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IMPACT OF COVID-19 ON PSYCHOSOCIAL WELLBEING AND MENTAL HEALTH AMONG GENERAL ADULT POPULATION: A QUESTIONNAIRE BASED SURVEY

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ABSTRACT

Background: The Covid-19 pandemic had a significant impact on public mental health and are asso- ciated with increased symptoms of neuropsychiatric disorders such as depression and anxiety. There- fore, it's essential to keep track of the mental health of the general adult population during the crisis such as pandemic in an immediate priority. This study aids to analyze impact of covid-19 on psychoso- cial health and mental wellbeing among general adult population. **Methods:** A questionnaire based online survey was conducted for a 6 months' survey among general adult population in South Kerala. The information collected were assessed for the prevalence of stress, anxiety, depres- sion symptoms among general population during COVID-19(CORONA VIRUS DISEASE- 019) pandemic using PSS-4 (PERCIEVED STRESS SCALE-4) and PHQ-4 (PATIENT HEALTH QUESTIONNAIRE-4) scale respectively and to assess the impact of precautionarybehaviors towards the mental health of general adult population. **Results:** Among 717 partici-pants, the prevalence of anxiety and depression was 22.7% and 22.5% respectively. Multiple logistic regression analysis revealed that the depression was more prevalent as compared to anxiety in individuals age between 18-35 years and anxiety is more prevalent in individuals of age between 36-55 years. Age, gender, marital status, occupation (student, individuals in pri- vate sector, govt. employee, business, healthcare workers and others), disease threat to family members, self-exposure to disease, social isolation, unemployment are the important factors related to depression and anxiety symptoms. Following precautionary measures very often such as avoiding social gatherings, using homeopathic or ayurvedic remedies, and OTC (OVER THE COUNTER) medications helps to reduce Covid specific psychiatric symptoms.

Conclusion: Some specific individual factors are associated with the prevalence of depression and anxiety among general adult population during Covid-19 pandemic. Early detection of psychiatric disturbance such as depression and anxiety aids for the development of psychological interventions and to prevent psychiatric complications especially for individuals with pre-dominating mental and physical health disorders.

KEYWORDS: COVID-19, Depression, Anxiety, general population.

INTRODUCTION

In December 2019, unusual cases of Pneumonia with an undefined cause were re- ported in Wuhan, the capital of Hubei Province in Central China. Later, the cases have broken out and abruptly spread across the mainland in China. Subsequently, the Pneumonia was diagnosed and identified as the root cause to the Novel Corona virus.[8] By January 7, a Novel Coronavirus, Severe Acute Respiratory Syndrome coronavirus - 2 (SARS-Cov-2), was officially declared as the cause to the corona virus disease 2019(Covid-19). At the end of January 2020, The World Health Organization de- clared Covid-19 as a Public Health Emergency of International Concern and the Vi-rus triggers the Covid-19 Pandemic.[2]

During the first quarter of 2020 the world was in the grip of Covid-19 pandemic. Its impacts have been very extensive and sub- stantial in almost every sphere of human enterprises. To mitigate the spread of infection the affected countries were declared the highest level of public emergency re- sponse and took a series of unusual measures such as imposing lockdown, in- door quarantine, person-person health check-up, wearing mask, massive disinfec-tion public health education programs, as well as school and work place closures.[2]

While we count impacts of the infection rate, person locked down and isolated, live lost, layoffs, business closure, and global fi-nancial impact were upraised. The Covid- 19 pandemic has resulted extremely high level of stress and makes more vulnerable to psychiatric complications. Depression and anxiety are the most frequently exam- ined impact followed by certain community measures such as home quarantine, low in- come, loss of income, pre-existing health conditions in self and others, high level of loneliness, high level of Covid specific worry, low distress tolerance.[14]

Based on the cases and death recorded, Governments defined strict restrictions to reduce the risk of new infections within the population and to protect health care system from excessive

demands. Strict quarantine policies with large personal restrictions which include a complete shutdown of the industry except industries necessary for im- mediate supply of population, pharmacies, hospitals and groceries against the spread- ing of Covid-19. Health crisis due to Covid- 19 epidemic lead to psychological distress examined among general population. Re- cent studies and evidence suggests that peo- ple who are kept in isolation and quarantine experience significant level of anxiety, an- ger, confusion and stress and the affected individuals show several symptoms of mental trauma, such as emotional distress depression, stress, mood swings, irritability, insomnia, attention deficit hyper activity disorder, post- traumatic stress and anger.

It is inevitable to handle emotional and psy- chological problems; for that it is necessary to evaluate the association between public health emergencies and mental health.[11] So it is challenging to predict the approxi- mate level of psychological and emotional consequence among general population.[3] There for it is valuable to elucidate the fac-tors associated with anxiety during the pan- demic and to study the public responses to a health emergency of international concern.[14] It is vital to investigate the mental well- being of public during the pandemic to de- velop community measures and interven- tions to cope up with the emergency situa- tion.[9] By focusing this, a questionnaire based online survey is conducting on 'Impact of COVID-19 on Psychosocial well-being and Mental Health Among Gen- eral Adult Population during COVID-19 Pandemic.

The current study aims to assess the psy- chological status and prevalence of stress, anxiety, depression symptoms among gen- eral population during COVID-19 Pan- demic. This study also aims to study the precautionary behaviors towards the mental health of general adult population.

RESEARCH METHODOLOGY

Study setting and design

An online survey based study was con- ducted from November 2020 to May 2021 by distributing questionnaires to people of south India via social media like WhatsApp, Facebook, and Instagram. Insti-tutional Ethical Committee (IEC) clearance was acquired from the Bapuji Pharmacy College Ethical Committee for mortal sub- ject's research on January 30, 2021. Elec- tronic concurrence was taken from the par-ticipants and all the records were collected kept private. Participators were selected for the study based on inclusion criteria, such as people of any gender above 18 years. People without internet access, age below 18

years and people who were not willing to participate in the study were avoided.

Data collection and procedure

An online link was sent to all the participa-tors involved in the study which consist ofthree section with the concurrence form, so-ciodemographic information and then theparticipants were redirected to the question- naire. The questionnaire consists of differ- ent sections included sociodemographic,occupation, days of quarantine, mental sta-tus before lockdown and during the lock-down period, specific challenges and fears,preventive measures during the pandemic. The questionnaire was rectified and vali-dated by a physician. The sample size was calculated using the reference papers and a airman study was conducted, which showed positive responses from the participants. PSS-4 is an economical and simple psycho-logical tool to administer, comprehend andscore. It measures the degree to which con-dition's in one's life are appraised as stress-ful. The questions in the scale ask about the feelings and thoughts of individuals. PSS-4scale acquired by reverse coding the posi-tive items for e.g.: 0=4,1=3, 2=2 and total-ling across all 4 items. Item 2 and 3 are pos-itively stated items. The PHQ-4 is a 4- ques-tionnaire replied on a four point Likert –type scale. Its aids to allow for ultra-brief and accurate computation of core symp- toms/ signs of depression and anxiety bycombining the two item measure (PHQ-2),consisting of core criteria as depression, aswell as 2- item measure as anxiety(GAD-2). Both of which have separately been shown to be good brief screening tools. The total PHQ-4 score go with the subscale scores as an overall measure of symptom burden, as well as functional impairment and disability.

Data Analysis

Data collected during the survey has en- tered in Microsoft Excel. By manual count-ing we have prepared tables, charts, and pie- charts of the results. Categorical data was constituted in the form of frequency and percentage. Association between varia-bles was evaluated with Chi Square test. Data were analyzed by using IBM SPSS Version 22 for windows.

RESULTS

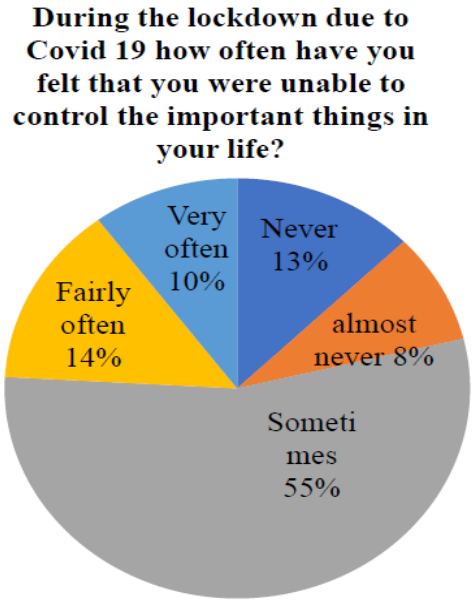
A total of 717(608 of age 18-35), (90 of age30-55) and (19 of age >55) individuals completed the questionnaire with their per- sonnel, social and some other factors shown in Table no: 1.PHQ-4 and PSS-4 among theparticipants were depicted in Figure-1 and Figure-2. The PHQ-4 and PSS-4 scores in- dicates that majority of participants affected with moderate to severe depression and anxiety symptoms. Table no:2 and Figure-3 indicates the correlation analysis between the total scores of PSS and PHQ in the study population. PSS total score increases

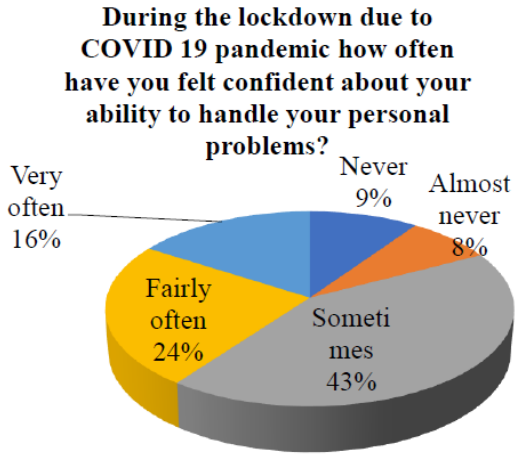
with PHQ total score, the linear regression indi- cates the correlation is highly positive and statistically significant. The logistic regres-sion analysis of related factors of depres- sion and anxiety are shown in Table no: 3 and Table no:4. There is a significant gen- der and age influence in both depression and anxiety symptoms. Individuals belongs to an age group of 18-35 were more af- fected with depression and anxiety. Women's are more affected with depression and anxiety in comparison to men. Individ- uals aged less than 55 years old were more affected with anxiety and depression in comparison to individuals aged >55 years. Compared to non-isolated and non-quaran- tined respondents those who are isolated and quarantined exhibits higher symptoms of depression and anxiety Symptoms. Table no: 5 and Table no:6 indicates measures of significance of influencing factors of de- pression and anxiety regarding participant's precautionary behaviors, the results showed that the various precautionary measures such as avoiding social-gatherings, using homeopathic or ayurvedic remedies and OTC medications and the frequency of pre- cautionary measures taken are the factors which helped to reduce Covid-19 specific fear. Thus indicating these are the important related factors which aids to reduce the de- pression and anxiety symptoms among gen- eral adult population.

Table 1: Sociodemographic characteris-tics of the study participants.

Variables	**Fre- quency(n=717)**	**Percent**
	Gender	
Female	382	53.3%
Male	335	46.7%
	Age	
18-35	608	84.8
36-55	90	12.6
>55	19	2.6
variables	Occupation	percent
Unemployed	7	1.0
Students	419	58.4
Teacher	6	0.8
Private sector	69	9.6
Govt. employee	28	3.9
Accountant	2	0.3
Engineer	6	0.8
Business	73	10.2
Healthcare worker	73	10.2
Housewife	18	2.5
Others	16	2.2
	Comorbidi- ties	
Allergy	9	1.3

Arthritis	1	0.1
Asthma	41	5.7
Bronchitis	8	1.1
Cardiovascular Diseases	10	1.4
Diabetes	33	4.6
Hyperten- sion(high blood pressure)	45	6.3
Hypotension	2	0.3
Hypothyroidism	3	0.4
Thyroid	2	0.3
Multiple sclerosis	1	0.1
PCOD	1	0.1
Sinusitis	1	0.1
Cough	1	0.1
No	574	80.1





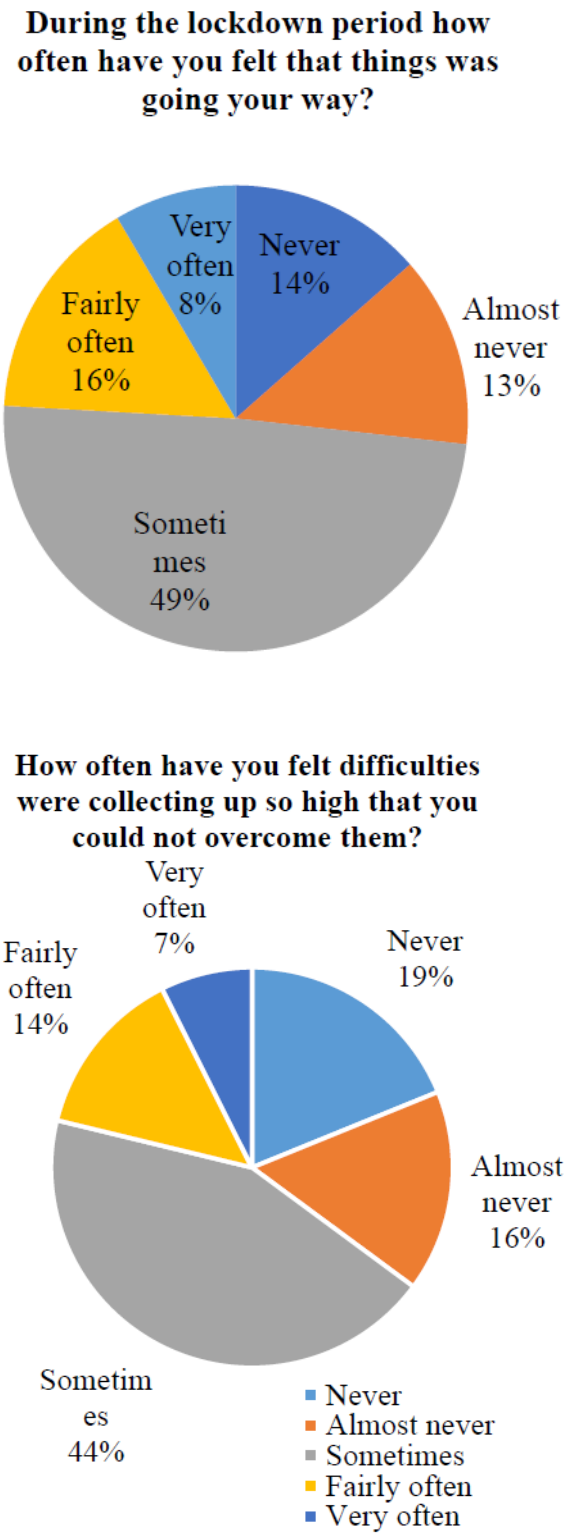


Figure 1: Perceived stress scale (PSS-4) among general adult population during Covid-19 pandemic.

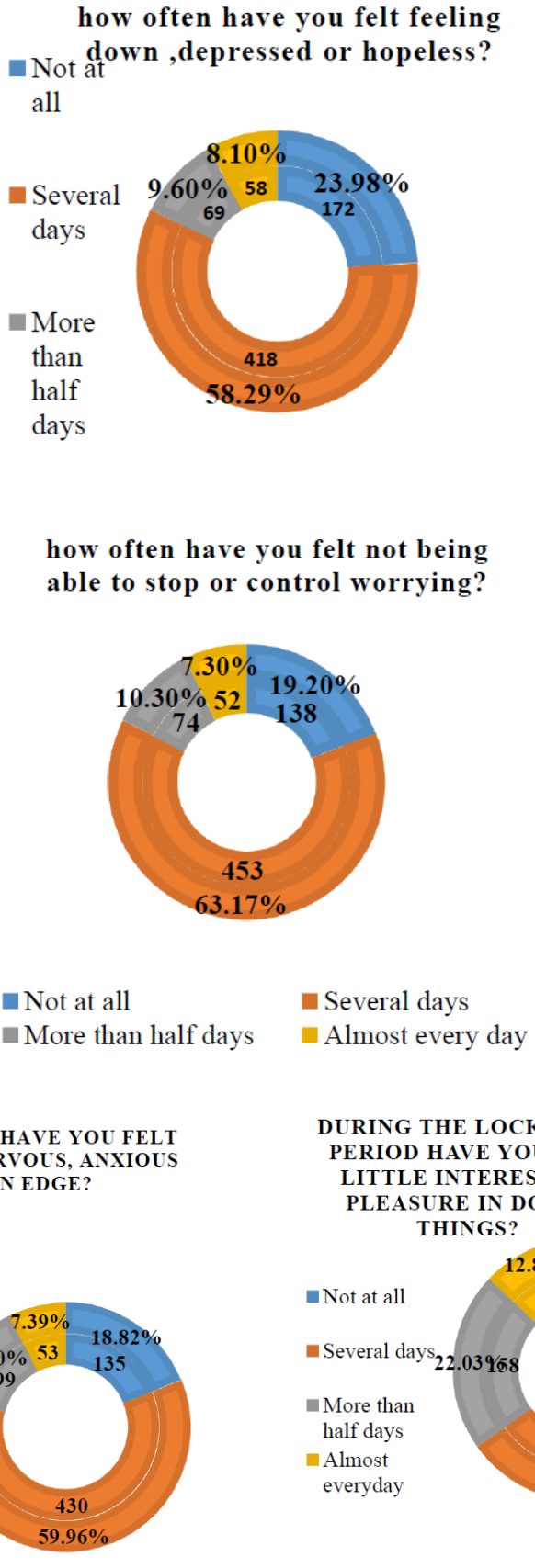
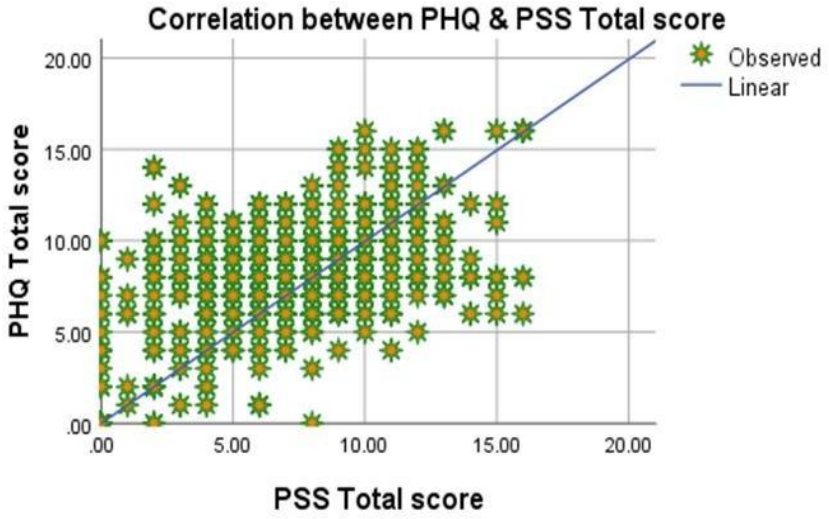


Figure 2: Patient health questionnaire(PHQ-4) among general adult popula-tion during Covid-19 pandemic.

Table 2: Correlation analysis between PHQ-4 and PSS-4 score among general adult population.

PSS - Individual value	PHQ Total Score	
	r Value	P Value
PSS-Q1	0.376	P<0.001*
PSS-Q2	0.27	P<0.001*
PSS-Q3	0.217	P<0.001*
PSS-Q4	0.237	P<0.001*



PSS-Perceived Stress Scale; PHQ- Patient Health Questionnaire; r = Pearson Correlationcoefficient.

Table 3: Logistic regression analysis of the influencing factors of depression among population.

Logistic regression analysis of the influencing factors of depression among population				
Sociodemographic Factors		No of cases	Depression	P Value
Age in yrs.	18 - 35	608	119	P<0.01*
	36-55	90	39	
	> 55	19	4	
Gender	Male	335	79	0.554
	Female	382	83	
Marital Status	Unmarried	553	101	P<0.001*
	Married	155	55	
	Widowed	4	2	
	Divorced	5	4	
Educational Qualification	High School	9	2	0.113
	Higher secondary	110	20	
	Diploma	49	18	
	Graduate	389	83	
	Post graduate	160	39	
	Unemployed	7	3	
	Student	419	80	

Occupation	Teacher	6	0	P<0.03*
	Private sector	69	15	
	Govt. Sector	28	13	
	Accountant	2	1	
	Engineer	6	1	
	Business	73	19	
	Healthcare Worker	73	20	
	Housewife	18	4	
	Other	16	6	

Logistic regression analysis of the influencing factors of depression among population

Covid-19 parameters		No of cases	Depression	P Value
Covid-19 test	Positive	113	32	0.113
	Negative	604	130	
Have any of your family members or friends been infected with COVID-19?	Yes	325	73	0.9
	No	392	88	
Have you been in isolation during the lockdown period?	Yes	183	50	0.07
	No	534	112	
Have you been quarantine during lockdown period?	Yes with family	224	53	0.136
	Yes, quarantined alone	123	35	
	No	370	74	
How stressed did you feel before the COVID19 pandemic started?	Calm	211	44	P<0.004*
	Very calm	85	24	
	Stressed	92	16	
	Very Stressed	66	26	
	Neither stressed nor calm	263	52	
How stressed did youfeel at the moment ofCOVID 19 pandemicand lockdown due to pandemic?	Calm	98	6	P<0.001*
	Very calm	32	3	
	Stressed	248	62	
	Very Stressed	139	69	
	Neither stressed nor calm	200	22	
Have you felt any specific fears during the COVID 19 outbreak? Ifany select from the be- low list:	Diseases threat to family members	319	106	P<0.001*
	Self-exposure to disease	161	68	P<0.001*
	Social isolation	172	64	P<0.001*
	Unemployment	184	65	P<0.001*
	None	206	23	P<0.001*

Table 4: Logistic regression analysis of the influencing factors of anxiety among population.

Logistic regression analysis of the influencing factors of Anxiety among population				
Socio-demographic Factors		**No of cases**	**Anxiety(n=163)**	
Age in years	18 – 35	608	114	P Value P<0.001*
	36-55	90	43	
	> 55	19	6	
Gender	Male	335	59	P<0.002*
	Female	382	104	
Marital Status	Unmarried	553	90	P<0.001*
	Married	155	66	
	Widowed	4	4	
	Divorced	5	3	
Educational Quali-fication	High School	9	0	P<0.02*
	Higher secondary	110	17	
	Diploma	49	18	
	Graduate	389	91	
	Post graduate	160	37	
Occupation	Unemployed	7	1	P<0.001*
	Student	419	76	
	Teacher	6	0	
	Private sector	69	16	
	Govt. Sector	28	13	
	Accountant	2	1	
	Engineer	6	1	
	Business	73	19	
	Healthcare Worker	73	26	
	Housewife	18	3	
	Other	16	7	

Logistic regression analysis of the influencing factors of Anxiety among population				
Covid-19 parameters		No of cases	Anxiety(n=163)	P Value
Covid-19 test	Positive	113	26	0.939
	Negative	604	137	
Have any of your family members or friends been in-fected with COVID-19?	Yes	325	75	0.689
	No	392	84	
Have you been in isolation during the lockdown period?	Yes	183	58	P<0.001*
	No	534	105	
Have you been quarantine during lockdown period?	Yes with family	224	53	0.245
	Yes, quarantined alone	123	34	
	No	370	76	
How stressed did you feel before the COVID 19 pan-demic started?	Calm	211	53	0.386
	Very calm	85	21	
	Stressed	92	19	
	Very Stressed	66	19	

	Neither stressed nor calm	263	51	
How stressed did you feel atthe moment of COVID 19 pandemic and lockdown dueto pandemic?	Calm	98	7	P<0.001*
	Very calm	32	2	
	Stressed	248	66	
	Very Stressed	139	69	
	Neither stressed nor calm	200	19	
Have you felt any specific fears during the COVID 19 outbreak? If any select fromthe below list:	Diseases threat to family members	319	115	P<0.001*
	Self-exposure to disease	161	86	P<0.001*
	Social isolation	172	83	P<0.001*
	Unemployment	184	61	P<0.001*
	None	206	9	P<0.001*

Table-5: Precautionary measures and measure of significance of influencing factors of depression.

Precautionary measures during the COVID 19		**No of cases**	**Depression (n=162)**	**P Value**
Have you taken any precautionary measures during the COVID 19 pandemic period?	Yes	692	158	0.422
	No	25	4	
If yes, what are the measures you have taken? Please select as many as from the below list.	Avoiding social gatherings	343	60	P<0.002*
	Ayurveda/Homeopathic remedies	272	86	P<0.001*
	Use of sanitizers	679	156	0.303
	Wearing masks	689	155	0.756
	Use of home remedies	194	44	0.973
	Use of OTC medications	186	68	P<0.001*
How often did you take the precautionary measures during the COVID 19 pandemic period?	Never	31	4	P<0.02*
	Almost never	24	6	
	Sometimes	149	22	
	Fairly often	195	43	
	Very often	318	87	
Does taking up various precautionary measures help you inreducing your fear of affecting with COVID 19?	Yes	600	111	P<0.001*
	No	117	51	

Table-6: Precautionary measures and measure of significance of influencing factors of anxiety.

Precautionary measures during the COVID 19		**No of cases**	**Anxiety(n-163)**	**P Value**
Have you taken any precautionary measures during the COVID 19 pandemic period?	Yes	692	162	P<0.01*
	No	25	1	
	Avoiding social gather-	343	59	P<0.001*

If yes, what are the measuresyou have taken? Please selectas many as from the below list.	ings			
	Ayurveda/Homeo- pathic remedies	272	89	P<0.001*
	Use of sanitizers	679	161	P<0.001*
	Wearing masks	689	161	P<0.04*
	Use of home remedies	194	35	0.068
	Use of OTC medica- tions	186	70	P<0.001*
How often did you take the precautionary measures dur-ing the COVID 19 pandemicperiod?	Never	31	1	P<0.001*
	Almost never	24	6	P<0.001*
	Sometimes	149	23	P<0.001*
	Fairly often	195	46	P<0.001*
	Very often	318	87	P<0.001*
Does taking up various pre-cautionary measures helpedyou in reducing your fear of affecting with COVID 19?	Yes	600	111	P<0.001*
	No	117	52	

DISCUSSION

The current study signalizes to the preva- lence of stress as well as anxiety and de- pression among general adult population and the impact of precautionary behaviors towards mental health. The findings denotethat from participants who belongs to an age group of 18- 35 and those who belongsto an age group of 36-55 seem to be more impacted with depression and anxiety symptoms compared to individuals with an age of greater than 55. Among 608 individ- uals who belongs to an age group of 18-35 with positive Covid-19 test, 119 participants were affected with depression and 114 par- ticipants who demonstrated with anxiety. Among 90 individuals who belongs to an age group of 35-55 with positive Covid- test, 39 participants reported depression and 43 participants reported anxiety. The study was conducted on 717 adult populations byadministering PHQ-4 and PSS-4 scales.

Since the beginning of the Covid-19 pan-demic, there has been various research studies were conducted and they have al- ready scrutinized and reported the impact ofCOVID-19 on mental health of distinct general adult population in different coun- tries.

Akshar Aiyer et. al[9] adminis- tered a Perceived Stress Scale 4 and a Pa- tient Health Questionnaire 4 scale on 369 students in United states. They found high prevalence of stress, anxiety and depres- sion in students and especially females were seem to be more impacted with higher level of stress and anxiety. They examined that the prevalence of anxiety and depression is 68% and prevalence of severe anxiety is 34% and 13% reported moderate to severe stress in PSS. In par- allel to this, our study too reports that fe- male population were more affected with depression and anxiety symptoms and While considering the occupation

criteria among sociodemographic factors, 58.4% of participants were students, among them 10.5% of students were reportedanxiety and 11% were reported depres- sive symptoms. This reflects that there isa higher prevalence of depression andanxiety in students. 22.5% of study sub- jects were reported depression and 22.7% reported anxiety symptoms among gen- eral adult population. What was entirely different was our study reports 29.2% of moderate to severe stress in PSS. It is in-teresting that their study evaluated stu- dent's anxiety associated with Covid-19 based on gender, location and education and in contrast to their study, our study evaluated the mental distress based on age, gender, educational qualification, marital status and influence of Covid-spe- cific parameters among general adult population. Their study reveals that gen- der and location of the respondents were significantly associated with severity of PHQ4 and PSS4 and there is a strong cor- relation between the PHQ scores and PSS4 scores. In constant, our study too found that there is strong association be- tween gender and severity of PSS scores and there is a strong correlation between the PHQ scores and PSS4 scores. We did not found a marked difference in the per- centage level of anxiety and depression while considering the whole population. It's because we speculate that this result is based on the Covid-specific parameters(positive covid-19 test).

A study from Germany administered Generalized Anxiety disorder 7(GAD7), Patient Health Questionnaire (PHQ2) and distress thermometer to 15704 residents among German population. They found that44.9% of the study subjects demonstrated as clinically significant generalized anxiety, 14.3% and 65.2 % of participants were de- noted depressed and distressed. Moreover 59% of the population remarked with covid-19 specific fear. Hence Covid spe- cific fear is considered as an extreme sig- nificant risk factor of mental health burden. The overall study results shows being a fe- male and younger people affected with higher level of mental health burden.[21] Al-exander Bauerle et al. In constant to this previous study our study too reports that 22.7% of participants were demonstrated with anxiety and compared to their study we found 8.2% increased level of depres- sion among general adult population. It is interesting, in addition to Covid specific fear we remarked the factors which influ- ence the fear such as disease threat to fam- ily members (44.5%), unemployment (25.7%), social isolation (24. 0%). We also found 12.8% of participants were experi- enced stressed before COVID-19 and 34.6% of participants were experienced stressed during lockdown. 9.2% of partici- pants were experienced very stressed be- fore COVID-19 where 19.4% of partici- pants were experienced very stressed dur- ing lockdown. Similar to previous study, our study found that female gender andyounger population belongs to an age

group of 18-35 are at higher risk of mental dis- tress. There is a significant difference in the level of anxiety as it is higher in our study. We speculate that this difference is based on the culture of each individual.

In an another study from China, among 4607 participants in 31 provinces about the association between the emo- tional and behavioral reaction and the three cognitive appraisals such as perceived se- verity, perceived controllability and knowledge of Covid-19. They have found that negative emotion, positive emotion, sleep problems, aggression, substance abuse, mobile phone use, social participa- tion and precautionary behaviors are differ-entially related to psychological status of public and these are the outcome variables which are differentially associated with publics emotional and behavioral reactions. The study model explains 22.5% of use of precautionary behaviors. Being a female, better physical condition, higher level of educational qualification and good knowledge are some factors associated with the increased use of precautionary behav- iors[8] Jian-Bin Li et al. In parallel to this study we found a shift in depressive and anxiety symptoms, subjects with decreased level of social participation and increased used of precautionary measures helps to re- duce the depressive and anxiety symptoms. In contrast to their study we also found some other outcome variables such as fi-nancial stress (41.7%)., anxiety and panic (22.7%), depression (22.6%), social dis-crimination (!4.6%) which influence the mental status of the population during the pandemic. It is also interesting that in con- trast to the previous study we denote the im-pact of some precautionary behaviors such as use of ayurvedic medications, avoiding of social gatherings and use of OTC medi- cations very often helps to reduce the Covid- specific fear. Among 84% of partic- ipants who have taken these precautionary measures, the individuals with anxiety de- creased to 18.5% and individuals with de- pression decreased to 18.5%. There is a sig-nificant increase in the use of precautionary behaviors as it is higher in our study. We speculate that these differences may be re- lated to cultural differences, because their study was based in china and us in Kerala.

A report from school of health sci- ence in China administered a Centre for Ep- idemiologic Studies Depression Scale (CES-D-20) and the Goldberg Depression and Anxiety Scale to 1160 study subjects. They found that those who are quarantined reported a higher likelihood of depression and anxiety symptoms in comparison to those who are not quarantined. They exam- ined that 26.47% were affected with de- pression and 70.78% were affected with anxiety,[12] Fang Tang et al. In parallel to previous study our study found that com- pared to

non-isolated respondents (20.4) with positive Covid -19 test, isolated re- spondents (27.3%) exhibit higher symp-toms of depression and 31% of isolated par-ticipants who tested positive for Covid-19 exhibits higher anxiety symptoms than 19.6% of non-isolated participants. There is a significant difference in the level of anxi-ety in their study as it is increased when compared to their study. We speculate that this difference is related to the various physical factors associated with the individ-uals.

In addition, we found that there is strong association between mental health of individuals and lockdown. Majority of the affected participants were moderately and severely stressed. Among 163 respondents who were experienced anxiety and panic, 26 individuals were reported positive for Covid- 19 test and 137 individuals were re-ported negative for Covid-19. Its reflects that an increased level of anxiety above its normal level could increase the chances of infection risks.

There are few limitations to our study. Firstly, we were unable to achieve our pro- posed sample size. Secondly, this was an internet-based survey using social media and given the anonymous nature of the sur- vey we were unable to verify the identity or veracity of the respondents and this might have contributed to some bias in the study findings.[9]

This study included a subset of adapted questions from GAD-7 and PHQ-9, which limited the ability to effectively asses the range of anxiety and depression symptoms. In our study, participants were not asked about any pre-existing mental health symp- toms and diagnosis. As our study was com- mencing months after the lockdown initi- ated, the study might be affected by recall bias because some of the study subjects were not able to recall some of the events occurred during lockdown period.

Despite this, our study ensures a pivotal early glimpse for Governments and health officials should come up with accurate in- formation and counter the rumors in a timely manner, and also to reduce the im- pact of misinformation in public. Authori- ties could ensure adequate supply of neces- sary personal protective equipment and other personal hygiene products during a pandemic. Media could provide positive thoughts and attitude towards the spread of an infectious disease, that will protect pub- lic from fear, depression and anxiety.[3] The evaluation of the risk factors and more psychologically vulnerable groups may guide the development of psychological in-terventions.

CONCLUSION

Present study reflects a dazzling degree of mental health distress among general adult population and it is an addition to the grow- ing body of literature which illuminate in the darkness of mental health crisis. The downplaying and unacceptability of the se-riousness of the Covid-19 pandemic is de- liberately associated with neuropsychiatric symptoms. 22.7% and 22.5% of the studysample rated the depression and anxietyduring the outbreak of Covid-19. Financial stress followed by anxiety and panic, de- pression and social discriminations, disease threat to family are thee outcome variable which are differentially related to psycho- logical status of public. Women's are more affected with depression and anxiety symp-toms in comparison to men and individuals aged less than 55 years old were more af- fected with anxiety and depression in com- parison to individuals aged greater than55 years old. Compared to non-isolated re- spondents with test positivity isolated re-spondents exhibit higher symptoms of anx- iety. Present study reports that various pre-cautionary measures taken during the pan- demic helps to reduce Covid specific fear. According to the analysis, it can be con-cluded that in the situation of current crisis, it is vital to consider more vulnerable sub-jects from different groups and at different layers of populations. So that the present study findings provide an orientation for the development of appropriate psychological strategies, techniques and interventions and aids to improve and preserve the mentalhealth of general adult population.

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Author's Contribution

All the authors have contributed equally.

Conflict of Interest

The authors declare no conflicts of interest.

Ethics Declaration

The protocol was verified by the institutional ethical committee, Davangere. In- formed

consent was obtained from all individuals voluntarily completed the onlinesurvey.

Consent for Publication

All authors have given their consent for publication.

Competing Interests

The author declare that they have no competing interests.

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REFERENCES

1. Traunmuller C, Stefitz R, Gaisbachgrabner K, Schwerdtfeger A. Psychological correlates of COVID-19 pandemic in the Austrian population. J. *BMC Public Health*, 2020; 20(1): 1-16.
2. Peng Y, Pei C, Zheng Y, Wang J, Zhang K, Zheng Z, Zhu P. A cross-sec-tional survey of knowledge, attitude andpractice associated with COVID-19among undergraduate students in China. J. *BMC Public Health*, 2020; 20(1): 1-8.
3. Salari N, Hosseinian-Far A, Jalali R, Vaisi-Raygani A, Rasoulpoor S, Mo- hammadi M, Rasoulpoor S, Khaledi- Paveh B. Prevalence of stress, anxiety, depression among the general popula- tion during the COVID-19 pandemic: a systematic review and meta-analysis. J.*Globalization and Health*, 2020; 16(1): 1-11.
4. Jiang W, Liu X, Zhang J, Feng Z. Men- tal health status of Chinese residents during the COVID-19 epidemic. J. *BMC Psychiatry*, 2020; 20(1): 1-14.
5. Gao H, Hu R, Yin L, Yuan X, Tang H, Luo L, Chen M, Huang D, Wang Y, YuA, Jiang Z. Knowledge, attitudes and practices of the Chinese public with re- spect to coronavirus disease (COVID- 19): an online cross-sectional survey. J. *BMC Public Health*, 2020; 20(1): 1-8.
6. Ren Z, Zhou Y, Liu Y. The psycholog- ical burden experienced by Chinese cit- izens during the COVID-19 outbreak: prevalence and determinants. J. *BMC Public Health*, 2020; 20(1): 1-10.
7. Shevlin M, McBride O, Murphy J, Mil-ler J G, Hartman K T, Levita L, MasonL, Martinez A P, McKay R, Stocks T VA, Bennett K M, Hyland P, KaratziasT, Bentall R P. Anxiety, depression, traumatic stress and COVID-19-related anxiety in the UK general population

during the COVID-19 pandemic. J. *BJPsycho Open*, 2020; 6(6): 1-9.

8. Li J,Yang A, Dou K, Wang L, Zhang M, Lin X. Chinese public's knowledge,perceived severity, and perceived con- trollability of COVID-19 and their as- sociations with emotional and behav- ioural reactions, social participation, and precautionary behaviour: a nationalsurvey. J. *BMC Public Health*, 2020; 20(1): 1-14.
9. Aiyer A, Surani S, Gill Y, Iyer R, Su- rani Z. Mental Health Impact of Covid- 19 on Students in the USA: A Cross Sectional Web-Based Survey. J. *J Dep Anxiety*, 2020; 20(9): 1-9.
10. Mani A, Estedlal A R, Kamali M, Ghaemi S Z, Zarei L, Shokrpour N, Heydari S T, Lankarani K B. Mental health status duringCOVID-19 pan- demic in Fars Province, Iran: timelymeasures. J. *BMC Public Health*, 2020; 20(1): 1-11.
11. Ettman C K, Abdalla S M, Cohen G H,Sampson L, Vivier P M, Galea S. Prev-alence of Depression Symptoms in US Adults Before and During the COVID-19 Pandemic. J. *JAMA Netw. Open*, 2020; 3(9): 1-12.
12. Tang F, Liang J, Zhang H, Kelifa M M,He Q, Wang P. COVID-19 related de- pression and anxiety among quaran- tined respondents. J. *Psychol Health*, 2021; 36(2): 164-78.
13. Amer A A, Farrag S. The Psychological Impact of COVID-19 on a Sample of Young People in Arab Society. J. *Pedi-atr. Ther*, 2020; 10(5): 1-19.
14. Liu M, Zhang H, Huang H. Media ex- posure to COVID-19 information, risk perception, social and geographicalproximity, and self-rated anxiety in China. J. *BMC Public Health*, 2020; 20(1): 1-8.
15. Kujawa A, Green H, Compass B E,Dickey L, Pegg S. Exposure to COVID-19 pandemic stress: Associations with depression and anxiety in emerging adults in the United states. J. *ADAA*, 2020; 37(12): 1280-88.
16. Zhao G, Ford E S, Li C, Greenlund K J, Croft J B, Balluz L S. Use of folic acid and vitamin supplementation among adults with depression and anxiety: a cross-sectional, population-based sur-vey. J. *Nutr. J*., 2011; 10(1): 1-10.
17. Feter N, Caputo EL, Doring IR, Leite JS, Cassuriaga J, Reichert FF, Silva MC, Coombes JS, Rombaldi AJ. Sharpincrease in depression and anxietyamong Brazilian adults during theCOVID-19 pandemic: findings from the PAMPA cohort. J. *Public Health*, 2021; 190: 101-7.
18. Hou F, Bi F, Jiao R, Luo D, Song K. Gender differences of depression and anxiety among social media users dur- ing theCOVID-19 outbreak in China:a cross-sectional study. J. *BMC PublicHealth*, 2020; 20(1): 1-11.

19. Velden P G V D, Contino C, Das M, Loon P V, Bosmans M WG. Anxiety and depression symptoms, and lack of emotional support among the general population before and during the COVIS-19 pandemic. A prospective national study on prevalence and risk factors. J. *J. Affect. Disord*, 2020; 277: 540-8.
20. Notivol J B, Garcia P G, Olaya B, Lasheras I, Anton R L, Santabarbara J. Prevalence of depression during the COVID-19 outbreak: A meta-analysis of community-based studies. J. *Int. J. Clin. Health Psychol*, 2021; 21(1): 100- 96.
21. Bauerle A, Teufel M, Musche V, Weismuller B, Kohler H, Hetkamp M, Dorrie N, Schweda A, Skoda E M. In- creased generalized anxiety, depression and distress during the COVID-19 pan- demic: a cross-sectional study in Ger- many. J. *J. Public Health*, 2020; 42(4): 672-8.
22. Silva L R B, Seguro C S, Oliveira C G A D, Santos P O S, Oliveira J C M D, Filho L F M D S, Junior C A D P, Gentil P, Rebelo A C S. Physical Inactivity Is Associated With Increased Levels of Anxiety, Depression, and Stress in Bra- zilians During the Covid-19 Pandemic:A Cross-Sectional Study. J. *Front. Psy-chiatry*, 2020; 11: 1-6.
23. Fiorillo A, Sampogna G, Giallonardo V, Vecchio V D, Luciano M, Albert U, Carmassi C, Carra G, Cirulli F, Dall'osso B, Nanni M G, Pompili M, Sani G, Tortorella A, Volpe U. Effects of the lockdown on the mental health of the general population during the COVID-19 pandemic in Italy: Results from the COMET collaborative net- work. J. *Eur. Psychiatry*, 2020; 63(1): 1-9.
24. Ozdin S, Ozdin S B. Levels and predic- tors of anxiety, depression and health anxiety during COVID-19 pandemic inTurkish society: The importance of gender. J. *IJSP*., 2020; 66(5): 504-11.
25. Alaseeri A A, Kotb M A, Alshalwi F M, Alenezi A K, Alkahtani S M, Algraene T S, Alharbi A S, Kamal A M. A studyof the Psychological Impacts ofCOVID-19 Pandemic. J. *J Dep Anxiety*, 2020; 9(5): 1-5.
26. Ran L, Wang W, Ai M, Kong Y, Chen J, Kuang L. Psychological resilience, depression, anxiety, and somatization symptoms in response to COVID-19: A study of the general population in Chinaat the peak of its epidemic. J. *Soc. Sci. Med*, 2020; 262: 1-5.
27. Marbaniang I, Sangle S, Nimkar S, Za-rekar K, Salvi S, Chavan A, Gupta A, Suryavanshi N, Mave V. The burden ofanxiety among people living with HIV during the COVID-19 pandemic in Pune, India. J. *BMC Public Health*, 2020; 20(1): 1-9.
28. Yang R, Li RM, Shaprio L M. COVID-19 Outbreak in China: Use of a Smartphone App(Social Media) forRapid Assessment of Nursing Psycho- logical and Physical Stress

at the Epi- centre of the Outbreak in Wuhan and Local Provinces and Follow-Up When Returned to Normal Residence and Du-ties. J. *J Dep Anxiety*, 2020; 9(4): 1-4.

29. Zink J, Belcher B R, Imm K, Leventhal A. The relationship between screen- based sedentary behaviours and symp- toms of depression and anxiety in youth: a systematic review of moderat-ing variables. J. *BMC Public Health*, 2020; 20(1): 1-37.
30. Ganson K T, Tsai A C, Weiser S D, Benabou S E, Nagata J M. Job Insecu- rity and Symptoms of Anxiety and De-pression Among U.S. Young Adults During COVID-19. J. *J. Adolesc. Health*, 2021; 61(1): 53-6.
31. Bakioglu F, Korkmaz O, Ercan H. Fear of COVID-19 and positivity: Mediating Role of Intolerance of Uncertainty, De- pression, Anxiety, and Stress. J. Int. J. Ment. Health Addict, 2020; 1-14.