grade to 12th grade with 609 males and 460 females, and the study categorizes the students into high, mid, and low ranks, from which the researchers sampled 196 students with good academic performance and 216 with bad performance. The study uses EPQ and self-arranged Family-Environmental Factors Questionnaire as tools to collect raw data and found out that anxiety can be influenced by family, environment, tutoring, and behaviors in school. Reward and punishment from parents are especially important to the development of anxiety level because the former can foster resilience and positivity and the latter will cause inner conflict and other negative emotions. The factors discussed above can become risk factors for not only anxiety but also neuroticism and psychoticism, which will contribute to the compromise of academic performance. But when it comes to the limitation of the study, the result is hard to generalize to the country as a whole because it was only statistically significant within the city, not to mention that the sample size was even small for a city since it only comprised 412 students.

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To specify a certain group within the middle school students, research has been done on the students who originally came from the rural areas in Shanxi Province, China. The rural areas are short on educational and psychological support when compared to the developed areas in the cities, and thus students from the countryside may have relatively resinous learning anxiety problems [3]. 8128 students were included in the sample and were categorized by academic year, single parents, and parents' educational levels respectively. The study used MHT alongside standardized mathematical tests (TIMSS) to acquire information. As a result, 63.5% of the subjects scored higher on the learning anxiety over the other seven anxiety categories. Among the students, more females exhibit learning anxiety than males do, psychological differences and the higher and better sensitivity of the females can both account for this outcome. Secondly, mothers' educational levels have an impact on the anxiety level of the students, and the competition between peers poses another challenge for the students to cope with the anxiety [3]. Those who suffer from academic performance tend to be more anxious than others because the lack of mental health resources becomes a barrier in forming a healthier attitude towards studying.

2.3. Attribution and Low Self-efficacy as Risk Factors in Learning a New Language

For non-English speakers in China, it is easy to become anxious when learning English or other languages, especially nowadays a second language is not too strictly required when compared to the past. The researchers used random sampling and recruited 252 effective students from three different grades from a middle school in Changsha City, China. The study is conducted by using MMCS and draws the result that both success and failure attribution will predict anxiety level in learning a foreign language [4]. It concludes that students' minds and attribution have a positive relationship with anxiety level in learning English, which predicts that the anxiety will negatively influence academic performance such as hindering the passion for learning the subject. The researchers mentioned the idea that students with high self-efficacy can generally conquer the obstacles better was wrong to a certain extent. Because students would sometimes attribute their success to the ability and, on the other hand, attribute failure to the environment or hard-working. This process fosters anxiety even more because the students do not obtain what they want after working hard, which compromises the academic performance even further. But the study is hard to generalize to the country or the world because the sample size is too small to be significant, not to mention that the sample was only from one particular school, which is hardly even to demonstrate for the city.

There is a similar study on the non-English speaker learning process done in 2020. The article attempts to study the correlation between learning anxiety and academic achievement systematically by conducting a survey on the anxiety and self-efficacy of senior high school students in Wuhan, China. The overall results are similar to that of the study done on middle school students. But it mentioned that English learners' communication apprehension, class anxiety, and the fear of failure have a negative correlation with academic achievement, meanwhile, test anxiety predicts negative score evaluations [5]. A huge issue arises from the fact that the resource is not enough for English learners in China, where English learners learn how to take a test rather than how to speak. This is represented in the communication apprehension anxiety, the more anxious students get, the lower the oral test scores. A proper set of coping skills is needed to mediate the negative effect of anxiety and using the positive part of the anxiety and enhancing self-efficacy is crucial for students who are struggling with academic performance in English learning.

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2.4. Association among Workload Burnout, Resources, and Anxiety Within Different Student Subgroups

Anxiety and depression seem to be the most frequent topics when it comes to college students because the academic environment changes rapidly when students walk into the university campus. Subgroups of university students tend to be under-studies on the mental health topic, researchers predict that variations will be detected in different subgroups among the college students, associated with age, gender, academic performance, and mental health status [6]. The study is conducted in a cross-sectional survey style, and the sample includes mainstream students in Hong Kong, Students from mainland China, Community College Transfer students, international students, and athlete students. According to the study, the academic load is positively related to depression, and GPA is negatively related to depression scores. For CCT students, depression scores are negatively related to the GPA scores, meanwhile, anxiety score is positively related to study load [6]. The study examined the data from a multi-dimensional aspect, which tells us that not only anxiety level but also other factors like cultural background and study load can play a role in influencing academic performance in college students. It mentioned that CCT students are at high risk for developing depression and anxiety since the study load is high, which prevents better academic performance. Mainstream students who ranked after CCT students are also at risk of developing mental health issues. The trend of depression and anxiety dropped slightly due to the resources available on campus [6]. Despite the large sample size, the sample is limited to the university, thus generalizability to other universities should be evaluated in the future. But according to the study, its generalizability to Asian students is concrete.

When it comes to the Med Schools, researchers are calling for great attention to the students, not only because of the workload but also for the anxiety and burnout induced by the heavy academic load. A cross-sectional study was conducted on 700 medical students at the University of Toledo College of Medicine and Life Sciences by asking the students to complete a 53-question-survey. A considerable amount of students reported burnouts and even suicidal thoughts throughout the first academic year and overall decreasing resiliency [7]. It demonstrates anxiety level and burnouts can be negatively affecting students' life and academic performance, and the researchers call for establishing programs that help medical students to cope with such situation and to help them to reach full academic potentials because current research is lacking in methods for finding strategies that help to promote resiliency, health, and wellness [7]. The study offers several ways to reduce stress like going to the mentorship program and practicing mindfulness. Although the study concludes the negative correlation between stress and academic performance, it still lacks generalizability to medical students across the country because the only samples it includes are the students from a single university, which means results can be influenced by universities respectively.

2.5. Covid-19 Pandemic

Now when it comes to the most recent topic, Covid-19 poses a significant challenge for students who are trying to have a balanced life between academic performance and social relationships. Three studies were conducted on Chinese and American students in-depth, respectively. The pandemic impacted students across the globe educationally and psychologically. In both of the studies that examine the effect of the pandemic on American students, the worry of social relationships is one of the similarities in the results. Students have shown different levels of difficulties in concentrating, disruption to sleeping patterns and increased concerns on academic performance, and multiple stressors (social isolation, eating pattern disruption, increased class workload) can increase the anxiety, depression level, and sometimes suicidal thoughts [8]. The

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study confirms stress-induced anxiety can impact students' routine and academic concerns, which might indicate further impairment in academic achievement, which can even exaggerate the symptoms. By communicating with others and self-management, most of the subjects from the study were able to recover from stress-induced anxiety. But the sample size from the study is small and the students are from one university, and the majority of students are engineering majors. In the other study, it turns out that college students are affected by the covid-19 pandemic in a multi-dimensional aspect. 257 students from a private university were included in this study, among them 194 were females, 42 were males, 6 other, and 15 unanswered. 35.8% of the students who live on and off-campus report abrupt disruption of living conditions because they had to leave after the pandemic hit, which may pose a challenge for finding a new place to settle and continue the online education [9]. Students are experiencing loneliness, fear of loved ones and other people contracting the virus, reduced sleeping quality, anxiety or depression, and compromised motivation. It predicts that college students are the most resilient and protected but meanwhile the most vulnerable to the potential psychological stress posed by the pandemic. The reduced sleeping quality and compromised motivation can potentially have a negative impact on academic achievement because motivation reduction will hinder the will to study. Calling for more attention to the college students is crucial because the mental wellness during the pandemic might directly affect their performance if the face-to-face education resume once the pandemic passes. A similar study has been conducted in China at the same time, among the 7143 participants, 75.1% of the students, surprisingly, did not show any symptoms of anxiety, meanwhile, the percentage of mild, moderate, and severe anxiety were 21.3%, 2.7%, 0.9%, respectively [10].

According to the study, students who were experiencing anxiety might relate their academic achievement to the outbreak, meanwhile being away from other people, economic problems, academic delays simultaneously increased the anxiety level, thus aggravating the negative effect. The imbalance of the economic, cultural, and educational resources may contribute to the anxiety level difference between rural and urban areas, and thus can impact academic performance in a different manner [10]. Those who were not experiencing symptoms of anxiety may receive better support, or it might be the fact that students believe the Chinese Center for Disease Control and Prevention would handle the situation rapidly. The result may not generalize across the country because the samples are from the same medical university, the structured questionnaire is also a questionable method because people might hold back or even wanting the researchers to believe that psychological issues during the pandemic are less important than academic performance while the two are actually closely related.

3. Conclusion

Different groups of students may be impacted by the stress differently because of cultural, economic, and educational differences. It is very concrete that stress and anxiety can be negatively correlated with academic performance if it is not dealt properly. Meanwhile, multiple factors can aggravate the effect of anxiety in different subgroups of students, for example, rural, international, and CCT students. Methods such as practicing mindfulness, utilizing the positive side of anxiety and enhancing self-efficacy are recommended when coping with the possible negative effect of pressure-induced anxiety. Future studies should focus more on multi-cultural and multi-dimensional studies to strengthen the external reliability of the research, especially on pandemic topics, since different cultures may influence how people perceive interpersonal relationships and anxiety curing the pandemic, thus inducing different impact on academic performance.

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