

COVID-19 and Stress of Indian Youth: An Association with Background, On-line Mode of Teaching, Resilience and Hope

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Highlights

- The study is an attempt to identify the dimensions of psychological stress, mental health, hope and resilience on the youth during the COVID 19 pandemic.
- The study also identify significant association between psychological stress of the respondents and their negative attitude and inability of comprehension or clarification in the context of online teaching and learning.
- Online survey was conducted using a non-probability convenient sampling method.
- Descriptive and inferential statistics were employed to assess the relationship between the variables.

COVID-19 and Stress of Indian Youth: An Association with Background, On-line Mode of Teaching, Resilience and Hope

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Abstract

Background: COVID-19 pandemic causes serious threats to physical health and triggers wide varieties of psychological problems, including anxiety and depression. Youth exhibit a greater risk of developing psychological distress, especially during epidemics influencing their wellbeing.

Objectives: To identify the relevant dimensions of psychological stress, mental health, hope and resilience and to examine the prevalence of stress in Indian youth and its relationship with socio-demographic information, online-mode of teaching, hope and resilience.

Method: A cross-sectional online survey obtained information on socio-demographic background, online-mode of teaching, psychological stress, hope and resilience from the Indian youth. A Factor Analysis is also conducted on the recompenses of the Indian youth on psychological stress, mental health, hope and resilience separately to identify the major factors associated with parameters. The sample size in this study was 317, which is more than the required sample size (Tabachnik et al. 2001).

Results: About 87% of the Indian youth perceived moderate to a high levels of psychological stress during the current COVID-19 pandemic. Different demographic, sociographic and psychographic segments were found to have high stress levels due to the pandemic, while psychological stress was found to be negatively correlated with resilience as well as hope. The findings identified significant dimensions of the stress caused by the pandemic and also identified the dimensions of mental health, resilience and hope among the study subjects.

Conclusion: As stress has a long-term impact on human psychology and can disrupt the lives of people and as the findings suggest that the young population of the country have faced the greatest amount of stress during the pandemic, a greater need for mental health support is required to the young population, especially in post pandemic situations. The integration of online counselling and stress management programs could assist in mitigating the stress of youth involved in distance learning.

Keywords: COVID-19; Dimensions of psychological stress; Dimensions of mental health; Dimensions of resilience; Dimensions of hope

Introduction

Viral pneumonia among patients in Wuhan, China, that appeared in late December 2019, which was temporarily named a new coronavirus (2019-nCoV) and subsequently renamed COVID-19, was declared a global pandemic by the World Health Organization in March 2020 (Zhou et al., 2020). Like any disease outbreaks in the past, COVID-19 pandemic causes serious threats to physical health and triggers wide varieties of psychological problems, including anxiety and depression (Qiu et al., 2020). Psychological distress and depressive symptoms are generally observed in the face of disease(s) (Duggal, Sacks-Zimmerman, & Liberta, 2016), with a differential level of psychological distress revealed among patients who experience COVID-19 infection, those under quarantine, and in the general public (Zhang et al., 2020). Globally, with more than 200 countries and territories reporting confirmed cases of COVID-19, India is recorded to possess the third highest number of COVID-19 cases (Worldometer, 2020), and this severe outbreak has affected the mental health of Indians (Verma & Mishra, 2020) as is the case everywhere. Again, a study on the psychological impact of COVID-19 during lockdown among Indians revealed nearly three-fourth (74.1%) perceived moderate levels of stress and about one-fourth reported feelings of pessimism and hopelessness (Grover et al., 2020).

Various factors, including gender, marital status, social support, specific experience with COVID-19 infection, and length of isolation, have contributed to the vulnerability to psychological distress across populations during the COVID-19 pandemic (Brooks et al., 2020; Islam, Bodrud-Doza, Khan, Haque, & Mamun, 2020). Studies have shown that females are at greater risk of developing depression and anxiety (Qiu et al., 2020; Zhou et al., 2020).

Poor mental health is also identified to have a significant correlation with lower income and younger age (especially between 16 and 24 years), who exhibited a greater risk of developing psychological distress (Smith et al., 2020; Taylor, Agho, Stevens, & Raphael, 2008). Youth, especially students, are severely anxious during the COVID-19 outbreak (Dangi & George, 2020).

Stress, anxiety, and depression positively correlate with each other are found to negatively influence the wellbeing of a person (Grover et al., 2020). Therefore, mental health conditions are crucial for a good quality of life and wellbeing (Zhou et al., 2020). A Bangladesh-based study during COVID-19 revealed that disruption in the scheduled study plan and future career and financial difficulties predominantly caused stress (Islam et al., 2020). With the closure of schools and colleges, the accessibility to resources, including teaching and learning, is greatly affected, and these predicaments provoke stress (Lee, 2020) and impact hope and resilience. Studies have shown that the online method of teaching and learning is not as good as interactive classroom lectures, which are negatively affected by multiple factors, including poor internet connectivity, economic conditions of the institute and students, less interaction and sometimes poor attitude of students and faculty members (Keskin & Yurdugül, 2019; Thongsri, Shen, & Bao, 2019).

Hope and resilience are routinely described as important to coping with adversity and are predictors of psychological flourishing (Munoz, Hanks, & Hellman, 2020). Possessing hope and resilience positively affects mood and functioning and is linked with better physical and mental health (Duggal et al., 2016). High resilience helps individuals cope positively with uncertainty, conflict, and failure (Avey, Wernsing, & Luthans, 2008). The ability to cope well with adverse events allows resilient individuals to adapt to significant life changes and consequently be better by becoming stronger, wiser, and more powerful (Duggal et al.,

2016). However, to our best knowledge, there needs to be more paucity of how hope and resilience, especially during the COVID-19 pandemic, influence youth psychological stress.

Considering the detrimental effect the COVID-19 pandemic can have on mental health, this study was conducted to assess the prevalence of psychological stress among Indian youth and its relationship with the socio-demographic variables, online mode of classes and its efficacy, hope and resilience of the participants. The main motivation of the researchers for conducting this study was the lack of information about the impact of prolonged lockdown and continuous attendance of online classes on the mental health of Indian youth. Besides, the study attempted to identify relevant dimensions of stress, resilience and hope. Findings of this study would inform academic administrators, public health policymakers and healthcare professionals, particularly mental healthcare providers and psychologists, to attend to the urgent mental health needs of the Indian youth. Identification of the relevant factors of stress, resilience and hope will also contribute to further exploration in the field of psychology.

Method

Study design

The data for this study was obtained using a cross-sectional online survey from Indian youth during the different phases of COVID-19.

Study population

A group of 317 Indian youth aged between 16 to 29 years participated in the online survey.

Study Tools

The study tools which were used for data collection from the Indian Youth are as follows: **Background Information Schedule (BIS)**: This schedule is developed to gather information about the background of the youth. There are two broad sections in the BIS. The

first section comprises 15 questions. Nine questions are related to demographic and socio-economic background, including one on the family environment, while the remaining six questions are related to personal feelings because of the Covid-19 outbreak. Section II has five questions related to online classes.

The Perceived Stress Scale (PSS)

The Perceived Stress Scale of Sheldon Cohen, Kamarck, and Mermelstein (1983) is the most widely used psychological instrument to measure stress and this scale is adopted for the present study. It is a measure of the degree to which situations in one's life are appraised as stressful. Items were designed to tap into respondents' perceptions about how unpredictable, uncontrollable, and overloaded their lives are. The scale also includes a number of direct queries about levels of experienced stress. The questions in the PSS ask about feelings and thoughts during the pandemic phases. Respondents are asked how often they felt a certain way in each case. Psychometric properties of PSS have been ascertained by a number of previous studies (Lengacher et al., 2011; Mimura & Griffiths, 2008; Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003). The response was collected by using a five-point scale that captures responses ranging from never (0) to very often (4). A high score indicates high stress. Reliability analysis of the PSS, using Cronbach alpha, was done for the present study subjects and it was found to be 0.772.

A factor analysis was conducted to identify the dimensions of the PSS and suitable dimensions were identified.

Adult Hope Scale (AHS)

Measuring the amount of hope and identification of the dimensions of hope is another objective of the study, and the Adult Hope Scale of Snyder et al., 2007 was adopted for the purpose. A five-point scale was used for the collection of data. The Cronbach's alpha of AHS was ascertained by another Indian Study, and it was 0.75(Dar, 2020). The Cronbach's alpha of the present sample was 0.707.

Dimensions of Mental Health

Mental Health Inventory items, designed by Viet and Ware (1983) was adopted to identify the dimensions of mental health and suitable dimensions were identified.

Brief Resilience Scale (BRS)

(Smith et al., (2008): There are 6 items in BRS, of these 6 items, 3 are reverse scored. The BRS has a five-point Likert scale that ranges from 1 (strongly disagree) to 5 (strongly agree). The responses of the items are added/summed for all six items that gives a total score ranging from 6-30 which is divided by the total number of items answered that gives the resilience score. The higher the total means score on BRS the greater will be the resilience. The Chronbach alpha of the BRS with the present sample was 0.626. Although the resilience scale score was slightly low, it was regarded as suitable in this social science research (DeVellis, 1991; Mohamad, Sulaiman, Sern, & Salleh, 2015).

Identification of the dimensions of resilience was also done through a factor analysis and suitable dimensions were identified.

Adult Hope Scale

Identification of dimensions of Hope was another important aspect of the study and such was done by collecting data from the respondents by adopting the Adult Hope Scale designed by Snyder et.al. (1991).

Procedure for Data Collection

An online survey was conducted using a non-probability convenient sampling method. Indian youth ($n=317$) aged between 16-29 years from different parts of the country participated in the study through online mode as per their convenience.

Ethical Issues

The present study was subjected to ethical approval and obtained the clearance (Ref.No.RGNIYD/ADMIN/20-21/SEC/001). All procedures performed in collecting data from the participants were per the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration. Participation in the study was voluntary and participants were ensured about the confidentiality of information.

Data Analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 22.0 software. Both descriptive and inferential statistics were employed to assess the relationship between the variables. Four different factor analysis was conducted on the data received from PSS, Mental Health Inventory Items, and the Brief Resilience Scale items to identify their dimensions.

Results

As shown in Table 1, the sample included both male and female almost in equal proportion except for one participant (0.3%) who identified as the third gender. Nearly half (49.8%) of the participants were in the age range of 19-22 years and more than half (61.9%) were postgraduate and above qualification. About 56.5% of the father's education and 65.3% of the mother's education were reported less than or equal to grade 12 level of education. About three quarters (74.8%) of the participants admitted single-family type with nearly half (47.9%) reported family income less than 25000 per month. A little over three fourth (77.9%)

confirmed living in a congenial family environment. Table 1 also demonstrates the relationship between background information and their relationship with psychological stress. Psychological stress scores were significantly higher among the female gender ($p<0.01$), the ones with mother's higher level of education ($p<0.05$), single children ($p<0.05$) and those from non-congenial family environments ($p<0.001$). A significant higher psychological stress score was found among participants who felt restless due to lockdown ($p<0.001$), those who worried about exam and future career ($p<0.001$), and those who felt like consulting a psychologist or a counsellor for mental health support ($p<0.001$). Furthermore, participants who admitted having no one to share personal feelings or emotions significantly had high scores on psychological stress ($p<0.001$).

Table 1: Background information and relationship with the psychological stress (n=317)

Characteristics	n (%)	Psychological stress Mean±SD	p-value
Gender (3 rd gender 1=0.3%)			
Male	160 (50.5)	19.09±6.13	0.003**
Female	156 (49.2)	21.37±7.07	
Age			0.505
<18 years	19 (6.0)	18.21±6.04	
19-22 years	158 (49.8)	20.01±6.69	
23-26 years	103 (32.5)	20.63±7.40	
≥27 years	37 (11.7)	20.62±5.15	
Education			0.353
<Graduate	49 (15.5)	19.49±6.58	
Graduate student	72 (22.7)	19.28±6.89	
Post graduate students	173 (54.6)	20.56±6.75	
PhD Scholar	23 (7.3)	21.52±6.42	
Father's education			0.422
≤ Class 12	179(56.5)	19.90±6.13	
≥ Graduate	138(43.5)	20.53±7.46	
Mother's education			0.025*
≤ Class 12	207(65.3)	19.52±6.18	
≥ Graduate	110(34.7)	21.42±7.54	
Family type			0.956
Single	237 (74.8)	20.19±6.94	
Joint	80 (25.2)	20.14±6.11	
Sibling			0.013*
Single child	40 (12.6)	¹ 23.38±8.78	
One sibling	144 (45.4)	19.93±6.66 ^{1*}	

Two sibling	72 (22.7)	19.60±5.85 ^{1*}	
Three and above	61 (19.2)	19.33±5.88 ^{1*}	
Family income (per month)			0.420
<25000	152 (47.9)	19.75±5.99	
25001-50000	90 (28.4)	21.03±6.60	
50001-100000	46 (14.5)	19.48±8.21	
>100000	29 (9.1)	20.83±8.18	
Family environment			0.000***
Congenial	247 (77.9)	19.34±6.22	
Not congenial	70 (22.1)	23.11±7.65	
Are you feeling restless because of the lockdown?			0.000***
Yes	161 (50.8)	22.78±5.94	
No	156 (49.2)	17.49±6.46	
Are you worried about exams and your future career?			0.000***
Yes	271 (85.5)	21.12±6.30	
No	46 (14.5)	14.59±6.54	
Is there anybody with whom you can share your personal feelings/emotions?			0.000***
Yes	234 (73.8)	19.35±6.33	
No	83 (26.2)	22.51±7.30	
Do you feel like consulting a psychologist/counsellor for mental health support?			0.000***
Yes	106 (33.4)	23.39±6.41	
No	211 (66.6)	18.56±6.31	

A little over three quarters (77.3%) attended an online class during the lockdown. Nearly 62.4% of the participants shared the opinion that the online mode of classes during lockdown is a good option. About a quarter (25.8%) reported having faced a problem with internet connectivity all the time (Table 2). Table 2 also illustrates the relationship between online teaching, efficacy, and psychological stress. Participants who did not find the online mode of classes as a good option during lockdown ($p<0.01$) and not able to clarify queries through online mode of classes ($p<0.001$) significantly reported higher psychological stress. In addition, while attending online classes, those participants who faced internet connectivity problems were significantly associated with psychological stress ($p<0.05$). Tukey Post hoc test revealed participants who faced internet connectivity problems at all time significantly reported higher psychological stress compared to those who reported the problems sometimes. More than half of the youth (52.4%) stated that on-line classes should not be

conducted for more than an hour at a stretch while 27.2% stated it could be continued for two hours.

Table 2: Online classes, its efficacy, and its relationship with psychological stress (n=317)

	n(%)	Psychological stress Mean±SD	p-value
1. Did you attend the online classes during this lockdown phase?			0.506
Yes	245 (77.3)	20.04±6.72	
No	72 (22.7)	20.64±6.79	
2. If yes, did you find the on-line mode of classes as a good opinion for teaching during the lockdown phase? (n=242)			0.005**
Yes	151 (62.4)	19.03±6.71	
No	91 (37.6)	21.55±6.51	
3. Were you able to clarify your queries through on-line mode of classes? (n=241)			0.000***
Yes	140 (58.1)	18.45±6.39	
No	101 (41.9)	22.26±6.59	
4. Did you face internet connectivity problems while attending the on-line classes? (n=244)			0.018*
Always	63 (25.8)	¹ 22.02±6.61	
Sometime	169 (69.3)	19.47±6.52 ^{1*}	
Never	12 (4.9)	17.83±8.63	
5. According to you, how long should on-line classes to be conducted?(n=243)			0.156
One hour	153 (63.0)	20.67±6.78	
Two hours	69 (28.4)	19.39±6.16	
Three and above hours	21 (8.6)	18.10±7.81	

A relationship between psychological stress, resilience and hope was also assessed for the participants of this study. All the items under perceived stress were rated at least ‘sometimes’ to ‘very often’ by not less than 50%. About 87% of the participants perceived moderate to a high level of psychological stress during this current COVID-19 pandemic. A strong negative correlation was found between psychological stress and resilience ($p<0.001$) and as well as

between psychological stress and hope ($p<0.001$). Compared to participants who rated moderate to a high level of perceived stress, higher resilience ($M=21.78\pm3.86$) and great hope score ($M=55.37\pm6.21$) were shown by those who had low perceived stress.

Table 3: Prevalence of psychological stress (Item wise) and their relationship with resilience and hope

	Psychological stress item	Responses to the perceived stress scale					Resilience	Hope
		Never n(%)	Almost never n(%)	Sometimes n(%)	Fairly often n(%)	Very often n(%)	r-value	r-value
1	In the last month, how often have you been upset because of something that happened unexpectedly?	39(12.3)	29(9.1)	144 (45.4)	64(20.2)	41 (12.9)	-0.189**	-0.232***
2	In the last month, how often have you felt that you were unable to control the important things in your life?	47 (14.8)	34 (10.7)	127(40.1)	64(20.2)	45(14.2)	-0.229***	-0.324***
3	In the last month, how often have you felt nervous and “stressed”?	40(12.6)	54(17.0)	111(35.0)	54(17.0)	58 (18.3)	-0.313***	-0.315***
4	In the last month, how often have you felt confident about your ability to handle your personal problems?	22(6.9)	31(9.8)	112(35.3)	88(27.8)	64(20.2)	-0.311***	-0.305***
5	In the last month, how often have you felt that things were going your way?	55(17.4)	62(19.6)	116(36.6)	58(18.3)	26(8.2)	-0.203***	-0.280***
6	In the last month, how often have you found that you could not cope with all the things that you had to do?	39(12.3)	56(17.7)	140(44.2)	49(15.5)	33(10.4)	-0.233***	-0.229***
7	In the last month, how often have you been able to	38(12.0)	42(13.2)	109(34.4)	89(28.1)	39(12.3)	-0.243***	-0.175**

	control irritations in your life?							
8	In the last month, how often have you felt that you were on top of things?	63(19.6)	81(25.6)	117(36.9)	40(12.6)	16(5.0)	-0.221***	-0.140*
9	In the last month, how often have you been angered because of things that were outside of your control?	45(14.2)	42(13.2)	119(37.5)	67(21.1)	44(13.9)	-0.287***	-0.218***
10	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	61(19.2)	62(19.6)	108(34.1)	45(14.2)	41(12.9)	-0.384***	-0.359***
	Total psychological stress	(Mean±SD): 20.17±6.73					-0.461***	-0.452***
	Psychological stress Low Moderate High	41 (12.9%) 227 (71.6%) 49 (15.5%)					21.78±3.86*** 19.03±3.20 15.53±4.20	55.37±6.21*** 47.23±9.41 42.25±10.10

Findings related to the Dimensions of Stress Elements

To identify the dimensions related to stress, a factor analysis was conducted on the data collected on variables of Cohen's Perceived Stress Scale (PSS). The findings are as follows:

Findings of KMO and Bartlett's Test of Sphericity

Finding out the sample adequacy and the existence of relationship among the variables are the primary requisites of factor analysis. To test the adequacy of the samples for each variable and for the complete model, Kaiser-Meyer-Olkin test (KMO test) was conducted. The statistic measures the proportion of variance among the variables in the model. A lower proportion of variance signifies the suitability of data for factor analysis. The value of KMO

lies between 0 and 1. If the value of the KMO test is > 0.6 , we can continue with the factor analysis. Here in this case, the findings show that the value of KMO is $0.836 > 0.6$ (Table 4). This means that the samples are adequate for conducting factor analysis.

Table 4		
KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.836
Bartlett's Test of Sphericity	Approx. Chi-Square	1058.093
	df	45
	Sig.	.000

Bartlett's test of sphericity is conducted to find out whether the correlation matrix of the identified variables is an identity matrix. The Null Hypothesis states that the correlation matrix of the variables in the model is an identity matrix. If the correlation matrix turns out to be an identity matrix, then the variables are unrelated and thus they are not ideal for conducting factor analysis. If the p value of Bartlett's test of sphericity is less than 0.05, the correlation matrix is not an identity matrix, and the null hypothesis is rejected. Thus p-value < 0.05 allows us to continue with the factor analysis. Here in this case, the p value of Bartlett's test of sphericity is $0.000 < 0.05$. This means that the correlation matrix is not an identity matrix and the null hypothesis is rejected and we can carry on with the factor analysis.

Findings related to Communality

In Factor Analysis, communality explains the amount of variance of each variable explained by the factors. The Variable's communality ranges from 0 to 1. If a variable does not have any unique variance, i.e., 100% of its variance is explained, it has a communality of 1. If the variable's variance is completely unexplained by the factors, the communality will be 0. According to Child (2006), if the score of the extraction value is < 0.2 , the item should be

removed from the factor analysis. Here, in this case, none of the items is found to have an extraction value < 0.2 , and thus, none of the items was dropped from the model (Table 5). Besides this, the extraction value associated with the item, ‘In the last month, how rarely have you felt difficulties piling up so high that you could not overcome them?’ is 0.702, which indicates that the factors have explained 70.2% of the variability of this item. This is also important to mention that this is the highest variance of an item explained by a factor in this factor analysis. On the other hand, 0.44 is the extraction value associated with the item, “In the last month, how often have you been able to control irritations in your life?”. This means that the factor has explained 44% variability of this item. This is the lowest variance which is explained by the factor, in this factor analysis.

Table 5		
Communalities		
	Initial	Extraction
s1In the last month, how rarely have you been upset because of something that happened unexpectedly?	1.000	.582
s2In the last month, how rarely have you felt that you were unable to control the important things in your life?	1.000	.562
s3 In the last month, how rarely have you felt nervous and "stressed"?	1.000	.654
s4In the last month, how rarely have you felt confident about your ability to handle your personal problems?	1.000	.593
s5 In the last month, how often have you felt that things were going your way?	1.000	.518
s6In the last month, how often have you found that you can cope with all the things that you had to do?	1.000	.485
s7 In the last month, how often have you been able to control irritations in your life?	1.000	.440
s8In the last month, how often have you felt that you were on top of things?	1.000	.530
s9In the last month, how rarely have you been angered because of things that were outside of your control?	1.000	.681
s10In the last month, how rarely have you felt difficulties were piling up so high that you could not overcome them?	1.000	.702
Extraction Method: Principal Component Analysis.		

Findings related to Total Variance Explained

The ‘Total Variance Explained’ table shows the number of factors extracted from the Factor analysis and the amount of variance explained by the factors. The number of factors is generated from the initial eigenvalues. According to Field (2013), the variance of each component is explained by the initial eigenvalues. The number of components with initial eigenvalues ≥ 1 , decides the number of factors.

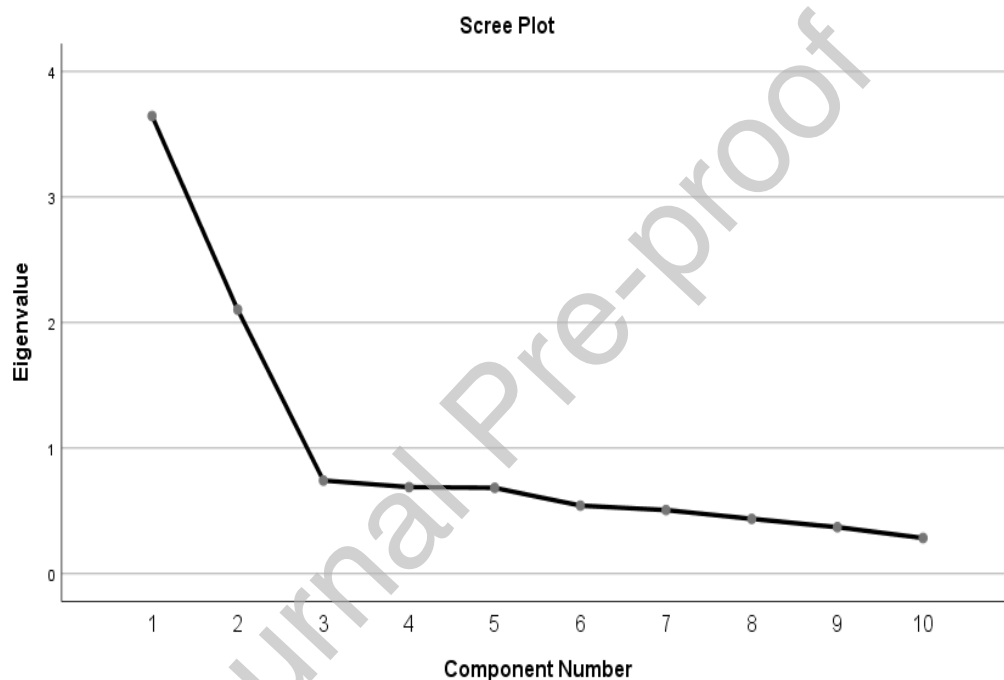
In this factor analysis conducted on the data received from Perceived Stress Scale, the ‘Total Variance Explained’ table (Table 6) identifies two components with initial eigenvalues ≥ 1 , i.e., 3.646 and 2.103. Thus, the factor analysis has identified two factors. The first component explains 36.457% variance and the second component explains 21.027% variance. Cumulatively they explain 57.483% variance. Thus, we can conclude that the factor analysis identifies two factors and these two factors explain 57.483% variance of the total variance.

Table 6									
Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.646	36.457	36.457	3.646	36.457	36.457	3.593	35.930	35.930
2	2.103	21.027	57.483	2.103	21.027	57.483	2.155	21.553	57.483
3	.741	7.415	64.898						
4	.689	6.891	71.789						
5	.683	6.833	78.622						
6	.542	5.417	84.039						
7	.507	5.066	89.104						
8	.436	4.358	93.462						
9	.370	3.699	97.162						
10	.284	2.838	100.000						

Extraction Method: Principal Component Analysis.

Findings Related to Scree Plot

The Scree Plot is a graphical representation of the eigenvalues where eigenvalues are plotted on the y-axis and factors are plotted on the x-axis. It is a line plot where eigenvalues of the factors of PCA are plotted. It helps in determining the number of factors to be retained in an EFA or number of principal components to be retained in PCA. This graphical representation shows the 'elbow', the point beyond which all the other points level off with the x-axis. This helps in the visual identification of the factors emerging from the components.



Here, in this case, the visual representation of the scree plot shows beyond the second point, the rest of the items are levelling-off. Thus, we can state that among the ten components, two factors are distinctively identified by the scree plot, which also confirms the finding of the total variance explained table.

Findings related to Rotated Component Matrix

Factor analysis identifies the presence of different items across different components. Items with high correlation are expected to be found within one component or factor. Information about Pearson correlation between items and the components is gathered in the Rotated Component Matrix table. The nature of the items also helps us to identify the nature of the component. In this case, we used the Varimax rotation, an orthogonal rotation. Unlike Oblique rotation, the correlation between the identified factors is not allowed in Orthogonal rotation, and thus Varimax rotation is used in this case. The findings of the Rotated Component Matrix (Table 7) are as follows:

Table 7		
Rotated Component Matrix^a		
	Component	
	1	2
s1 In the last month, how rarely have you been upset because of something that happened unexpectedly?	.762	
s2 In the last month, how rarely have you felt that you were unable to control the important things in your life?	.737	
s3 In the last month, how rarely have you felt nervous and "stressed"?	.795	
s4 In the last month, how rarely have you felt confident about your ability to handle your personal problems?		.767
s5 In the last month, how often have you felt that things were going your way?		.716
s6 In the last month, how often have you found that you cannot cope with all the things that you had to do?	.673	
s7 In the last month, how often have you been able to control irritations in your life?		.664
s8 In the last month, how often have you felt that you were on top of things?		.728
s9 In the last month, how rarely have you been angered because of things that were outside of your control?	.825	
s10 In the last month, how rarely have you felt difficulties piling up so high that you could not overcome them?	.832	
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization. ^a		
a. Rotation converged in 3 iterations.		

The findings show that factor loading of the items under component 1 ranges between 0.832 to 0.673, while items under component 2 contains the factor loading ranging from 0.767 to 0.664. While component 1 contains six items, component 2 contains 4 items.

Component 1 – Perceived Distress

The items under component 1 are related to respondents' perception of their distress. Researchers like Folkman, & Gruen, (1985) termed this component as distress components. Thus, we can name the component as Perceived Distress components. The component explains 36.457% of variance of the total variance on all the components with acceptable factor loading ranging from 0.832 to 0.673.

Component 2 – Perceived Coping

The items under component 2 are related to respondents' perception of their ability to cope with the stress elements. The items indicate the respondent's perception about their success to cope with the stress factors. Thus, we can name the component as Perceived Coping. The component explains 21.027% of variance of the total variance of all components with acceptable factor loading ranging from 0.767 to 0.664.

Thus, it could be concluded that the Perceived Stress Scale (PSS) consists of items which belong to two factors. The first factor contains items related to Perceived Distress and the second factor contains items related to Perceived Coping.

Findings Related to the Dimensions of Elements of Mental Health

Identification of the dimensions of the Mental Health Elements is another important part of the present research and to find their dimensions, a factor analysis was conducted on the data collected by using Mental Health Inventory items, designed by Viet and Ware (1983). The findings are as follows:

Findings related to KMO and Bartlett's Test

The sample adequacy of each variable as well as the entire model is tested by KMO test. Bartlett's test is conducted to identify whether the variables are unrelated. The findings show (Table 8) that the value of KMO is 0.903 which is greater than 0.6. This means that the sample size is adequate to conduct the Factor analysis. Bartlett's test shows p-value $0.000 < 0.05$, which means that the variables are related and the correlation matrix is not an identity matrix. Thus, we can continue with the factor analysis.

Table 8		
KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.903
Bartlett's Test of Sphericity	Approx. Chi-Square	3262.438
	df	153
	Sig.	.000

Findings Related to Communality

The findings of the Communality show that all the extraction values are > 0.2 , and thus, we can continue with the factor analysis without dropping any item (Table 9). Among the different items, the extraction value of the item named, "Have you been anxious or worried?" is 0.968, which means that 96.8% of the variability of this item is explained by the factor. This is the highest variance of an item explained by a factor in this factor analysis. On the other hand, an item named "Have you felt loved and wanted?" has an extraction value of 0.348 in the communality table and thus it could be stated that 34.8% of the variability of this item is explained by the factor. This is the lowest variance which is explained by the factor, in this factor analysis.

Table 9		
Communalities		
	Initial	Extraction
m1Has your daily life been full of things that were interesting to you?	1.000	.458
m2Did you feel depressed?	1.000	.657
m3Have you felt loved and wanted?	1.000	.348
m4Have you been a very nervous person?	1.000	.964

m5Have you been in firm control of your behavior, thoughts, emotions, feelings?	1.000	.421
m6Have you felt tense or high-strung?	1.000	.598
m7Have you felt calm and peaceful?	1.000	.588
m8Have you felt emotionally stable?	1.000	.499
m9Have you felt downhearted and blue?	1.000	.463
m10Were you able to relax without difficulty?	1.000	.509
m11Have you felt restless, fidgety, or impatient?	1.000	.632
m12Have you been moody, or brooded about things?	1.000	.421
m13Have you felt cheerful, light-hearted?	1.000	.600
m14Have you been in low or very low spirits?	1.000	.539
m15Were you a happy person?	1.000	.506
m16Did you feel you had nothing to look forward to?	1.000	.535
m17Have you felt so down in the dumps that nothing could cheer you up?	1.000	.598
m18Have you been anxious or worried?	1.000	.968
Extraction Method: Principal Component Analysis.		

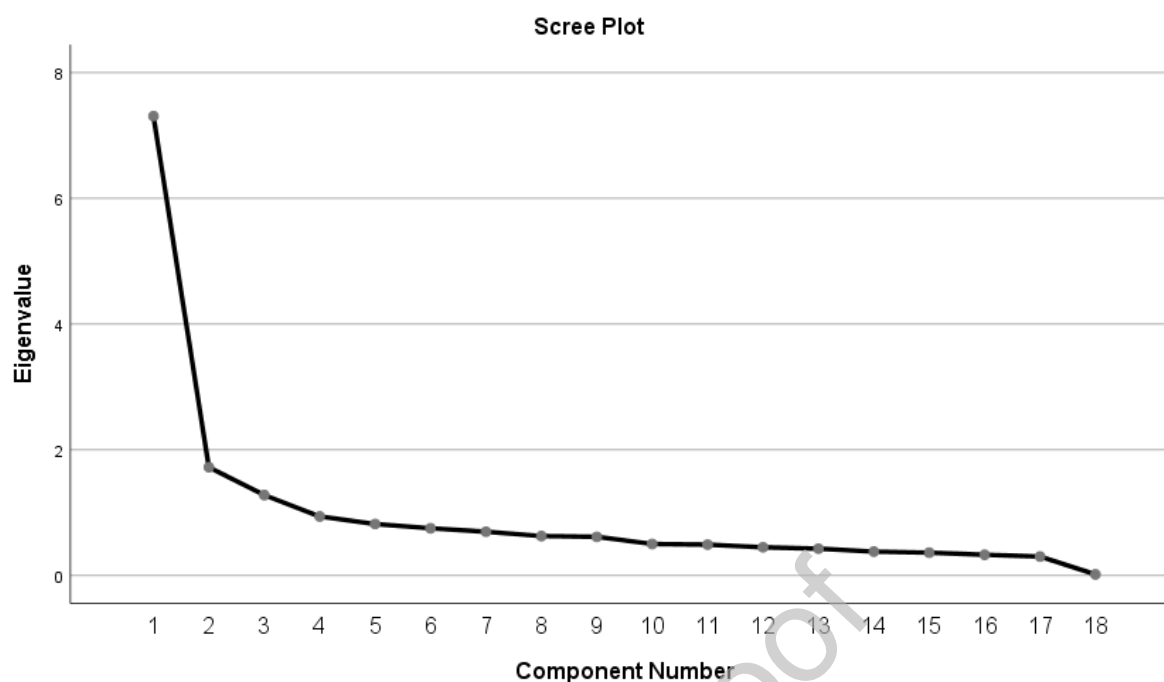
Findings related to Total Variance Explained

The findings of the “Total Variance Explained” table (Table 10) show that three components have the eigenvalue ≥ 1 . The eigenvalues associated with these components are 7.307, 1.721 and 1.278 respectively. Thus, it could be stated that the factor analysis identified three factors. Among these three factors, the first one explains 40.595% variance of the total variance and the second factor explains 9.562% of the variance of the total variance and the third one explains 7.101% of variance of the total variance. Cumulatively they explain 57.258% of variance of the total variance. Thus, this could be stated that the findings of the Total Variance Explained table identified three factors which explain 57.258% variance of the total variance.

Table 10			
Total Variance Explained			
Component	Initial Eigenvalues	Extraction Sums of Squared Loadings	Rotation Sums of Squared Loadings

	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.307	40.595	40.595	7.307	40.595	40.595	4.512	25.068	25.068
2	1.721	9.562	50.157	1.721	9.562	50.157	3.660	20.333	45.401
3	1.278	7.101	57.258	1.278	7.101	57.258	2.134	11.857	57.258
4	.938	5.210	62.468						
5	.818	4.544	67.012						
6	.750	4.169	71.180						
7	.695	3.863	75.044						
8	.627	3.481	78.524						
9	.614	3.413	81.937						
10	.500	2.778	84.715						
11	.489	2.719	87.435						
12	.448	2.492	89.926						
13	.426	2.367	92.293						
14	.379	2.106	94.399						
15	.362	2.012	96.412						
16	.329	1.826	98.238						
17	.301	1.670	99.908						
18	.017	.092	100.000						
Extraction Method: Principal Component Analysis.									

Findings Related to Scree Plot



The scree plot associated with the components of the Mental Health Inventory demonstrates the presence of three factors. The visual representation shows that from the fourth component onwards, the rest of the items are levelling-off and clearly giving an elbow shape. Thus, among the eighteen components, three factors are distinctively identified from the scree plot, which also confirms the finding of the total variance explained table.

Findings related to Rotated Component Matrix

The findings of the Rotated Component Matrix help us to identify the items within a component. The findings (Table 11) are as follows:

Table 11			
Rotated Component Matrix ^a			
	Component		
	1	2	3
m1 Has your daily life been full of things that were interesting to you?	.332	.588	
m2 Did you feel depressed?	.630	.377	.344
m3 Have you felt loved and wanted?		.589	
m4 Have you been a very nervous person?	.307		.918
m5 Have you been in firm control of your behavior, thoughts, emotions, feelings?		.617	

m6 Have you felt tense or high-strung?	.712		
m7 Have you felt calm and peaceful?	.377	.646	
m8 Have you felt emotionally stable?		.651	
m9 Have you felt downhearted and blue?	.603		
m10 Were you able to relax without difficulty?	.383	.602	
m11 Have you felt restless, fidgety, or impatient?	.731		
m12 Have you been moody, or brooded about things?	.607		
m13 Have you felt cheerful, light-hearted?		.717	
m14 Have you been in low or very low spirits?	.711		
m15 Were you a happy person?		.615	
m16 Did you feel you had nothing to look forward to?	.725		
m17 Have you felt so down in the dumps that nothing could cheer you up?	.724		
m18 Have you been anxious or worried?			.926
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 5 iterations.			

The findings show that component 1 has eight items and the factor loading ranges from 0.731 to 0.603. Component 2 has eight items and the factor loading ranges from 0.715 to 0.589. Component 3 has two items with factor loading ranging from 0.926 to 0.918.

Component 1 – Perceived Psychological Distress Dimension

The eight items under component 1 are related to respondents' perception of their psychological distress. Researchers like Meybodi et al., (2011) termed this component as psychological distress components. Thus, we can name the component as Perceived Psychological Distress Dimension. The component explains 40.595% of variance of the total variance on all the components with acceptable factor loading which ranges from 0.731 to 0.603.

Component 2 – Perceived Psychological Well-Being Dimension

The eight items under component 2 represent respondent's perception of their psychological well-being. Based on the nature of the items, the component is named as Psychological Well-

Being dimension. The component 9.562% variance of the total variance of all the components with an acceptable factor loading which ranges from 0.715 to 0.589.

Component 3 – Perceived Sense of Self Dimension

Only two items were found in the third component which represents the perception of the samples about their sense of their own self. Thus, the component is named as Perceived Sense of Self dimension. The component explains 7.101% variance of the total variance of all the components with an acceptable factor loading which ranges from 0.926 to 0.918.

Findings related to the Dimensions of Brief Resilience Scale

The next part of the research deals with the identification of the dimensions of the resilience of the samples by using the Brief Resilience scale. The findings are as follows:

Findings related to KMO and Bartlett's Test

The findings of the KMO and Bartlett's Test (Table 12) show that the value of KMO is 0.690 which is greater than 0.6, the acceptable level of the KMO test. Thus, it could be concluded that the sample size is adequate to conduct the Factor analysis. Bartlett's test shows p-value $0.000 < 0.05$, which means that the variables are related and the correlation matrix is not an identity matrix. Thus, we can continue with the factor analysis.

Table 12		
KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.690
Bartlett's Test of Sphericity	Approx. Chi-Square	353.595
	df	15
	Sig.	.000

Findings Related to Communality

The findings of the Commuality Table (Table 13) show that all the extraction values are > 0.2 , and thus, we can continue with the factor analysis without dropping any item. Among the different items, the extraction value of the item named, “tend to take a long time to get over set-backs in my life” is 0.667, which means that 66.7% of the variability of this item is explained by the factor. Contrary to this, an item named “have a hard time making it through stressful events” has an extraction value of 0.584 and thus it could be stated that 58.4% of the variability of this item is explained by the factor.

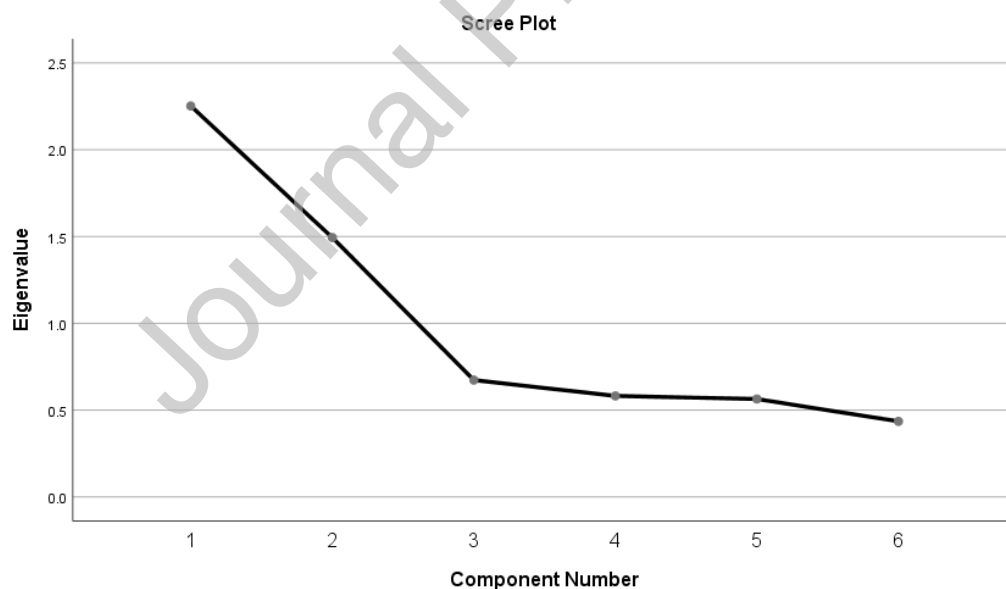
Table 13		
Communalities		
	Initial	Extraction
r1I tend to bounce back quickly after hard times	1.000	.644
r2I have a hard time making it through stressful events	1.000	.584
r3It does not take me long to recover from a stressful event.	1.000	.610
r4It is hard for me to snap back when something bad happens.	1.000	.629
r5I usually come through difficult times with little trouble	1.000	.611
r6I tend to take a long time to get over set-backs in my life	1.000	.667
Extraction Method: Principal Component Analysis.		

Findings related to Total Variance Explained

Findings of the Total Variance Explained table (Table 14) show that two components have the eigenvalue ≥ 1 . The eigenvalues associated with these components are 2.252, and 1.494 respectively. Thus, it could be stated that two factors have been identified by this factor analysis. Among these two factors, the first factor explains 37.533% variance of the total variance and the second factor explains 24.902% variance of the total variance. Cumulatively they explain 62.435% of variance of the total variance. Thus, this could be stated that the findings of the Total Variance Explained table identified two factors which explain 62.435% variance of the total variance.

Table 14									
Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.252	37.533	37.533	2.252	37.533	37.533	2.055	34.256	34.256
2	1.494	24.902	62.435	1.494	24.902	62.435	1.691	28.178	62.435
3	.673	11.217	73.652						
4	.582	9.696	83.348						
5	.564	9.398	92.746						
6	.435	7.254	100.000						
Extraction Method: Principal Component Analysis.									

Findings Related to Scree Plot



The scree plot associated with the Resilience scale shows that after the second component, the rest of the items are levelling off from the third component onwards. Thus, among the six components, two factors are distinctively identified by the scree plot, which also confirms the finding of the total variance explained table.

Findings related to Rotated Component Matrix

The findings of the Rotated Component Matrix (Table 15) received from the factor analysis conducted on the data collected by using the 'Brief Resilience Scale' help us to identify that both the components have three items each. The detailed findings are as follows:

Table 15		
Rotated Component Matrix^a		
	Component	
	1	2
r1 I tend to bounce back quickly after hard times		.781
r2 I have a hard time making it through stressful events	.764	
r3 It does not take me long to recover from a stressful event.	.302	.721
r4 It is hard for me to snap back when something bad happens.	.793	
r5 I usually come through difficult times with little trouble	-.335	.706
r6 I tend to take a long time to get over set-backs in my life	.778	
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization.		
a. Rotation converged in 3 iterations.		

The findings show that component 1 has three items where the factor loading ranges between 0.793 to 0.764 and component 2 also has three items where the factor loading ranges from 0.781 to 0.706.

Component 1 – Negative Priority to Resilience

The items under component 1 are related to respondents' perception about the negative priority related to resilience and thus the factor is termed as Negative Priority to Resilience.

The component explains 37.533% of variance of the total variance on all the components with acceptable factor loading which ranges from 0.793 to 0.764.

Component 2 – Positive Priority to Resilience

The three items under component 2 are related to the items which indicate the respondents' perception about the positive priority of resilience. Based on the nature of the items, the

factor is also named as Positive Priority to Resilience. The component 24.902% variance of the total variance of all the components with an acceptable factor loading ranges from 0.781 to 0.706.

Findings related to Adult Hope Scale

The final part of the present research deals with the identification of the dimensions of the hopes of the samples by using the Adult Hope scale. The findings are as follows:

Findings related to KMO and Bartlett's Test

The findings of the KMO and Bartlett's Test (Table 16) show that the value of KMO is 0.813 which is greater than 0.6, the acceptable level of the KMO test. Thus, it could be concluded that the sample size is adequate to conduct the Factor analysis. Bartlett's test shows p-value is $0.000 < 0.05$, which means that the variables are related and the correlation matrix is not an identity matrix. Thus, we can continue with the factor analysis.

Table 16		
KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.813
Bartlett's Test of Sphericity	Approx. Chi-Square	1052.575
	df	66
	Sig.	.000

Findings Related to Communalities

The findings of the Communalities table (Table 17) show that all the extraction values are > 0.2 , and thus, we can continue with the factor analysis. Among the different items, the extraction value of the item named, "I have been pretty successful in life." is 0.742, which means that 74.2% of the variability of this item is explained by the factor. On the other hand,

an item named “I am not easily downed in an argument” has an extraction value of 0.325 and thus it could be stated that 32.5% of the variability of this item is explained by the factor.

Table 17		
Communalities		
	Initial	Extraction
h1 I can think of many ways to get out of a jam.	1.000	.504
h2I energetically pursue my goals.	1.000	.541
h3I feel tired most of the time	1.000	.583
h4There are lots of ways around any problem.	1.000	.607
h5 I am not easily downed in an argument	1.000	.325
h6I can think of many ways to get the things in life that are important to me.	1.000	.571
h7I dont worry about my health.	1.000	.477
h8Even when others get discouraged, I know I can find a way to solve the problem.	1.000	.622
h9My past experiences have prepared me well for my future	1.000	.629
h10I have been pretty successful in life.	1.000	.742
h11I usually dont find myself worrying about something	1.000	.655
h12I meet the goals that I set for myself	1.000	.654
Extraction Method: Principal Component Analysis.		

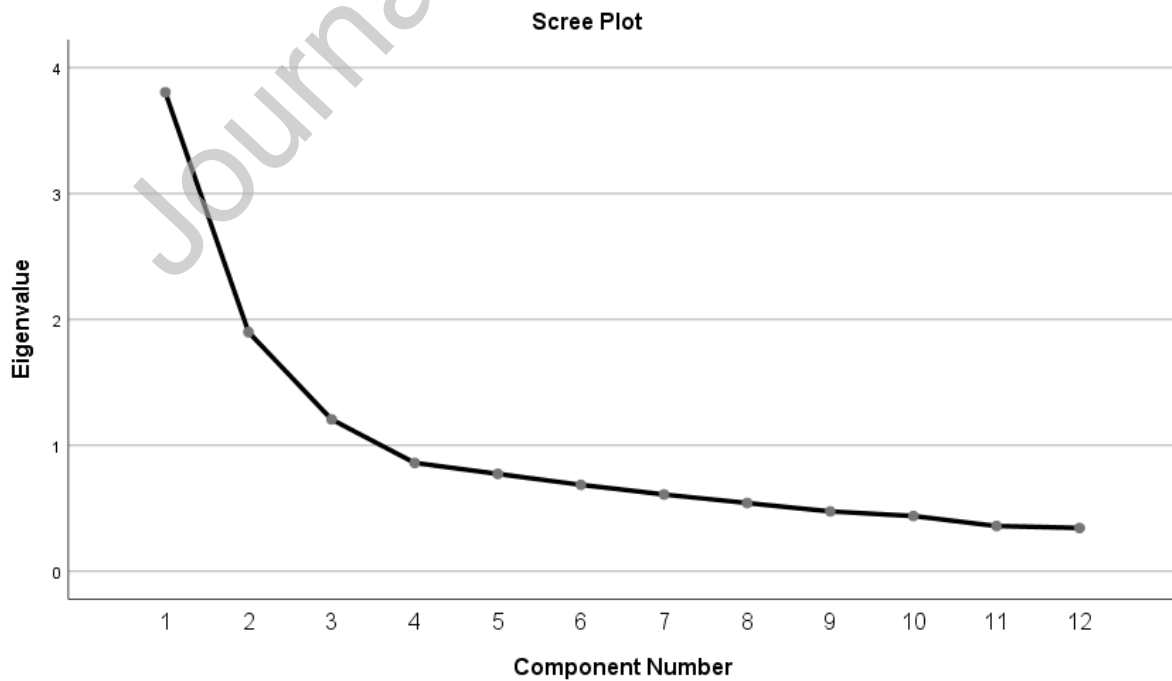
Findings related to Total Variance Explained

Findings of the Total Variance Explained table (Table 18) show that three components have the eigenvalue ≥ 1 . The eigenvalues associated with these components are 3.804, 1.900 and 1.206 respectively. Thus, it could be stated that three factors have been identified by this factor analysis. Among these three factors, the first factor explains 31.702% variance of the total variance. The second factor explains 15.829% variance of the total variance and the third factor explains 10.052% variance of the total variance. Cumulatively they explain 57.583% variance of the total variance. Thus, this could be stated that the findings of the Total Variance Explained table identified three factors which cumulatively explain 57.583% variance of the total variance.

Table 18

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.804	31.702	31.702	3.804	31.702	31.702	2.633	21.942	21.942
2	1.900	15.829	47.531	1.900	15.829	47.531	2.388	19.897	41.839
3	1.206	10.052	57.583	1.206	10.052	57.583	1.889	15.744	57.583
4	.861	7.173	64.756						
5	.773	6.444	71.200						
6	.686	5.721	76.920						
7	.610	5.081	82.002						
8	.542	4.517	86.519						
9	.475	3.962	90.481						
10	.439	3.658	94.139						
11	.360	2.997	97.136						
12	.344	2.864	100.000						

Extraction Method: Principal Component Analysis.

Findings Related to Scree Plot

The scree plot associated with the Adult Hope Scale distinctively points out the presence of three factors. The visual representation shows that beyond the third component, from the fourth component onwards, the rest of the items are levelling-off. Thus, we can state that among the twelve components, three factors are distinctively identified by the scree plot, which also confirms the finding of the total variance explained table.

Findings related to Rotated Component Matrix

The findings of the Rotated Component Matrix (Table 19) received from the factor analysis conducted on the data collected by using the 'Brief Resilience Scale' help us to identify that both the components have three items each. The detailed findings are as follows:

Table 19			
Rotated Component Matrix^a			
	Component		
	1	2	3
h1 I can think of many ways to get out of a jam.		.684	
h2 I energetically pursue my goals.	.474	.545	
h3 I don't feel tired most of the time			.734
h4 There are lots of ways around any problem.		.774	
h5 I am not easily downed in an argument			.563
h6 I can think of many ways to get the things in life that are important to me.		.710	
h7 I don't worry about my health.			.588
h8 Even when others get discouraged, I know I can find a way to solve the problem.	.573	.542	
h9 My past experiences have prepared me well for my future	.688	.394	
h10 I have been pretty successful in life.	.853		
h11 I usually don't find myself worrying about something			.801
h12 I meet the goals that I set for myself	.802		
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 5 iterations.			

The findings show that all the three components have four items each. Component 1 has four items with factor loading ranging from 0.853 to 0.573, component 2 also has four items with

factor loading ranging from 0.774 to 0.542 and component 3 has four items with factor loading ranging from 0.801 to 0.563.

Component 1 – Success Oriented Drive

The four items under component 1 are related to the success-oriented attitude of the respondents and thus the factor is termed as Success Oriented Drive. The component explains 31.702% of variance of the total variance on all the components with acceptable factor loading which ranges from 0.853 to 0.573.

Component 2 – Problem Solving Drive

The four items under component 2 are related to the items which indicate the problem-solving attitude of the respondents. Based on the nature of the items, the factor is also named as Problem Solving Drive. The component explains 15.829% variance of the total variance of all the components with an acceptable factor loading which ranges from 0.774 to 0.542.

Component 3 – Self-Confidence Oriented Drive

The four items under component 3 are related to the self-confidence related attitude of the respondents. Based on the nature of the items, the factor is also named as Self-Confidence Oriented Drive. The component explains 10.052% variance of the total variance of all the components with an acceptable factor loading which ranges from 0.801 to 0.563.

Discussion

Identification of the dimensions of psychological stress, mental health, hope and resilience is a major outcome of this study. The understanding of these dimensions will facilitate the understanding about the impact of these dimensions in developing different types and levels of psychological stress as well as mental health, hope and resilience.

This study was undertaken to estimate the prevalence of psychological stress and examine its socio-demographic correlates, hope and resilience among Indian youth during this current COVID-19 pandemic. Besides this, identification of the dimensions of the stress elements, mental health and that of resilience and hope were also important objectives of the study. The study identified a large number of respondents suffered moderate to a high level of psychological stress during this current COVID-19 pandemic and is found to be consistent with the findings from the previous studies (Grover et al., 2020; Islam et al., 2020). Similar to the findings of Islam et al., (2020), peak of mortality rate during pandemic period and disruption of the normal flow of education, future plans and careers are found to be significant and main reasons for perceived stress. Findings related to the distribution of psychological stress among genders identified females as the gender segment to have higher stress than their male counterparts. Similar findings were received by Qiu et al., (2020); Zhou et al., (2020) in their study on Chinese population, and also in the study of AlAteeq, Aljhani, & AlEesa, (2020); Islam et al., (2020) conducted on the Saudi Arabia and Bangladesh population. But, as mentioned by Smith et al., (2020), to identify pandemic situations as the main responsible factor of mental distress, further longitudinal epidemiological studies are required to be conducted. The study also identified that a single child significantly showed higher psychological stress compared to one or more siblings echoed the findings of Taylor et al., (2008) conducted in Australia. Besides this, the study also identified that mothers, especially with some form of formal qualification and who possess knowledge about the academic progress of their children and wish better performance of their children, were found to be affected by the closure of schools and institutes which lead to increase in their psychological stress. However, since psychological stress positively correlates with other forms of mental health morbidities, appropriate psychological support and counselling for both the youth and their parents may be merited.

Findings of the study also identify a significant association between psychological stress of the respondents and their negative attitude and inability of comprehension or clarification in the context of online teaching and learning. Similar findings have been observed by Dangi and George, (2020); Keskin and Yurdugül, (2019); and Thongsri et al., (2019). Even though the online mode of teaching and learning was a new challenge to most educators and students, the high correlation between technical issues such as poor internet connectivity and perceived stress was expected.

The present study also identified that higher hope and resilience were significantly correlated with lower psychological stress. This finding echoes the unison of the previous studies conducted by Munoz et al., (2020), where the author identified hope and resilience as important predictors of psychological flourishing and also reflects the finding of Duggal et al., (2016) where hope and resilience were identified as predictors of better physical and mental health.

Limitations of the Study

As is usual with most cross-sectional studies, findings from this study cannot assign causal relationships. Collection of online responses, although save time, cannot guarantee the precision of the information. Hence, findings from this study cannot be generalized to the entire population.

Conclusion and Recommendations

The study attempts to identify the dimensions of psychological stress, mental health, hope and resilience and uncover their impact on the youth during the pandemic. Both objectives are successfully achieved. Further study could be conducted to identify the existence of these factors in the post-pandemic world. If the factors remain unchanged and so are their impact,

mental health professionals have to develop mechanisms to confront and redress. There is a need to carry out a retrospective study on challenges faced by parents in dealing with the emotion and stress of their youth during the COVID-19 pandemic. The findings of this type of study would help the administrators of educational institutions to extend online counselling to parents to deal with the emotion of the children and youth comfortably during any crisis. There is also a need to study the stress of teachers in conducting continuous online classes and other challenges faced by them, especially for teachers working in private educational institutions.

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