The Relationship between Psychological Distress, Sociodemographic Variables, and Mental Health for Adolescents during the COVID-19 Pandemic

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ARTICLE DETAILS	ABSTRACT
History *Revised format: May 2022* *Available Online: Jun 2022*	**Purpose:** The current study examined the impact of demographic correlates such as socio-economic status, family structure, resources, pre-existing physical and mental health conditions, and the home environment on the psychological distress reported by adolescents during a lockdown period.
Keywords *Psychological Distress, Sociodemographic variables, Mental Health, Adolescents the COVID-19 Pandemic.*	**Design/Methodology/Approach:** It was a correlational study that followed the cross-sectional research design. Through purposive and convenient sampling adolescents were approached and 158 participants aged 18-27 years ($M = 18.89$, $SD = 1.83$) completed an online survey. The survey consisted of a demographic information sheet, medical history form, and DASS 21.
JEL Classification J16, J71, J81, J83, Z22	**Findings:** Results indicated that psychological distress, anxiety, and depression were significantly positively correlated with socioeconomic status. There was a negative correlation between distress and the availability of house help. The data show a strong positive relationship between distress and having a pre-existing medical condition and even stronger correlations when family members have such conditions.
	Implications/Originality/Value: This data is relevant for teachers and administrators who are actively involved with these young adults at a personal or systemic level, as well as for college counselling centres to create supportive spaces for mental health care during the pandemic.

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Introduction

The COVID-19 outbreak started in December 2019 in Wuhan, China as pneumonia with unknown etiology, and was later identified as the severe acute respiratory syndrome Coronavirus-2. Its typical clinical presentation includes fever, dry cough, dyspnoea, headache, and pneumonia. It may also result in progressive respiratory failure and death (Zhou et al., 2020). By March 2020, World Health Organisation had declared COVID-19 a high-risk global pandemic (Abid, Bari Younas, Javaid, & Imran, 2020). In addition to its physical toll, fear and anxiety about the virus were related to psychological distress, increased sleep disturbances, and reduced life satisfaction (Duong, 2021). Some research identified the pandemic as a traumatic event, with 48.82% of a sample from more than 30 countries reporting Post-Traumatic Stress Symptoms (Bogolyubova, Fernandez, Lopez, & Portelli, 2021). Quarantine and lockdowns were frequently utilized to manage the spread of the pandemic and created a unique set of challenges in themselves, such as isolation leading to suicidal attempts, helplessness, anxiety, and depression (Zhang, 2020). These negative outcomes were particularly likely to impact vulnerable populations, such as those struggling with poverty, without access to education and accurate information, having pre-existing physical and mental health conditions, and carrying marginalized identities (Gibson, Schneider, Talamonti, & Forshaw, 2021).

From the early days of the pandemic, researchers from across the globe predicted an increase in psychological distress, anxiety, and traumatic stress (Shigemura & Kurosawa, 2020; Osofsky, Osofsky, & Mamon, 2020; Horesh & Brown, 2020). These predictions were later corroborated. Tracking internet search trends in the United States during the first 40 days of the pandemic showed an increased search for anxiety symptoms and coping mechanisms such as meditations (Hoerger, Alonzi, Perry, Voss, & Gerhart, 2020). Symptoms of anxiety and depression were prevalent in the population, particularly when there was poor perceived control of COVID-19 and concern about the pandemic (Wierenga, Moore, Pressler, Hacker, & Perkins, 2021). Fear and anxiety about the virus were strongly associated with sleep disturbances, reduced life satisfaction, and psychological distress (Duong, 2021). Patients with COVID-19 reported moderate to high anxiety levels (Guo, et al., 2020; Liu, et al., 2020), and those with higher levels of anxiety were also less likely to recover (Parizad, et al., 2021). In a quasi-experimental study with 130 Covid-positive patients, 33% reported symptoms of borderline depression and 9.2% reported severe depression (Jerrin, Theebika, Panneerselvam, Venkateswaran, & Manavalan, 2021). The isolation experienced because of quarantine and lockdown contributed to an increase in suicide and suicidal ideation as well. A meta-analysis of 54 studies showed a 10.81% increase in suicidal ideation, a 4.68% increase in suicide attempts, and a 9.63% increase in self-harm.

An early commentary on the COVID-19 pandemic predicted that its psychological impact would be varied, with mental health symptoms worsening for some of the population while improving for others, as well as significantly dependent on sociodemographic variables (Mancini, 2020). Variables such as race, ethnicity, gender, and minority status were strongly connected with increased psychological distress during the pandemic (Peres, et al., 2021; Salerno, Williams, & Gattamorta). Sex, age, and geopolitics were found to significantly moderate the impact of the pandemic on suicidal behavior (Dubé, Smith, Sherry, Hewitt, & Stewart, 2021). COVID-19-related traumatic stress coupled with intersectional and continuous identity-based discrimination was found to reduce well-being and increase trauma, depression, and anxiety symptomatology (Kira, et al., 2020).

Socioeconomic status was found to influence the rate of infection and death (Osofsky, Osofsky, & Mamon, 2020). Some studies found below-average income to be associated with psychological distress (Lahav, 2020). Low-wage workers were more vulnerable to fear, stress, depressive symptoms, and anxiety (Hibel, Boyer, Buhler-Wassmann, & Shaw, 2021; Cubrich, 2020). In two

independent studies conducted in the US and Israel, financial loss was associated particularly with depressive symptoms, where symptoms were also exacerbated by worsening income loss (Hertz-Palmor, et al., 2021). However, other studies such as one by Wanberg et al. (2020) found that individuals in higher income brackets experienced a greater decrease in life satisfaction during the pandemic.

Individual and familial factors such as physical well-being, mental health, and a safe home environment also mediated the relationship between COVID-19 and distress. Those with pre-existing medical conditions such as heart disease, diabetes, chronic respiratory illnesses, and cancer were more at risk to contract the virus, as well as experiencing more serious physical symptoms (World Health Organisation, 2020a). Exacerbated symptoms or relapses were common for people with pre-existing mental health conditions. Increased social isolation due to lockdowns also contributed to psychological distress for this vulnerable population (Murphy, Markey, O'Donnell, Moloney, & Doody, 2021). A decrease in anxiety and depression-related symptoms over time was also stronger for individuals without a pre-existing anxiety disorder (Bendau, et al., 2021).

Family processes, relationships, and routines play an important role in individual mental health and resilience in challenging circumstances. However, Prime et al. (2020) predict a significant threat to the well-being of children and families as a whole due to pandemic-related stressors. For example, while a predictable home environment was found to be protective of children's mental health (Glynn, Davis, Luby, Baram, & Sandman, 2021), there has been a significant increase in adverse childhood experiences (Bryant, Oo, & Damian, 2020) and incidents of domestic abuse (Kofman & Garfin, 2020) throughout the pandemic, which is highly likely to threaten psychological well-being.

Research identifies young adults as a vulnerable population during the COVID-19 pandemic. Glowacz and Schmits (2020a) found young adults more sensitive to psychological distress and lockdown conditions, whereas Huang and Zhao (2020) found that young adults were more likely to report generalized anxiety disorder, depressive symptoms, and sleep disturbances. Both studies recognize that young adults are often less tolerant of uncertainty, resulting in less stable living conditions. The pandemic has created further disruptions to existing instability in education, work, travel, and life plans. As a result, and depending on life stage, some young adults have had to move through life stages at a faster pace, while others are experiencing delays in major life transitions (Delbosc & McCarthy, 2021). Academic frustration (such as uncertainty about changes in coursework and unclear instruction parameters) was positively correlated with mental health symptoms (Tasso, Sahin, & Roman, 2021).

In a survey of 670 young adults aged 21-29 years, 84% reported pandemic-related changes in mood and stress (Emery, et al., 2021). Greater concern about the pandemic as well as belonging to the female gender were associated with increased loneliness, which was in turn related to increases in depression (Lee, Cadigan, & Rhew, 2020). In a sample of 18- to 30-year-old young adults, Liu et al. (2020) found high levels of COVID-specific worry, loneliness, and low distress tolerance to be associated with clinical levels of depression, anxiety, and PTSD. A significant positive correlation exists between pandemic stress and suicidal ideation in adolescents; a relationship mediated by depressive symptoms (Cheng, et al., 2021). Additionally, a two-year longitudinal study found that the pandemic had significantly altered adolescents' mental health trajectories, with group-level increases in depressive symptoms and anxiety (France, Hancock, Stack, Serbin, & Hollenstein, 2021)

Adolescents and young adults with pre-existing mental health conditions were more at risk during the pandemic. Liu et al. (2020) studied a sample of 898 young adults and found that those with pre-existing mental health conditions were six times more likely to reach a clinical threshold for anxiety

and depression, and twice as likely to reach the clinical threshold for PTSD. Young adults with a suspected or reported mental health diagnosis were also more likely to experience COVID-related worry and grief, disturbed sleep, and self-reported physical health symptoms.

Methodology
It was a correlational study that followed a cross-sectional research design.

Sample
Through G power analysis with a medium effect size recommended sample size was 154. One hundred and fifty-eight intermediate and undergraduate students from a private university in Lahore, Pakistan participated in the study. As data were collected during the lockdown, when educational institutions were closed and direct access to students was limited, convenience sampling was used. Of the respondents, 129 (81.6%) were male and 29 (18.4%) were female. The age range was 18 to 27 years ($M = 18$, $SD = 1.83$). Further analysis shows that most participants (61.7%) were living in nuclear family systems, while (38.6%) lived in joint family systems. 7.34 ($SD = 3.58$).

Instruments
Depression, Anxiety, and Stress Scale – 21 Items (DASS-21)
The DASS-21 was used to measure symptoms of distress among participants. It is a 21-item self-report scale that measures the emotional states of depression, anxiety, and stress. It contains 3 subscales of 7 items each that measure depressive symptoms (such as lack of interest, hopelessness, and self-depreciation), anxiety (through autonomic arousal, situational anxiety, etc.), and stress (such as difficulty relaxing, nervous arousal, agitation, etc.). Individual scores were doubled and added to calculate total scores for the scale and three sub-scales (Lovibond & Lovibond, 1995). Cronbach's alpha for DASS-21 sub-scales, as reported by Antony et al. (1998, p. 179), was .94 for Depression, .87 for Anxiety, and .91 for stress. The items also demonstrate strong concurrent validity, and the scale is generally considered reliable and valid as a measure for non-clinical and clinical populations

Procedure
Data were collected through an online survey distributed among intermediate and undergraduate students at a private university in Lahore, Pakistan. The online form remained active for 12 days, from October 3rd to 14th, 2020.

Survey items collected demographic information including age, sex, socio-economic status, and income loss due to the pandemic or lockdown. Participants were also informed if they had access to house help and if the availability of house help had remained the same, reduced, or changed during the pandemic. Participants reported that they had to take on additional financial or domestic responsibilities due to the pandemic or lockdown conditions.

Risk and exposure were assessed by inquiring if participants or their family members had any pre-existing medical conditions that would make them more susceptible to contracting the virus. Additionally, they reported if they or a family member had tested positive, the severity of symptoms for themselves or family members and if they had lost close family and friends to the virus.

Approval was acquired from an IRB that reviewed the methodology and ethical considerations of the study. Participants were fully informed about the objectives and procedure of the study, as well as their right to withdraw at any time without any repercussions. Confidentiality and anonymity were clarified, and the researcher's contact information was shared so participants could reach out with queries or concerns.

Results: Demographic Characteristics

Data were collected from 158 participants aged 18-27 years ($M = 18.89$, $SD = 1.83$) through an online survey. Of the respondents, 129 (81.6%) were male and 29 (18.4%) were female. 61.4% of the participants lived in nuclear family systems, whereas 38.6% lived in joint family systems. The average number of household members was 7.34 ($SD = 3.58$). 64.6% of the sample reported having access to house help, and 41.2% reported reduced or no house help because of the lockdown. 71.5% of the sample reported a moderate to significant income loss due to the lockdown, whereas the remaining 28.5% reported no change. 51.3% of respondents had to take on additional domestic responsibilities during the lockdown, while 15.8% had to take on additional financial responsibilities.

Covid Susceptibility and Symptoms Severity

12.7% of respondents reported pre-existing medical conditions that made them more susceptible to contracting COVID-19. 8.2% of participants tested positive, with the mean symptom severity at 2.14 ($SD = 1.31$). 20.9% of respondents had one or more family members with pre-existing medical conditions. 14.6% had a family member test positive and rated their symptom severity as 2.53 ($SD = 1.47$). 13.9% of participants reported losing a close family member, friend, or colleague due to COVID-19.

Mental Health and Home Environment

20.3% of participants reported struggling with a diagnosed or undiagnosed mental health issue, and 19% had family members with the same. 34.2% experienced their home environment as physically and emotionally safe during the lockdown, whereas 34.2% experienced it as psychologically and emotionally stressful. The mean reported difficulty in studying or working from home was 3.63 ($SD = 1.91$), and difficulty setting healthy boundaries with family during lockdown was 2.77 ($SD = 1.32$). Both items were scored on a 5-point Likert scale.

The mean total score for the DASS-21 was 21.66 ($SD = 26.77$). Most respondents scored within the normal to moderate range on the sub-scales. The percentages of the sample that scored within the severe to the moderate range were 9.49% for stress, 12.29% for anxiety, and 12.66% for depression.

Table 1: **Relationship between Psychological Distress, demographic variables, and COVID related Variables**

Variables	House Help	No House Help	Monthly Income	Covid Risk-Self	Covid Risk-Family	Number of Deaths	Tested Positive
DASS-21	-.308**	.278**	.224**	.240**	.444**	.170*	.298**
Stress	-.286**	.268**	.251**	.234**	.444**	.153	.290**
Anxiety	-.270**	.272**	.134	.185*	.378**	.169*	.195*
Depression	-.295**	.258**	.209**	.245**	.435**	.163*	.320**

Correlation analyses were also carried out for multiple health and demographic-related variables and details are as follows. The total score ($r_s = .224$, $p < .01$), anxiety sub-scale ($r_s = .251$, $p < .01$), and depression sub-scale ($r_s = .209$, $p < .01$) were significantly positively correlated with socioeconomic status, in that higher SES was associated with more distress. However, there were no significant correlations between distress and income loss or having to take on additional financial responsibility. There was a negative correlation between distress and the availability of house help ($r_s = -.308$, $p < .01$). And a reduction or loss of house help ($r_s = .278$, $p < .01$) led to an increase in distress. Having to take on additional domestic responsibility was associated with distress, particularly depression ($r_s = .220$, $p < .01$). No significant correlations exist between distress and family system (nuclear or joint) or several household members.

Table 2: **Relationship between Psychological Distress and Pre-existing Mental Health and Family Issues.**

Variables	Mental (Self)	Healt Mental Healt (Family)	Stress at Home	Challenge Work from Home	Un-Healthy Boundaries with Family	Additional Domesti Responsibilities
DASS-21	.640**	.515**	.351**	.165*	.486**	.185*
Stress	.639**	.487**	.342**	.169*	.457**	.190*
Anxiety	.577**	.515**	.311**	.158*	.441**	.166*
Depression	.657**	.539**	.372**	.181*	.523**	.220**

The data show a strong positive relationship between distress and having a pre-existing medical condition ($r_s = .240$, $p < .01$), and even stronger correlations when family members have such conditions ($r_s = .444$, $p < .01$). Both testing positive ($r_s = .298$, $p < .01$) and having a family member test positive were associated with distress ($r_s = .297$, $p < .01$). As were the severity of symptoms experienced by oneself ($r_s = .449$, $p < .01$) and family members ($r_s = .424$, $p < .01$). The number of COVID-related deaths among close family and friends was associated with overall distress ($r_s = .170$, $p < .01$), anxiety ($r_s = .169$, $p < .01$), and depression ($r_s = .163$, $p < .01$).

Mental health issues (diagnosed or undiagnosed) for oneself ($r_s = .640$, $p < .01$) and family members ($r_s = .515$, $p < .01$) were strongly associated with increased distress. Distress is negatively correlated with experiencing one's home environment as physically and emotionally safe ($r_s = -.321$, $p < .01$). However, a psychologically and emotionally stressful home environment was associated with higher distress ($r_s = .351$, $p < .01$). There was a significant but weak correlation between difficulty studying or working from home and distress ($r_s = .165$, $p < .01$). However, difficulty setting healthy boundaries with family was associated with significantly higher distress, particularly with depression ($r_s = .523$, $p < .01$).

Discussion

Previous research demonstrates that the COVID-19 pandemic has created significant distress for people across the world (Marzo, et al., 2021), including young adults (De France, Hancock, Stack, Serbin, & Hollenstein, 2021). This study explores the impact of sociodemographic variables on young adults' mental health during the pandemic, particularly during a lockdown, and the unique cultural variables that may be involved in determining mental health outcomes for the Pakistani population.

The DASS-21 was used to measure subjective experiences of distress, with sub-scales measuring stress, anxiety, and depression. Though approximately 9-12% of participants reported severe or extremely severe symptoms, the mean scores for the scale and all three subscales were low. These findings are counter to some studies that identify young adults as more sensitive and susceptible to psychological distress, including anxiety and depression (Glowacz & Schmits, 2020a). They may be explained by resilience, as some studies have found that resilience as a personal strength protected college students from distress, anxiety, and depression (Sanchez-Teruel, Robles-Bello, & Valencia-Naranjo, 2021), and helped them better cope with fears about the coronavirus (Ye, et al., 2020). They may also reflect gendered outcomes, as 81.6% of the current sample is male, and previous research found that being female was associated with higher loneliness and distress (Lee, Cadigan, & Rhew, 2020; Zhu, et al., 2021).

Though the percentage of severely symptomatic participants is low, it begs the question of *which* young adults may be more at risk. For example, Zhou and Guo (2021) found that family structure (particularly divorced and widowed individuals), living with larger families, and living with Covid-infected family members created significantly more distress. In the current sample, distress was not significantly related to family structure (nuclear or joint) or several household members. Further research is required to explore if and how cultural variables and family dynamics may foster resilience. Studying a sample-based in Nepal, Sharma et al. (2020) suggested that joint and extended

family support systems may also act as protective factors.

Higher socioeconomic status was correlated with increased distress, a finding that aligns with previous research. Wanberg et al. (2020) use the conservation of resources theory to explain this finding, theorizing that higher-income individuals may have higher expectations for resources to be constantly available, and therefore "experience greater declines in well-being when a crisis contract or threatens their resource supplies" (p. 1390). Among the DASS-21 sub-scales, socio-economic status was significantly correlated with stress and depression, but not with anxiety. While this is somewhat consistent with findings by Hertz-Palmor et al. (2021), who found financial loss to be significantly more correlated to depression rather than anxiety, the current study did not find any significant correlation between income loss and distress. One plausible explanation is that adults are more likely to experience income loss and correlated distress as they typically carry more financial responsibilities and that Pakistani young adults may be protected through supportive family systems and the cultural acceptability of living with and being supported by parents.

The availability of domestic was associated with reduced distress, hypothetically by reducing the burden of domestic labor from family members. A reduction in or loss of domestic support during the pandemic is likely to increase the burden of unpaid labor and care-work on women and families (Power, 2020), which this study found to be strongly associated with depressive symptoms. While the impact of increased domestic labor and care-work on women is well-documented, further research is needed to explore how families and young adults might be participating.

Participants' own physical and mental health were associated with distress. Pre-existing medical conditions, testing positive, and symptom severity were all significantly associated with distress. These findings support emerging research, such as a systemic review by Dong et al. (2021) that found high percentages of anxiety, depression, PTSD, fear, and somatization in this population. Additionally, the severity of anxiety, insomnia, and depressive symptoms also increased with symptom severity, which supports the strong positive correlations between symptom severity and distress in this study.

Self-reported mental health issues for oneself or family members, diagnosed or undiagnosed, were strongly correlated with distress. Previous research supports that existing mental health conditions worsen distress, anxiety, and depression by exacerbating existing stressors (Alonzi, La Torre, & Silverstein, 2020). As evidenced by this study and others, the pandemic and ensuing lockdowns create stressful situations (such as financial distress and isolation), which worsen mental health outcomes (Murphy, Markey, O'Donnell, Moloney, & Doody, 2021).

Physical and mental health conditions likely become compounded stressors. Alonzi et al. (2020) found that young adults with both physical and mental health conditions were most likely to experience depression and anxiety during the pandemic, followed by those with only mental health conditions, those with only physical health conditions, and finally those with no health conditions.

The impact of COVID-19 on one's family and immediate social circle was also linked to distress. Family members with pre-existing health conditions, testing positive and the subsequent severity of symptoms, as well as several deaths due to COVID-19 in one's close family and friends, were strongly correlated with the DASS-21 score. Jafree et al. (2020) conducted a qualitative analysis of significant others as they accompanied family members who tested positive through various systems. Their participants reported stigmatization, mistreatment, harassment, and abuse by police and healthcare staff, as well as blame and rejection by neighbours and relatives. Many significant others chose to care for family members at home to avoid hospitals, which they deemed unsafe or unsatisfactory. These experiences are plausible explanations for the significant correlation with distress in the current study.

Finally, the impact of one's home environment was strongly correlated with distress. Experiencing one's home environment as physically and emotionally safe was significantly and negatively associated with distress, potentially acting as a protective factor against some of the stressors created by the pandemic and lockdown. For example, Prime et al. (2020) found that organization, communication, and shared beliefs among family symptoms promote resilience among young adults. Conversely, experiencing one's home environment as unsafe, struggling to set healthy boundaries, and having difficulties working or studying from home contributed to distress. Research suggests that insecure attachment in parental relationships, mediated by an overall chaotic environment at home results in poor mental health outcomes as well as increased hospitalizations (Klemfuss, Wallin, & Quas, 2018). It is plausible that the pandemic might both introduce stressors that create chaotic home environments or exacerbate such existing environments by adding layers of financial, relational, and psychological stress.

Conclusions
Gibson et al. (2021) aptly challenge thinking of COVID-19 as an "equalizer", recognizing the impact of intersectional identities of race and ethnicity, class, socio-economic status, physical health, and emotional well-being. The current study highlights sociodemographic variables that may be protective (such as support with domestic labour and a safe home environment) and some that may be risk factors (such as poor physical and mental health). In addition to the impact of demographic variables, it identifies those young adults who have been directly impacted by the Coronavirus (either testing positive themselves or having family members who did) may require additional support and counselling from their institutions and counselling centres.

Implications
This data is relevant for teachers and administrators who are actively involved with these young adults at a personal or systemic level, as well as for college counselling centres to create supportive spaces for mental health care during the pandemic. The current study identifies that while most participants score low on distress, a small percentage do report severe distress. Further studies can explore what variables make this small percentage particularly vulnerable, and how the situation can be remedied through psycho-social and policy interventions. As the landscape of the pandemic keeps changing, it is also important to explore its long-term psychological impact.

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