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Perceived Stress and Future Career Anxiety Among College Students of District Nowshera Amidst COVID-19 Pandemic

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Abstract

Adolescents' mental health was significantly and profoundly impacted by the COVID-19 pandemic. During the pandemic, adolescents had higher levels of emotional issues, such as stress, fear, and anxiety. This study was the first to investigate the connections between college students' emotional issues, perceived stress, and anxiety of COVID-19. Adolescents' fear of COVID-19, felt stress, and emotional difficulties were measured using a cross-sectional survey using standardised questionnaires. The results showed that fear of COVID-19 positively predicted perceived stress, and that perceived stress also predicted emotional problems. Additionally, emotional problems and fear of COVID-19 were mediated by perceived stress, suggesting that fear of COVID-19 indirectly influenced emotional issues associated with perceived stress. There were also notable gender differences, with women reporting higher levels of perceived stress, emotional issues generally, and dread of COVID-19 than men. These findings are important for two reasons: first, in order to help students manage their stress, mental health interventions for adolescents should specifically target pandemic-related fears and future fears; and second, schools, mental health professionals, and policy initiatives should concentrate on strategies and programs for adolescent mental well-being during the post-pandemic recovery phase.

INTRODUCTION

As 2020 began, the novel coronavirus disease (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), became the worldwide pandemic, taking the form of an unprecedented global health crisis. Emerging in Wuhan, China, in a matter of weeks, COVID-19 became a declared pandemic causing millions of infections and deaths worldwide (World Health Organization [WHO], 2020). By mid-June 2021, the virus had infected more than 172 million people worldwide, including more than 900,000 confirmed cases in Pakistan (Worldometer, 2021). To mitigate the disperssion of COVID-19, nations imposed emergency lockdowns, restricted travel, and shut down educational institutions, greatly affecting daily life and placing an added psychological burden on the population from all sectors.

One particularly affected group was students. Students were affected by the pandemic and the ramifications of COVID-19 most severely. Moving to Emergency Remote Teaching (ERT) exposed many disparities in terms of access to technology, the infrastructure, and technological readiness to engage in learning, especially in developing countries like Pakistan (Dhawan, 2020; Adedoyin & Soykan, 2020). Students moved to ERT and had higher levels of academic stress, reduced socialization, and greater feelings of uncertainty about their educational and career paths, especially amongst students preparing to enter the job market after graduation.

A range of populations have experienced the psychological effects of COVID-19 (Xiong et al., 2020) including healthcare workers, children and older adults. College students appear to be under 'perceived stress' more than most other populations as they concurrently cope with the changes in their academic environment and future plans with a sense of uncertainty (Son et al., 2020). Research indicates that social isolation, repetitious lockdowns and loss of income during the pandemic have led to greater levels of perceived stress and anxiety levels regarding their career trajectories (Mahmud et al, 2020; Cao et al., 2020).

Perceived stress is defined as "how uncontrollable, unpredictable, and overloaded the individual perceives his or her life" (Cohen et al., 1983). However, this idea of stress includes not only the stressors experienced, but how one interprets the stressors, essentially the way individuals respond to the stressors—depending on resources to cope, personality disposition, and even the level of social support individuals have (Lazarus & Folkman, 1984). The COVID-19 pandemic was an extreme global crisis, and several factors exacerbated acute perceptions of stress, including ongoing health threats, impediments to courses of study, isolation, and continually interrupted schedules all of which translate into poor mental and physical health (Lee, 2020; Garfin et al., 2020).

An emerging concern worth considering is future career anxiety (FCA), which is a psychological condition that can be defined as concern, worry, and fear regarding one's career (Zaleski, 1996). The pandemic has also contributed to uncertainty about employment, whether skills learned in college would be meaningful, and anxiety about the overall economic environment for college students who were in a defined point of career exploration and identity development (Super, 1980). Even in Pakistan where smart lockdowns were imposed in consideration of competing health and economic priorities, many students quit their jobs or could not afford working remotely. In particular, students from lower socio-economic segments of Pakistan, such as rural districts like Nowshera, will face educational and psychological disadvantages as a result of the pandemic (Aghma, 2020).

Another important variable that contributes to student distress during the pandemic is the fear of COVID-19. Fear is considered an emotional reaction to perceived health threats, access to media exposure, and social isolation (Ahorsu et al., 2020). Increased levels of fear can not only magnify the mental health conditions of anxiety and depression (Liu et al., 2020), but could be a moderator or mediator of the relation between the pandemic and career-related concerns (Mahmud, 2021). Fear inhibits rational thought and can disrupt a person from making decisions especially when future pathways or career education is unclear (Abramson, 2020).

Until recently, gender differences in psychological vulnerabilities during the pandemic have been established through a small number of studies that found female students are much more likely than male students to report increased stress, fear, and emotional distress (Rossi et al., 2020; Siddique et al., 2021). This presents an opportunity to further highlight the role of gender in understanding both mental health and mental illness when formulating interventions to address negative mental health impacts, particularly during a global crisis.

While there are numerous studies investigating the psychological impacts of COVID-19, most focus on either general populations, or medical students studying at elite institutions in cities. The socio-psychological impacts of COVID-19 on students attending colleges located in deprived populations, such as District Nowshera of Khyber Pakhtunkwa province, Pakistan, where digital learning infrastructures are limited and academic uncertainties increased from postponed or cancelled examinations, for example, have specifically not been understood.

This study aims to find out the levels and relationships of perceived stress, career anxiety and fear of COVID-19 among college students in Nowshera, Pakistan. This research could provide evidence based policies and interventions to understand how students can be equipped to ability to continue their college education in a crisis; while also taking into account the overall psychological resilience (and well-being) and could provide contextual relevance to mental health issues in this vulnerable population.

Conceptual Framework

Figure 1

Schematic Representation of Fear of Covid-19 effecting Perceived Stress and Future Career Anxiety in College Students

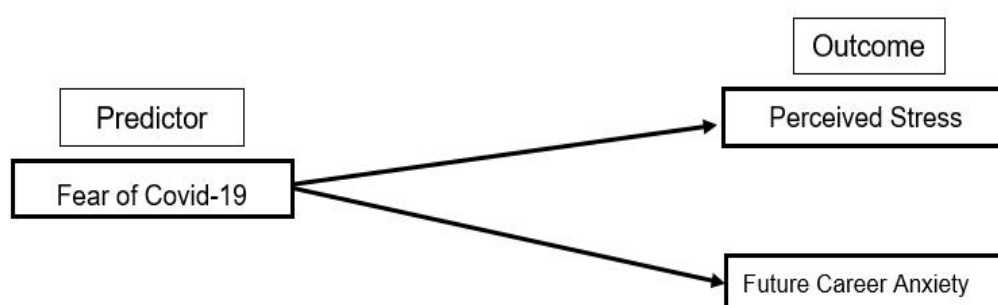


Figure 1 depicts the relationship of predictor variable Fear of Covid-19 on outcome variables Perceived Stress and Future Career Anxiety in college students of district Nowshera, Khyber Pukhtunkhwa.

RESEARCH METHODOLOGY

Research study concerns over the psychological effects of Fear of Covid-19 and the induced careers anxiety and perceived stress of college students in District Nowshera, Khyber Pukhtunkhwa, Pakistan. The research employed a cross-sectional design and aimed to investigate the relationship among study variable pairs of interest and the effect of gender on the dependent variables in the commonly used cross-sectional design for research purposes.

Objectives

This research study had the following objectives:

1. To investigate if Fear of Covid-19 inflicted Perceived Stress on College Students in District Nowshera.
2. To examine if Fear of Covid-19 created Future Career Anxiety for students in District Nowshera.
3. To recognize a role of gender, if any as it relates distance from the Gender Variables, and how it affected the intensity levels of the predictor variables and outcome variables.
4. To determine if levels of Perceived Stress and Career Anxiety in Nowshera were the same across all grades of college students.

Hypotheses

In development of objectives the following hypotheses were developed for the study.

1. The Fear of Covid-19 has a positive relationship with Perceived Stress in college students.
2. The Fear of Covid-19 has a positive relationship with Future Career Anxiety in college students.
3. Female Students will have higher perceived stress in college compared to male students.
4. Female students will have higher Fear of Covid-19 than their male college peers.
5. 12th grade students will have higher Future Career Anxiety than 11th grade students.

Research Design

This research used a cross-sectional survey design, relying on self-report questionnaires, to investigate student responses. Demographic details, including age, class, income, and parental status of survival, were also gathered.

Sample

The sample was made up of 250 college students (58% average boys, 42% average girls), classified as ages 15-22, located in District Nowshera with four higher secondary colleges. Convenience sampling was employed towards the selection of colleges, while purposive sampling focused on students from 11th Grade or Grade 12.

Instruments

To examine and assess the above mentioned variables these standardized scale were used.

Perceived Stress Scale

The Perceived Stress Scale (PSS; Cohen et al., 1983) 14-item self-report questionnaire. The PSS measures the extent to which people felt their lives were "unpredictable, uncontrollable, and overloaded" using generalized items rather than specific about an event (Cohen et al., 1983, p. 387). Respondents used a five-point scale, ranging from (0) never to (4) very often, to describe how frequently they thought and felt about events and circumstances in their lives in the last month. The PSS then generates a final score which indexes the total amount of felt stress the respondent is feeling.

The PSS-10 (Cohen and Williamson, 1988) was developed from the original PSS scale by deleting the four lowest factor loading scale items (4, 5, 12, and 13). The original researchers of the PSS-10 suggested that the PSS-10 was appropriate for

inclusion in future studies as it has psychometric parameters that are virtually identical to the original 14-item version. Therefore, the PSS-10 was also used in this study. The PSS-10 demonstrated acceptable internal consistency reliability ($\alpha=.78$), moderate concurrent criterion validity of the average level of stress experienced weekly ($r=.39$, $p=.001$) and reenactment of psycho-social stressors experienced in the year ($r=.32$, $p=.001$) as well as acceptable convergent validity demonstrated by expected negative correlations with perceived health ($r=.22$, $p=.001$).

Fear of Covid-19 Scale

The Fear of Covid-19 Scale (Ahorsu et al., 2020) consists of seven items that were developed in response to the Global Covid-19 Pandemic. This scale contained a 5-point Likert-response format in which participants rated their fear descriptor response (higher discomfort feelings) that consisted of a true or false dichotomy. Participants selected responses labeled as, "strongly disagree", "disagree", "neutral", "agree", and "strongly agree". For each item using the Likert scale in the table the minimum score was 1 and the maximum score was 5. The possible total score based on the sum of all the items could be from 7 - 35 (i.e., Low Anxiety-High Anxiety). The Covid-19 Fear Scale was very easy to employ and reproducible and it has strong psychometric properties. The scale showed an acceptable level of internal consistent (Cronbach's $\alpha = 0.82$) and test-retest reliability (ICC = 0.72), other psychometric properties were sufficiently examined using classical test theory and Rasch model analysis, so they were even comparable to the complex and strong psychometric assessments.

Future Career Anxiety (Career Anxiety Scale)

The Future Career Anxiety Scale (Tsai et al., 2017), similar to the disposable cannabis-use behavior, had five items. The scale had excellent construct validity, and internal reliability was present in this scale as well (Cronbach's $\alpha = 0.8933$). There were four possible options, on a four-point Likert scale options (1 = strongly disagree, and 4 = strongly agree, etc). Therefore, higher score suggested that the potential participant would rather high level of anxiety. Additionally, Mahmud et al. (2020) achieved similarly with 5 items, for their scale modified, and they had a Cronbach's α of 0.87, of AVE.

RESULTS

Table 1: Demographics of the Study (N=250)

Demographic Variables	<i>n</i>	(%)
Gender		
Boys	145	(58)
Girls	105	(42)
Age		
Below 18 Years	132	(53)
Above 18 Years	118	(47)
Educational Qualification		
11 th Grade	106	(42)
12 th Grade	144	(58)
Monthly Income		
Below 20K	86	(34)
Above 20K	164	(66)
Parental Mortal Status		
Alive	248	(99)
Dead	2	(01)

Note. %= Percentage, n= Frequency

Table 1 showed the percentages and the frequency distribution of all the demographic variables in the present research. The sample comprised of N = 250 higher secondary college level students of which (n = 145, 58%) were males and (105, 42%) were females. Higher number of students were from 12th grade (n = 144, 58%) as compared to students from 11th grade (n=106, 42%). Moreover majority of students had a monthly domestic income of above 20K (n = 164, 66%) where as those with lesser then 20k monthly domestic income were (n = 86, 34%) and maximum had their parents alive (n = 248, 98%).

Table 2

Descriptive and Psychometric Properties for Scales

Scale	M	SD	Range	Cronbach's α
Fear of Covid-19	20.52	6.20	7-35	.82
Perceived Stress Scale	22.81	6.65	8-57	.57
Future Career Anxiety	12.21	4.08	5-20	.59

Note. α = alpha reliability, M= mean, SD= standard deviation

Table 2 illustrates the internal consistency reliability and descriptive statistics for the study variables. The mean scores, standard deviations, observed ranges, and Cronbach's alpha values for each scale are shown. These psychometric properties aid in determining the distribution and reliability of the measures. Internal consistency ranges for the scales demonstrate acceptable to moderate reliability across constructs.

Table 3

Correlations among Study Variables

Sr. No.	Variables	1	2	3
1	Fear of Covid-19	--		
2	Perceived Stress	.23**	--	
3	Future Career Anxiety (FCA)	.06	.03	--

Note. **. Correlation is significant at the 0.01 level (2-tailed) ** $p < .01$,

Table 3 displays the Pearson correlation coefficients among key variables in this study. The analysis examined the relationship between fear of COVID-19, perceived stress, and future career anxiety. Statistically significant relationships were observed among some variables while others displayed weak or little to no relationship. These findings provide better understanding regarding how psychological responses may relate during uncertain times.

Table 4

Regression Coefficient of Fear of Covid-19 on Perceived Stress

Variable	B	B	SE
Constant	17.66***		1.42
Fear of Covid-19	.25***	.23	.07
R ²	.06		

Note. N = 250, β = probability, *** $p < .001$

Table 4 presents the results of a simple linear regression analysis that examined perceived stress as predicted by fear of COVID-19. Results indicate that fear of COVID-19 contributed significantly to the explained variance in perceived stress. The regression coefficient indicated a positive relationship between fear of COVID-19 and perceived stress. Overall, the model explained a relatively small amount of the variance but a meaningful amount.

Table 5**Regression Coefficient of Fear of Covid-19 on Future Career Anxiety**

Variable	B	β	SE
Constant	11.42***		.89
Fear of Covid-19	.04	.06	.04
	.01		

Note. $N = 250$, *** $p < .001$

Regression analysis results showing the predictive effect of fear of COVID-19 on future career anxiety are presented in Table 5. The results indicated fear of COVID-19 was a non-significant predictor of future career anxiety in participants. They had a low regression coefficient indicating it was weak and non-significant. The model accounted for little of the variance in career anxiety.

Table 6**Mean comparison of gender on variables through (t-test) (N = 250)**

Variables	Male ($n = 145$)		Female ($n = 105$)		t(248)	P	Cohen's d
	M	SD	M	SD			
FOC	18.26	6.00	23.65	5.02	7.49	.02*	0.97
PSS	19.93	5.89	26.79	5.52	9.33	.000***	1.20
FCA	12.70	3.91	11.51	4.23	2.27	.000***	0.29

FOC = Fear of Covid-19 PSS=Perceived Stress Scale FCA = Future Career Anxiety
M= mean, SD= standard deviation, * $p < .05$ ** $p < .01$, *** $p < .001$, Cohen's d
 $< 0.2 = 50\%$, $0.2 = 58\%$, $0.5 = 69\%$, $0.8 = 79\%$, $1.4 = 98\%$

Table 6 presents gender differences on study variables using independent samples t-test. Statistically significant differences were identified between males and females for fear of COVID-19, perceived stress, and future career anxiety. Females demonstrated higher levels of fear and stress in comparison to males, while males had slightly more future career anxiety than females. The effect sizes (Cohen's d) ranged from small to large. This would suggest varying levels of practical significance across the dependent variables.

Table 7**Mean comparison of educational level on study variables through (t-test)**

(N = 250)

Variables	11 th Grade ($n = 144$)		12 th Grade ($n = 106$)		t(248)	P	Cohen's d
	M	SD	M	SD			
FOC	21.87	6.28	19.53	5.97	2.99	.003**	0.38
PSS	23.42	6.89	22.36	6.46	1.25	.212	0.16
FCA	13.04	3.22	11.58	4.53	2.82	.005**	0.37

FOC = Fear of Covid-19 PSS=Perceived Stress Scale FCA = Future Career Anxiety
M= mean, SD= standard deviation, * $p < .05$ ** $p < .01$, *** $p < .001$, Cohen's d
 $< 0.2 = 50\%$, $0.2 = 58\%$, $0.5 = 69\%$, $0.8 = 79\%$, $1.4 = 98\%$

Table 7 presents mean comparisons with respect to the highest educational level completed (11th vs 12th grade) based on an independent samples t-test. The findings suggest statistically significant differences with respect to fear of COVID-19 and future career anxiety with 11th graders indicating higher levels of fear and anxiety than 12th graders. The two groups differed with respect to perceived stress but did not differ in a statistically significant way. The effect sizes suggested small to medium practical significance.

DISCUSSION

This study emphasizes to investigate the psychological influence of the COVID-19 pandemic on adolescents by assessing the relationships between fear of COVID-19, perceived stress, and future career anxiety. We used three validated and self-report measures, including the Fear of COVID-19 Scale (Ahorsu et al., 2020), the Perceived Stress Scale (Cohen et al., 1983), and the Future Career Anxiety Scale (Mahmud et al., 2020) to measure these constructs.

Hypothesis 1, There is a positive relationship between Fear of COVID-19 and Perceived Stress among college students, was accepted in current study. The results of the current study provide support for Hypothesis 1. Results revealed a statistically significant positive relationship between fear of COVID-19 and perceived stress among adolescents. Students who report greater fear experience greater perceived stress, which represents the psychological impact of ongoing exposure to the COVID-19 pandemic. These findings mirror prior studies that established an association between heightened health-related fear during COVID-19 and psychological distress (Labrague, 2021; Choi et al., 2022). Additionally, Giordano et al. (2022) articulated that the adolescents they studied who reported greater fear of COVID also experienced more emotional instability, suggesting that fear may serve as an amplifier of stress under crisis conditions. This finding suggests an urgent need for school-based mental health programs promoting adolescents' fear regulation and management of stress.

Hypothesis 2 proposed that there is a positive relationship between Fear of COVID-19 and Future Career Anxiety in college students. The data partially supported this hypothesis. While there was a positive relationship between fear of COVID-19 and future career anxiety, it was not statistically significant. This suggests only weak predictive relationship in this sample data. The findings may indicate that while students with higher fear of the pandemic may feel unsure about their future work possibilities, it is possible that other moderating variables such as coping strategies, levels of optimism, or support in career planning may offset the impact. Nonetheless, previous research still highlights the potential association between fear of the pandemic and career-related stress. For example, Mahmud et al. (2021) found that students who faced higher uncertainty related to COVID-19 often expressed higher levels of career anxiety, with fears of unemployment, fears related to disrupting academic goals, and overall career plans. Similarly, Zheng et al. (2022) contend that youth with uncertainty related to their health and environment had a negative impact on their future outlook and their confidence in achieving career objectives. The effects of the current study were low in effect size, but the relationship direction is consistent with the theory, which supports future research on this question, recommending larger or more diverse samples.

Hypothesis 3 proposed that female students would report greater perceived stress than male students. This hypothesis was supported by the results, as there was a statistically significant difference in perceived stress across gender. Female students reported higher levels of perceived stress than male students. This finding is well-documented in the literature, as females are often found to report more emotional and psychological vulnerability to environmental factors, particularly during a crisis, like the COVID-19 pandemic. Liu et al. (2020) and Ausin et al. (2021) identified that females display a greater tendency to internalize symptoms including stress, anxiety, and depression. In addition, Aslan et al. (2020) claimed that female students are more emotionally sensitive, and take on caregiver roles during a crisis, which in increased

stress levels. These findings further demonstrate the gendered psychological load during a public health crisis and suggest a need for gender-sensitive support programs by academic institutions.

Hypothesis 4 suggested that female students would experience more Fear of COVID-19 than male students. The results supported the hypothesis, with female students scoring higher than male students on fear of COVID-19. Indeed, a strong body of literature has suggested females are more likely to report fear-related responses during health emergencies. A meta-analysis by Salari et al., (2020), indicated significant differences in fear and anxiety between females and males during the COVID-19 pandemic. Similarly, Rossi et al., (2020), showed that women experienced higher levels of fear related to the COVID-19 pandemic based on caregiving roles, greater social empathy, and perceived health vulnerabilities. It is essential to highlight that there may be biological sensitivity and sociocultural reasons for gendered reactions. In conclusion about gendered reactions to COVID-19, the study indicated a clear need for health communication strategies, health interventions, and support systematically ensuring that female students' needs were considered, along with their perceptions of risk.

Hypothesis 5 asserted that 12th-grade students had higher Future Career Anxiety than 11th-grade students. Interestingly, this hypothesis was not supported by findings. Instead, 11th-grade students actually had significantly higher future career anxiety than 12th-grade students. One explanation for this unexpected result is that, while 11th graders are still trying to figure out their possible academic and career plans without much guidance during a pandemic, 12th graders have probably established some realistic plan or strategies to cope with their immediate next steps. Some existing research supports this reversed trend. For example, Li et al. (2021) mentioned that younger students tend to feel overwhelmed by uncertainties about their futures, especially due to limited exposure and access to career counselling and self-efficacy. Cazan and Truta (2021) stated that early adolescents may often overestimate challenges that present themselves as career-related, especially within unpredictable and novel conditions that happened as a result of societal changes like COVID-19. Ultimately, the result highlights the need for earlier career engagement and generally consistent career support starting at younger grades.

CONCLUSION

The present study highlights the psychological effects of the COVID-19 pandemic on college students with a special emphasis on students' fear of COVID-19, perceived stress, and anxiety over their future careers. The significant positive relationship between fear of COVID-19 and perceived stress indicates that students who demonstrated higher fear of COVID-19 also experienced greater perceived stress. Gender differences were also confirmed by the literature as female students experienced more of both forms of fear and stress in relation to Covid-19. The interesting finding of the 11th grade students who reported being more anxious about their careers than the 12th graders demonstrates the need for career conversations should start earlier for students. The examples provided show the deep and enduring influence that world events influence adolescent mental health and functioning in school. A study that describes the psychological effects of COVID-19 on college students illuminates the need for structured emotional support, educational institutions about incorporating stress management programs and career counseling as well as encouraging all teachers to promote student resilience psychology.

Limitations

Although the study had merit, it has limitations. First, the cross-sectional design precludes the ability to draw causal inferences about the directionality of the relationships between variables. Second, the use of self-report measures may have led to response bias from social desirability effects or misinterpretation of items. Third, the sample consisted of students from a limited number of colleges that restricts the generalizability of the results to larger populations or different cultural contexts. Additionally, psychological states such as fear, stress, and anxiety are dynamic and are subject to change with shifting pandemic conditions, which the design could not isolate. Finally, factors such as socioeconomic status, academic performance, or coping styles were not taken into account which would have offered a more comprehensive picture of the psychological outcomes.

Future Directions

Future studies should consider utilizing longitudinal studies in order to examine the changes in fear, stress or career anxiety over time, especially with the growing number of students navigating post-pandemic educational contexts. Exploring mediating or moderating variables, such as resilience, family support, or digital coping strategies, would add to the understanding of protective factors. Additionally, expanding the sample from specific groups to include a wider geographic region and different educational levels would contribute to generalizability. Moreover, qualitative methods through interviews or focus groups could provide insight into students' lived experiences during a time of health crisis. Finally, intervention studies could assess the effectiveness of school-based, mental health programs that aim to decrease students' fear or stress levels and promote a positive career outlook during periods of uncertainty.

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