

Determining Coping Behavior and Negative Mood States in Introverts Vs Extroverts During Lockdown

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ABSTRACT

The sudden outbreak of COVID-19 around the globe was an uncharted ground for psychological health. The study explored the relationship between personality type, coping strategies, anxiety, stress and depression in context to the social isolation due to the coronavirus pandemic in emerging adults. The sample comprised 213 emerging adults. The tools employed were The Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995), Eysenck's Personality Inventory (EPI; Eysenck and Eysenck, 1975), Brief Cope scale (Carver, 1997). The findings showed a significant negative correlation between extraversion and depression. Extraversion was found to be significantly correlated with coping strategies like substance use, use of instrumental support, religion and self blame. Stress was found to be significantly correlated with denial, substance abuse, behavioural disengagement, venting, use of instrumental support, self blame and humour. Anxiety was found to be significantly correlated with denial, substance use, behavioral disengagement, venting, use of instrumental support, self blame and planning. Depression was found to be significantly correlated with active coping, denial, substance use, behavioral disengagement, venting and self blame. Significant differences were also found with respect to depression, substance use, self blame and religion between introvert and extrovert.

Keywords: COVID-19, Personality, Coping, Stress, Anxiety, Depression.

"Mental Illness Is Our Epidemic within the Corona-virus Pandemic" (Miller, 2020).

On March 12, 2020, the World Health Organization declared the COVID-19 outbreak a pandemic. Since the start of April 2020, the government had imposed a lockdown i.e., movement of people was restricted actively. In India 1.3 billion people were ordered to stay inside. The outbreak of Covid 19 has been a threat not only to the physical health but also to the mental health of people as they have become socially withdrawn (Zhang et al., 2020). The unannounced Corona virus created new stressors including fear and worries for oneself or loved ones, constraints on physical movement and social activities due to quarantine, and sudden and radical lifestyle changes. Such stressors gave rise to responses like higher levels of anxiety and depression. Studies have shown a rise in the level

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of stress, anxiety and depression in individuals during the pandemic (Tikader,2021; Salari et al., 2020; Rodríguez-Rey et al., 2020; Wang et al., 2020; Mustafa, 2020; Reddy et al., 2020; Verma & Mishra, 2020; Al Omari et al., 2020).

Roza et al (2020) found that this is also leading to the emergence of a new psychological disorder Hikikomori or “pathological social withdrawal” and is found to be associated with higher prevalence of stress-related mental disturbances, such as anxiety, depression, and especially avoidance behaviors (Reynolds et al., 2008). Although in the situation of a global crisis, stress is a normal response but people with different personalities act differently to it. Individuals are using unique strategies to cope from this situation. Therefore, understanding that how people with different personality react to the change COVID 19 has brought into our lives becomes important in figuring out the coping patterns individuals will adopt.

Being deprived of the social interaction due to the lockdown, individuals with extroversion had greater difficulties during this period as compared to those who are introverts, which have impacted their mental health negatively (Carvalho et al., 2020). Jeronimus, 2020 found that personality differences have lead to different psychosocial and mental health responses in the population during the quarantine period. People are coping with it in a variety of ways. As a result, the new pandemic's effect on the prevalence and seriousness of stress-related disorders would be hugely unpredictable (Vinkers et al. 2020). Therefore, it is important to adapt to healthy coping patterns. Mariani et al, (2020) found that during lockout emotion focused coping seem to escalate anxiety and depressed symptoms, most likely as a result of uncontrollable tense conditions and a strong emotional response. While, family involvement reduced feelings of depression, by combating loneliness.

Though humans are adaptive to change, an unexpected social withdrawal affected the mental health of almost all. During the process of review of literature, we came across many researches explaining the same yet there were not many researches done on seeing the interaction of all these factors together and in addition to that there were limited studies on Covid 19 wth context of Indian population sample.

This research was an attempt to understand the rates of stress, anxiety and depression in a sample of young adults by differentiating them into introverts and extroverts and identifying the coping strategies applied by the two.

METHODOLOGY

Aim

To study the relationship between personality type, coping strategies, anxiety, stress and depression in context to the social isolation due to corona virus pandemic in emerging adults.

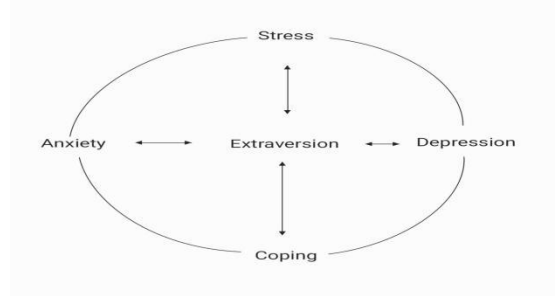
Hypothesis

- H1 There will be a significant relationship between anxiety and personality type
- H2 There will be a significant relationship between stress and personality type
- H3 There will be a significant relationship between depression and personality type
- H4 There will be a significant relationship between coping strategies and personality type
- H5 Depression, anxiety and stress will be significantly related to coping strategies.
- H6 There will be a significant difference between the two personality types, extraversion and introversion on the levels of anxiety, depression, and stress.

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H7 There will be a significant difference between the two personality types, extraversion and introversion on coping strategies.

Design of the Study - It is a mixed study design.



Sample

The sample consists of 213 emerging adults (105 males and 108 females) from India. The subjects were selected using purposive sampling and following inclusion and exclusion criteria.

Inclusion Criteria

1. Males and females between the age group of 18 to 25 years.
2. Participants with working knowledge of English language.
3. Participants who don't have any past history of mental illness.
4. Participants who are college going students.
5. Participants who stayed home in quarantine due to lockdown restrictions since March 2020
- 6.

Measures of the Study

Three measures were used in this study

1. The Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995)
2. Eysenck's Personality Inventory (EPI; Eysenck and Eysenck, 1975)
3. Brief Cope scale (Carver, 1997)

Procedure

The research was carried out in two stages. In the first phase, the study's population was contacted and a sample of 213 emerging adults was chosen on the basis of the inclusion and exclusion criteria. In the second step, the population chosen from the sample was given the study's test using a Google form. Following that, the findings were compiled, and patterns were examined.

Statistical Analysis

To analyze data, calculating mean and standard deviation was used in the descriptive statistics and the Pearson correlation and Independent Sample T-test was used to study hypotheses.

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RESULTS

Table 1. Socio Demographic Details of The Total Sample

Variables	Sub Variables	N	Mean / percentage
Age	18-25	213	20.29
	Females	108	19.96
	Males	105	20.62
Gender	Females	108	50.70%
	Males	105	49.30%
Personality	Introverts	127	59.63%
	Extroverts	86	40.37%
Family Structure	Joint	72	34.8%
	Nuclear	141	65.2%

The total number of participants was 213 with a mean age of 20.29. Of these, 108 (50.70%) were females with the mean age of 19.96 and 105 (49.30%) were males with a mean age of 20.62. The family structure of the participants suggested that 72 (34.8%) of them lived in a joint daily while the remaining 141 (65.2%) lived in a nuclear family. All the participants were unmarried. The sample was further divided according to their personality types into introverts and extroverts. There were 127 (59.63%) introverts and 86 (40.37%) extroverts. The mean stress score was 18.11 i.e., moderate, the mean anxiety score for the sample was 15.76 i.e., severe and the mean depression score for the sample was 16.14 i.e., moderate. It was also reported that females had a greater mean stress (18.83 i.e., Moderate) score as compared to males (17.37 i.e., Mild), while anxiety and depression was almost the same for males and females.

Table 2. Pearson Correlation of Extraversion with Stress, Anxiety and Depression

	Extraversion	Stress	Anxiety	Depression
Extraversion	1	-.099	-.081	-.156*
Stress		1	.742**	.776**
Anxiety			1	.681**

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

To test H1 to H5 Pearson product movement correlation was conducted.

The results suggested that H1 and H2 was rejected as there was a negative correlation between anxiety and extraversion; stress and extraversion. However, the relationship was not significant ($p > 0.05$). Therefore, anxiety and stress levels of an individual did not appear to be associated with extrovert behavior.

H3 was accepted, as there was found a significant negative relationship between extraversion and depression ($r = -0.15$, $p < 0.05$) which suggests that extroverts might face less depression as compared to introverts.

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Table 3. Pearson Correlation of Extraversion with Coping Strategies

	Coping strategies													
	Self-distra ction	Ac tiv e co pin g	De nia l	Subs tance use	Use of emot ional supp ort	Behavi oral disenga gement	Ven ting	Use of instru menta l suppo rt	Posit ive refra ming	Se lf- bla me	Plan ning	Hu mo r	Acce ptanc e	Reli gion
Extrav ersion	.008	.01 1	- .04 1	.179* *	.104	.006	- .04 5	.156*	-.027	- .1 38 *	- .080	.12 8	-.060	- .156 *

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

H4 was partially accepted as the correlation between extraversion and 14 types of coping strategies suggest that there was a significant positive relationship between extraversion and substance use ($r = 0.17$, $p < 0.01$), a significant positive relationship between extraversion and use of instrumental support ($r = 0.15$, $p < 0.05$), a significant negative relationship between extraversion and religion ($r = -0.15$, $p < 0.05$), a significant negative relationship between extraversion and self blame ($r = -0.13$, $p < 0.05$). In general, individuals who are extroverts use more substance use, instrumental support and less practice of religion and self blame as their coping strategies. However, there was also a positive correlation between extraversion and other coping strategies was not found to be significant ($p > 0.05$).

Table 4. Pearson Correlation of Stress, Anxiety, Depression, with Coping Strategies

	Coping strategies													
	Self-distra ction	Act ive cop ing	De nia l	Subst ance use	Use of emot ional supp ort	Behavio ral disenga gement	Ven ting	Use of instru mental suppor t	Posit ive refra ming	Se lf- bla me	Plan ning	Hu mo r	Accep tance	Reli gion
Stress	.099	- .06 7	.41 7**	.135*	.111	.493**	.338 **	.218**	.047	.42 3**	.122	.14 3*	.034	.134
Anxie ty	.007	.05 5	.43 9**	.165*	.041	.406**	.256 **	.163*	.079	.40 4**	.140 *	.11 6	-.002	.119
Depre ssion	-.009	- .17 5*	.43 7**	.179* *	-.070	.468**	.284 **	.031	-.079	.45 5**	.049	.05 3	-.008	.002

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

H5 was also partially accepted as the correlational results of stress, anxiety, depression with 14 coping strategies suggested that a significant positive relationship between stress and denial ($r = 0.41$, $p < 0.01$), stress and behavioural disengagement ($r = 0.49$, $p < 0.01$), stress and venting ($r = 0.33$, $p < 0.01$), stress and use of instrumental support ($r = 0.21$, $p < 0.01$), stress and self blame ($r = 0.42$, $p < 0.01$), anxiety and denial ($r = 0.43$, $p < 0.01$), anxiety and behavioural disengagement ($r = 0.40$, $p < 0.01$), anxiety and venting ($r = 0.25$, $p < 0.01$),

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anxiety and self blame ($r= 0.40, p< 0.01$), depression and denial ($r= 0.43, p< 0.01$), depression and substance use ($r= 0.17, p< 0.01$), depression and behavioral disengagement ($r= 0.46, p< 0.01$), depression and venting ($r= 0.28, p< 0.01$), depression and self blame ($r= 0.45, p< 0.01$) significant at 0.01 level and , a significant positive relationship between stress and substance use ($r= 0.13, p< 0.05$), stress and humor ($r= 0.14, p< 0.05$), anxiety and substance use ($r= 0.16, p< 0.05$), anxiety and use of instrumental support ($r= 0.16, p< 0.05$), anxiety and planning ($r= 0.14, p< 0.05$) significant at 0.05 level. Which means all these pairs are unidirectional in nature i.e., an increase in one would lead to the increased levels of another and vice versa.

The study also found a significant negative relationship between depression and active coping ($r= -0.17, p< 0.05$) significant at 0.05 level. Which means increasing depression reduces the capacity of active coping in an individual.

However, there was a positive correlation between the other pairs was not found to be significant ($p>0.05$).

Table 5. *t* Test for Significant Difference Between Introverts and Extroverts with Respect to Stress, Anxiety, Depression Of The Total Sample

	Introverts N = 127		Extroverts N = 86		t	Df	Sig. (2-tailed)
	Mean	SD	Mean	SD			
Stress	19.06	9.961	16.72	8.822	1.756	211	.081
Anxiety	16.33	9.868	14.93	8.511	1.073	211	.284
Depression	17.57	10.982	14.02	10.370	2.368	211	.019

To test H6 an independent sample t-test was conducted to compare the depression, anxiety and stress for introverts and extroverts. There were significant differences found with respect to depression [$t(211)=1.75, p=0.019$] in the mean score for introverts ($\underline{M}=17.57, \underline{SD}= 10.98$) was higher than extroverts ($\underline{M}=14.02, \underline{SD}= 10.37$).

However, there was no significant difference found in introverts and extroverts with respect to stress [$t(211)=1.75$] and anxiety [$t(211)=1.07$] as $p>0.05$.

Table 6. *T* Test for Significant Difference Between Introverts And Extroverts With Respect To Coping Strategies Of The Total Sample

	Introverts N = 127		Extroverts N = 86		T	Df	Sig. (2-tailed)
	Mean	SD	Mean	SD			
Self-distraction	5.23	1.470	5.22	1.604	.035	211	.972
Active coping	5.44	1.670	5.38	1.535	.253	211	.800
Denial	3.87	1.782	3.51	1.693	1.486	211	.139
Substance use	2.57	1.318	3.08	1.610	-2.419	157.755	.017
Use of emotional support	4.43	1.655	4.58	1.583	-.688	211	.492
Behavioral disengagement	3.76	1.445	3.55	1.628	1.023	211	.308

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Venting	4.47	1.463	4.09	1.476	1.850	211	.066
Use of instrumental support	4.35	1.734	4.62	1.543	-1.164	211	.246
Positive reframing	5.25	1.690	5.22	1.711	.131	211	.896
Self-blame	4.39	1.791	3.77	1.650	2.584	211	.010
Planning	5.39	1.755	5.00	1.623	1.622	211	.106
Humor	3.80	1.797	4.14	1.880	-1.347	211	.180
Acceptance	5.80	1.635	5.63	1.624	.735	211	.463
Religion	17.57	10.991	13.77	10.292	2.539	211	.012

To test H7 an independent sample t-test was conducted to compare the coping strategies for introverts and extroverts. There were significant differences found in substance use [$t(157.75)=-2.41, p<0.05$] in the mean score for introverts ($M=2.57, SD= 1.31$) was lower than extroverts ($M=3.08, SD= 1.61$), self blame [$t(211)=2.58, p<0.05$] in the mean score for introverts ($M=4.39, SD= 1.79$) was higher than extroverts ($M=3.77, SD= 1.65$), and religion [$t(211)=2.53, p<0.05$] in the mean score for introverts ($M=17.57, SD= 10.99$) was higher than extroverts ($M=13.77, SD= 10.29$).

However, there was no significant difference found in introverts and extroverts with respect other coping strategies as $p > 0.05$.

DISCUSSION

With the rising number of cases of covid-19 affected individuals in the country, there has been much research which includes both internal and external problems that cause discomfort to a person's physical, mental and social well-being (Faulkner et al.,2021, Simon et al.,2021 & Saladino & Auriemma, 2020).

The aim of this study was to study the relationship between personality type i.e. introverts and extroverts and stress, anxiety, depression and the coping strategies used in context to the social isolation due to coronavirus pandemic by emerging adults. The survey was conducted during the first lockdown due to the spread of covid-19 in the country. Although there have been many studies conducted to study the psychological effect of social isolation due to covid-19, this study focused on how the personality type interferes with the individuals' reaction to the stressful situation and their coping pattern to adapt from this pandemic situation.

The findings suggested that extraversion has no relation with the change in the level of anxiety due to covid-19. This means that being an extrovert would make no changes in the amount of anxiety you face due to covid 19. The average anxiety score of the sample was 15.7 i.e., high. Therefore, it can be possible that during the pandemic situation factors fear of infection, fear of death, fear of losing close ones, losses in the business or losing one's job, sudden change in the lifestyle etc might be causing anxiety in most of the individuals irrespective of being an extrovert. The findings were consistent with a previous study by Sharma, 2003 & Norm et al., 2000. However, these results have been contradicted by some previous researches which found a significant negative relationship between extraversion and anxiety (Gomez and Francis, 2003 & Pérez-Mengual et al., 2021). Recent research by Nikčević et al., 2020 also concluded that extraversion was negatively associated with health anxiety, generalized anxiety disorder, and covid-19 anxiety syndrome in US residents.

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The findings showed no prominent relationship between stress and extraversion. This finding was contradicted as previous studies reported significant positive correlation between extraversion and stress (Swickert et al., 2002 & Brouwer et al., 2014). This could be because it is very natural for an individual to face stress during a pandemic. The sudden change in the lifestyle can be triggering and lead to negative emotional experiences. The social restriction might have been in extra stressors faced by the extroverts but the creative means of maintaining social connections via regular video calls, online gaming and virtual meetups with friends and family made it quite easier.

The study reported a negative relationship between depression and extraversion. Similar findings were reported by Wei, 2020; Janowsky, 2001 & Fadda & Scalas, 2006. Therefore, it may be deduced that social isolation and lockdown measures have had a greater impact on less extrovert in terms of depression rates. This might be due to extroverts' ability to actively connect with their surroundings and communicate their thoughts and feelings. Meanwhile, extroverts in the current difficult scenario have found ways to keep in touch, such as through the usage of the internet.

While studying the coping patterns from the stressful situation caused by covid, it was reported that extraversion had a positive relationship with coping strategies like use of instrumental support and substance use and a negative relationship with self blame and religion. This suggests that people who are more extroverted in nature would depend more on substances like alcohol or cigarettes to cope up with the stress caused by the pandemic. They will seek tangible or physical help from others like monetary help or depending on someone for their meals. While on the other hand they would not blame themselves for the prevailing situation and won't depend on religious activities.

The study also found significant differences between introverts and extroverts with respect to substance use, self blame and religion. Extraversion was found to be the most significant predictors of substance use like tobacco, alcohol, and cannabis in previous research (Grevenstein, Bluemke & Kroeninger-Jungaberle, 2016; Aurora & Coifman, 2021; Turiano et al., 2012 & Rogers, McKinney & Asberg, 2018). This could be because extrovert adolescents and young adults are more likely to be exposed to social settings where these substances are accessible to them. Therefore, as time passes, they develop a dependence upon them and use it as their coping strategy from a stressful situation. Further a number of studies report that extroverts focus on the positive aspect in a stressful situation (Jackson & Schneider, 2014; Magnus et al., 1993, Hemenover & Dienstbier, 1996). They engage more in social support and seek help from their environment which supports the result of the study which states that extroverts engage more in the use of instrumental support (Amirkhan, Risinger, & Swickert, 1995). Previous studies also reported that extraversion has been inversely related to emotional focused coping and avoidance coping patterns like self blame (Rim, 1987 & Uehara et al., 1999).

Similarly, stress was reported to have a positive relationship with coping strategies like denial, substance use, behavioural disengagement, venting, use of instrumental support, self blame and humour. This suggests that other than humour (Canestrari et al., 2021 & Saricali et al., 2020) and use of instrumental support, the sample reported major use of maladaptive coping strategies during stressful events caused by covid-19. The findings were consistent with other studies in the literature (Kar, Kar & Kar, 2020; Lee et al., 2021; Cheng, Ebrahimi & Lau, 2021 & Agbaria & Mokh, 2021).

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Anxiety was reported to have a positive relationship with coping strategies like denial, substance use, behavioural disengagement, venting, use of instrumental support, self blame and planning. The coping strategies used for the anxiety provoking situation caused by the pandemic are similar to those used during stress but in addition to those, a very helpful coping strategy used in the anxiety provoking situation is planning. As covid-19 has brought an uncertainty in the lives of individuals and it was a sudden change, planning is an important coping strategy to fight back from the situation. Using instrumental support was also another adaptive coping pattern recorded by the ones who were facing high levels of anxiety (Mariani, 2020; Acquadro Maran, 2015; Tuncay et al., 2008 & Vaida et al., 2015). Previous researches supported the finding of relation between anxiety and maladaptive coping patterns (Saniah & Zainal, 2010; Savitsky et al., 2020; Baloran, 2020; Li & Peng, 2020 & Dagli, 2020).

Depression was reported to have a positive relationship with coping strategies like denial, substance abuse, behavioral disengagement, venting and self blame and a negative relationship with active coping. As it is prominent from the symptoms of depression that a person has a low mood state and hence uses maladaptive patterns of coping. An individual facing depression due to covid-19 would never engage into active coping rather would regress his or her emotional state by following avoidant and maladaptive coping patterns. Therefore, it is necessary for individuals to take care of their mental health along with their physical health during the difficult time of the pandemic. This can be supported by previous findings by Kelly, 2007; Saniah & Zainal, 2010; Penland et al., 2000; Mariani, 2020; Samrah et al., 2020 & Fukase et al., 2021.

The data gathered from the sample revealed that there was a moderate degree of stress and depression, as well as a severe level of anxiety. These higher levels might be due to the continued usage of maladaptive coping methods in response to the stresses produced by covid-19.

Due to the sudden switch in the lifestyle of individuals it was very likely to be a stressful situation for everyone during the pandemic. As due to the restrictions social interaction got limited it was you that this might cause more anxiety and stress to extroverts than introverts. However, results showed no significant difference in the levels of anxiety and stress between introvert and extrovert. Apart from separation anxiety due to social restriction there was several factors which led to an increase in the stress and anxiety level of the individuals irrespective of them being introvert or extrovert such as financial crisis, fear of getting infected, fear of losing the loved ones, uncertainty about the situation, exposure to negative news and media coverings, restriction of movement, and sudden change in the lifestyle patterns. The findings were consistent with a previous study by Sharma, 2003 but contradicted by previous research which stated introverts exhibit more anxiety symptoms than extroverts (Arul, 2016). The pandemic situation is equally stressful for both introverts and extroverts and this can be supported by a study done by Liu et al., 2021.

There was also found a significant difference between introverts and extroverts with respect to the levels of depression i.e., introverts exhibit more depression symptoms as compared to extroverts. Similar findings were reported in the studies done by Wijngaards, Zilwa & Burger, 2020 & Wei, 2020. However, these findings appear to contradict the idea that introverts prefer less stimulating surroundings (Cattell, 1965; McCrere and Costa, 1999;

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Myers, 1962), implying that the current lockdown scenario should have been simpler for them.

Lastly, it was observed that extroverts are more likely to engage in substance abuse as compared to introverts which can be supported by the previous finding of this study which shows a positive relationship between extraversion and substance use. It was also reported that introverts are more likely to self blame and engage in religious activities as compared to extroverts during stressful situations. Many researches also support the finding that introverts are more religious as compared to extroverts in stressful situation (Eysenck, 1998; Taylor & MacDonald, 1999; Francis & Lester, 1998; Francis, & Pearson, 1985). As the research was conducted in Indian population where practicing religious activities in the time of stressful situations is natural and a learnt behaviour since childhood. Therefore, this can be a prominent reason for more use of religion as a coping mechanism by the introverts (Fatima et al., 2020 & Biswas, Chatterjee & Sultana, 2021). In addition to these previous researches also have found similar results studying the self blaming pattern in introverts (Yen & Siegler, 2003; Nakano, 1992; Forlano & Axelrod, 1937).

CONCLUSION

We may think that the current study adds to our knowledge of the impact of personality characteristics on depression, stress anxiety, and coping behaviours in young people during a covid-19 outbreak. The research concluded a significant negative correlation between extraversion and depression. Extraversion was found to be significantly correlated with coping strategies like substance use, use of instrumental support, religion and self blame. Stress was found to be significantly correlated with denial, substance abuse, behavioural disengagement, venting, use of instrumental support, self blame and humour. Anxiety was found to be significantly correlated with denial, substance use, behavioral disengagement, venting, use of instrumental support, self blame and planning. Depression was found to be significantly correlated with active coping, denial, substance use, behavioral disengagement, venting and self blame.

The study also found that there were significant differences with respect to depression, substance use, self blame and religion between introvert and extrovert.

Implications

- The present study will serve as a useful literature both for academic and students for insight in understanding the changing dynamics of mental health of the population during the lockdown due to COVID outbreak.
- It will help in throwing on light on how introverts reacted differently as compared to extroverts towards this sudden change of lifestyle and laid groundwork for future researches revolving around mental health during Corona virus outbreak.

Limitations

This study has some limitations that should be noted. To begin with, data was obtained entirely using Google forms, which might have resulted in self-reporting mistakes, social desirability, or poor recall on the part of the individuals. Due to the questionnaire's length, it's also feasible that the participants filled it out on the spur of the moment. Secondly, the research sample was limited to persons between the ages of 18 and 24, i.e., young adults. Moreover, in this study, gender differences and family structure were not taken into account. Finally, the research did not explore ambivert personality type.

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Suggestions

- The limitations of this study have indicated the following recommendations for further work.
- Individuals with different age groups can be studied including the personality type ambivert in context to their psychological well being during the pandemic period.
- Comparative studies can be conducted after the pandemic period is over to study post traumatic symptoms, if any in general population.
- Studies can be done comparing the pre vaccinated and post vaccinated individuals to measure changes in negative mood states.

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