

# Depression among Geriatric Population during Covid-19 Pandemic Lock Down in Urban Health Field Practice Area of a Private Medical College, Telangana

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## ABSTRACT

**Introduction:** The World Health Organization (WHO) on January 30, 2020, declared COVID-19 a public health emergency and government of India ordered nationwide lockdown due to which Geriatric population(>65years) had to face many challenges which has affected the mental health component of health. Study objective was to estimate the prevalence of Depression and factors contributing to it in Geriatric population, to determine the factors faced due to Lockdown which are contributing to depression.

**Material and methods:** Cross sectional study among Geriatric population in Urban Field practice area of a private medical college. sample size calculated was 393. Simple random sampling was used for sample estimation. Ethical clearance was obtained from Institutional Ethical committee of the Private Medical college, Sidhipet district. Informed consent also obtained after thorough explanation. Data was collected through Google forms via What's app link. Pretested Prevalidated semi-structured questionnaire having three sections was used for the analysis. Percentages, proportions, Chi-square test using Microsoft Excel Version 2019 software. P < 0.05 was considered as statistically significant.

**Results:** Prevalence of depression was 29.01% out of which 20.87 were moderately and 8.14% were severely depressed. Factors contributing were increasing Age, Female sex, higher education, lower income, unemployment, nuclear family/single living, among persons suffering from chronic illness and having alcohol and smoking habit.

**Conclusion:** Covid factors contributing were history of covid positivity, history of family members covid positive, death of family members due to covid, worries regarding acquiring Infection, difficulty in obtaining medication, essential goods, not having care taker, lonely, increase in physical or emotional abuse and financial loss.

**Keywords:** Depression, Geriatric, Covid Factors

among older adults with chronic conditions, Geriatric population (aged more than 65 years) were categorised as high risk by the WHO and encouraged to maintain rigorous social distancing and Home Isolation thus reducing social contact.<sup>4</sup>

Older persons usually also suffer from functional, cognitive and sensory impairments, one or more chronic illness and other age-related changes.<sup>5</sup>

Challenges have arisen in managing the daily needs, medical needs, financial needs of vulnerable older patients with little face-to-face contact especially in developing Countries Like India where minimal supportive care services are available.

All these were contributing to physical, mental and social health of the older population and highly affected was Mental health component due to impact of social distancing, Isolation and hence Loneliness.

The increase in mental health problems especially in old age group in every nation has become another important global public health because of the measures during the pandemic. Early recognition especially mental health Issues like depression and its contributes is utmost important to prevent serious other complications including suicides and other chronic illnesses.<sup>6</sup>

However, only few studies are available regarding quantifiable information on mental health problems especially depression and its contributes during pandemic especially in India, where high number of cases were reported.<sup>7</sup>

Considering the above background, the present study was conducted with the following objectives,

1. To estimate the prevalence of Depression in Geriatric

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population

- To determine the various factors contributing to Depression
- To determine the factors faced due to Lockdown which are contributing to depression.

## MATERIALS AND METHODS

Cross sectional study was conducted in May 2021- July 2021. Study was done in Catchment area of Urban field practice area includes 11 villages around Turkapally village, Siddipet district with a population of 30,902. Among the total population Geriatric population (>65 Years) were 1506 persons.

Sample size:

$Z \alpha$  is the standard normal deviate, which is equal to 1.96 at 95% confidence interval.

Prevalence of Depression was found to be 24.2%<sup>9</sup>.

Allowable error considered as 15% of prevalence that is 3.63.

Considering sample size formula<sup>8</sup>

$$\text{Sample size } (n) = \frac{z^2 X p(1-p)}{e^2} \div 1 + \frac{z^2 X p(1-p)}{e^2 N}$$

for qualitative cross-sectional study for finite population.

Sample size calculated was 393

### Inclusion criteria

- Permanent residents of the village.
- Residents with age above 65 years
- who have access to smart mobile phone.
- who can read and respond to the questionnaire in google form or accompanied by a person in the family who can do it.
- Who gave consent to participate in the study.

### Exclusion Criteria

- Persons who cannot respond due to age related deafness and similar severe comorbidities.
- Persons who did not give consent to participate in the study.

### Study population

They were 1506 persons among whom 743 were men and 763 were women residing in the village. Out of 1506 residents, only 784 were qualified as per the Inclusion and exclusion criteria and out of these 784, only 735 residents gave consent to participate in the study and among 735, 20 were excluded as they were considered in pilot study. Five more participants were also excluded as they were involved in checking the validity of the questionnaire. Hence study participants finally Included were 710 residents.

**Sampling method** - Since the calculated sample size required was 393, out of the eligible 710 study population, 393 participants were included by simple random sampling technique.

**Ethical Clearance** - Study was conducted after obtaining Ethical clearance from the Institutional Ethical committee of the Private Medical college, Sidhipet district.

**Informed consent** - Details of the population in the field practice area were maintained by urban health center including their phone number, hence before starting data collection all the study participants or their family members/care taker who knew completely about the participant were contacted via telephone with the help of staff in urban health center and then they were explained about the objectives, purpose, and importance of the study and then they were asked to give consent to participate in the study and once consent was given, the questionnaire link was sent to them to their mobile number through WhatsApp.

All the study participants were ensured about the confidentiality of their identity and the results will be used only for research purposes.

### Data collection Procedure

All the urban health center staff and 25 volunteers of the villages who were involved in pilot study were trained regarding the proforma and importance of completeness of proforma and with the help of them the Questionnaire link was sent to all the 393 included participants with the instruction to send the filled questionnaire within 15 days and meanwhile, the study participants were contacted every 3<sup>rd</sup> day to remind them about their submission, to enquire about the difficulties in the proforma and to clarify their doubts.

### Data Collection Tool

Pretested Prevalidated semi-structured questionnaire was developed which was divided into three sections. Most of the questions were open ended.

1<sup>st</sup> section-Demographic variables like age, gender, education, occupation etc

2<sup>nd</sup> section- Characteristics related to covid and lockdown like "worries regarding covid infection" "difficulties regarding approach to health care" "changes in communication" "changes in care and support by family members" etc

3<sup>rd</sup> section- Depression is assessed using "Geriatric Depression scale"<sup>10</sup>. It is a standardized scale. It has 30 questions and responses for all the questions can be answered as "yes or "No" and based on the response one or zero score is given for each question. Total score of the scale is calculated and interpreted as 0-10 as Normal, 11-20 as Moderate Depression and 21-30 as Severe Depression.

Questionnaire was validated and also checked for its clarity, readability, acceptability and repeatability by the 25 volunteers and after their suggested modifications, questionnaire was sent through Google form through WhatsApp link. These 5 volunteers were excluded from the study and were involved in helping other participants in entry an submission of google form.

## STATISTICAL ANALYSIS

Data from the google form automatically gets converted in to excel and hence analysis that is percentages, proportions,

Chi-square test are done using Microsoft Excel Version 2019 software.  $P < 0.05$  was considered as statistically significant.

## RESULTS

Table 1 describes Socio demographic characteristics of study participants,

Age of the participants varied from 65 years to 93 years with mean age of 70.8 years. Majority of participants belong to 65-69 years (47.84%). Female participants (50.12%) were slightly higher than male participants. Regarding education, 33.18% were illiterates and 33.07% were graduates. Majority (55.98%) belong to class IV and V socio economic status. Regarding occupation 86.01% were either retired or house wife and majority that is 95.93% were married. Regarding participants type of family, 54.96% belong to either joint/Three generation family and 6.11% were staying alone. 22.9% and 11.9% were having habit of Alcohol and smoking respectively. 86.51% were suffering from one or more chronic conditions.

Table II describes covid related experiences and changes (related to depression) observed by the participants due to Lockdown, 4.07% were covid positive and 2.04% were hospitalized, 9.16% of the participants experienced family members covid positivity and 1.2% had to face death of family member. Majority (57%) had worries regarding getting Covid infection. 22.9% had difficulty in obtaining medication. 5.85% of the participants were not accompanied by a care taker. Majority (92.11%) had faced changes in Exercise routine and 43% felt loss of Interest and loneliness. Physical and emotional abuse was faced by 22.9% of participants. 27.99% had difficulty in obtaining essential good and 58.02% had financial losses.

Table III describes prevalence of Depression among various participants, Overall, 20.87% had Moderate depression and 8.14% are suffering from severe depression. Prevalence of depression was more among Participants with age more than 75 years (27.37% & 24.21% were having moderate and severe depression respectively) and Females (35.53%). Considering education, graduates and post graduates have higher depression (33.50%) compared to Illiterates (21.12%) and regarding socio economic status Class I & II have lesser depression (9.52%) compared to Class IV & V (45%). Employed (16.36%) have lesser prevalence of depression compared to retired/house wives (31.6%). In joint or three generation family reported lesser prevalence (20.81%) compared to nuclear family participants (45.09%). 40% of Alcoholics and 40.43% of Smokers were having depression. Elders suffering from one or more chronic illness were having higher prevalence of depression (31.47%) compared to others (13.2%).

Table IV compares covid and lockdown experiences of participants with prevalence of depression. It was found that prevalence of depression was significantly ( $P < 0.05$ ) higher among persons who suffered from covid positivity, among persons whose family members were covid positive, who faced death of family member due to covid, who were worried regarding acquiring infection, who faced difficulty

S.no	Characteristics	Number	Percentage
1	Age		
	65-69	188	47.84
	70-74	110	27.99
	75-79	79	20.1
	>80	16	4.07
2	Gender		
	Male	196	49.88
	Female	197	50.12
3	Education		
	Illiterate	71	18
	Primary/Middle school	90	22.9
	High school	35	8.9
	Intermediate	67	17.05
	Graduate	83	21.12
	Post graduate	47	11.95
4	Socio Economic status		
	Class I & Class II	126	32.06
	Class III	47	11.96
	Class IV & V	220	55.98
5	Occupation		
	Employed	55	13.99
	Retired/House wife	338	86.01
6	Marital status		
	Married	377	95.93
	Unmarried	16	4.07
7	Type of Family		
	Joint	90	22.90
	Nuclear	153	38.93
	Three generation	126	32.06
	Single occupancy	24	6.11
8	Habits		
	Alcohol	90	22.90
	Smoking	47	11.96
9	Number of chronic conditions		
	Nil or 1	79	20.1
	2-3	224	57
	>3	90	22.9
	Total	393	100

**Table-I:** Socio demographic characteristics participants

in obtaining medication, Participants not having care taker, who felt lonely, who faced physical and emotional abuse, who faced difficulty in obtaining essential goods and who had financial losses.

## DISCUSSION

In the present study, Overall Prevalence of Depression was 29.01% similar to study conducted by Verma S et al (25%) study<sup>11</sup>, in respondents of China (8.3 to 48.3%) and in Italy (15.4%)<sup>12</sup> and Spain (8.7%)<sup>12</sup> lesser depression prevalence was found during Covid pandemic whereas before start of covid pandemic, the prevalence was lesser as seen by Abhishekh HA et al<sup>13</sup> (14.3%) study in Karnataka in 2013, Goel PK<sup>14</sup> et al (9.4%) study in Uttar Pradesh in 2015, Gupta SK<sup>15</sup> et al (9.6%) in Madhya Pradesh, Ishikawa M<sup>16</sup> et al study in Jammu and Kashmir, Saikia AM<sup>17</sup> et al (17.3%)

S. no	Changes due to Covid Pandemic	Yes (%)	Some times (%)	No (%)
1.	Were you Covid positive any time since the beginning of the pandemic	16(4.07)	NA	377(95.93)
2.	Did you ever got Hospitalized due to Covid	8(2.04)	NA	385(97.96)
3.	Any of you family member were covid Positive	28(7.12)	NA	365(92.88)
4.	Any of you family member were Hospitalized due to covid	8(2.04)	NA	385(97.96)
5.	Did you face death of your family member due to Covid	4(1.02)	NA	389(98.98)
6.	Worries regarding getting Covid infection	224(57)	43(10.94)	126(32.06)
7.	Worries regarding family members getting covid infection	224(57)	43(10.94)	126(32.06)
8.	Did you Cancelled/postponed Health checkup	126(32.06)	169(43)	98(24.94)
9.	Did you face any difficulty in obtaining medication	90(22.9)	126(32.06)	177(45.04)
10.	Do you have caretaker with you	350(89.06)	20(5.09)	23(5.85)
11.	Did you face changes in Exercise routine	362(92.11)	16(4.07)	15(3.82)
12.	Did you face any changes in sleep quality	90(22.9)	138(35.11)	165(41.98)
13.	Did you face any changes in mood or loss of interest (Depressed)	169(43)	94(23.92)	130(33.08)
14.	Do you feel lonely/lack of communication with friends	169(43)	94(23.92)	130(33.08)
15.	Did you face more physical or emotional abuse	90(22.9)	106(26.97)	197(50.13)
16.	Did you face difficulty in obtaining Essential Goods	110(27.99)	106(26.97)	177(45.04)
17.	Did you face financial losses	228(58.02)	8(2.04)	157(39.95)

**Table-II:** Changes due to Covid pandemic and Lock down among participants

Characteristics (Number of participants)	Normal	Moderate Depression	Severe Depression
Age			
65-74(298)	233(78.19)	56(18.46)	9(3.02)
>75(95)	46(48.42)	26(27.37)	23(24.21)
Gender			
Male(196)	152(77.55)	37(18.88)	7(3.57)
Female (197)	127(64.47)	45(22.84)	25(12.69)
Education			
Illiterates(71)	56(78.87)	10(14.08)	5(7.04)
Schooling up to 10 <sup>th</sup> (125)	92(73.6)	23(18.4)	10(8)
Intermediate/graduates/post graduates (197)	131(66.5)	49(24.87)	17(8.63)
Socio Economic status			
Class I & Class II (126)	114(90.48)	8(6.35)	4(3.17)
Class III (47)	44(93.62)	2(4.26)	1(2.12)
Class IV &V(220)	121(55)	72(32.73)	27(12.27)
Occupation			
Employed (55)	46(83.64)	7(12.73)	2(3.64)
Retired/House wife(338)	233(68.93)	75(22.19)	30(8.87)
Marital status			
Married(377)	278(73.74)	70(19.89)	29(7.69)
Unmarried(16)	1(6.25)	12(43.75)	3(18.75)
Type of Family			
Joint /three generation (216)	171(79.17)	40(18.5)	5(2.31)
Nuclear (153)	84(54.9)	42(27.45)	27(17.64)
Habits			
Alcohol (90)	54(60.0)	26(28.89)	10(11.11)
Smoking (47)	28(59.57)	13(27.66)	6(12.77)
Participants with chronic conditions			
Absent (53)	46(86.79)	5(9.43)	2(3.77)
Present (340)	233(68.52)	77(22.65)	30(8.82)
Total	279(70.99)	82(20.87)	32(8.14)

**Table-III:** Prevalence of Depression among study participants

study in Assam, Seby K<sup>18</sup> et al(19.3%) in Maharashtra, Sengupta P<sup>19</sup> et al study(7.3%) in Punjab, Sharma K<sup>20</sup> et al.(11.8%) in Himachal Pradesh. Increase in prevalence might be attributed to pandemic and its effects. In the present study, 20.87% were suffering from Moderate

depression and 8.14% from severe depression, where as in Sindhu Gopal et al<sup>9</sup> study 18.3% had moderate depression and 2.5% had severe depression, in a study by Shankar et al, 37.8% were having moderate depression and 21% were severely depressed. In Nuworza Kugbey et al<sup>22</sup> study in

Characteristics		Total	Normal	Moderate and severe Depression	Chi square (P value)
Covid positive and hospitalized participants	Yes	24(6.1)	6(75)	18(25)	26.25(<0.05)
	NO	369(93.9)	273(73.98)	96(26.02)	
Participants with family members covid positive or hospitalized due to covid	Yes	36(9.16)	4(11.11)	32(88.89)	65.84 (<0.05)
	No	357(90.84)	275(77.03)	82(22.97)	
Participants who faced death of family members due to covid	Yes	4(1.02)	0	4(100)	6.714(<0.05)
	No	389(98.98)	279(71.72)	110(28.28)	
Participants having worry regarding themselves or family members getting covid infection	Yes	224(57)	122(54.46)	102(45.54)	47.61(<0.05)
	No	126(32.06)	114(90.48)	12(9.52)	
Participants who faced difficulty in obtaining medication	Yes	90(22.9)	14(15.56)	76(84.44)	96.71(<0.05)
	NO	177(45.04)	139(78.53)	38(21.47)	
Participants not having care taker	Yes	43(10.94)	3(6.98)	40(93.02)	92.62(<0.05)
	No	350(89.06)	276(78.86)	74(21.14)	
Participants facing changes in exercise pattern	Yes	362(92.11)	273(75.41)	89(24.59)	0.589(>0.05)
	NO	15(3.82)	10(66.67)	5(33.33)	
Participants who felt lonely and lack of communication with friends	Yes	169(43)	81(47.93)	88(52.07)	32.03(<0.05)
	NO	130(33.08)	104(80)	26(20)	
Participants who faced more physical or emotional abuse	Yes	90(22.9)	8(8.89)	82(91.11)	144.62(<0.05)
	NO	197(50.13)	165(83.76)	32(16.24)	
Participants who faced difficulty in obtaining Essential Goods	Yes	110(27.99)	37(33.64)	73(66.36)	52.88(<0.05)
	NO	177(45.04)	136(76.84)	41(23.16)	
Participants who faced financial losses	Yes	228(58.02)	130(57.02)	98(42.98)	47.96(<0.05)
	NO	157(39.95)	141(89.81)	16(10.19)	

**Table-IV:** Impact of Covid and Lockdown on geriatric depression

Ghana, 23.3% mild depression, 9.2% moderate depression and 5.3% severe depression was found.

In the present study 43% felt Lonely during Lockdown, similar to Samuel Yeung Shan Wong <sup>23</sup>et al study (42.4%) and 22.9% in the current study were facing difficulty in sleep quality during pandemic compared to 43.5% <sup>24</sup> in Brazil population. In the present study 32.06%, missed their scheduled medical appointments for chronic disease higher percentage compared to Samuel Yeung Shan Wong et al <sup>23</sup> study in Hong Kong(22%)

In the present study Prevalence of depression was higher with increasing age, among females and with higher education similar to Naveen et al study <sup>25</sup>, Sindhu Gopal et al <sup>9</sup> study. In present study socioeconomic status was negatively associated with depression unlike Naveen et al <sup>25</sup> study. In Usama Rehman et al <sup>26</sup> study also depression in females was found higher. In Anupam Joya et al <sup>27</sup> study in Gujarat, it was found that prevalence of Depression was higher in females, increasing age and lesser income similar to present study but the study found that lesser educated were having higher depression unlike the findings in the present study.

In the present study, not married/ widowed, unemployed, belonging to nuclear family were having higher prevalence of depression similar to Sindhu Gopal et al <sup>9</sup> study and Swapnil Yadav et al <sup>28</sup> study.

From the finding from the present study, it can be said that Elders suffering from one or more chronic illness were having higher prevalence of depression (31.47%) compared to others (13.2%), similar to Sindhu Gopal <sup>9</sup>, Swapnil Yadav <sup>28</sup> study and Samuel Yeung Shan Wong <sup>23</sup> study hence special care should be taken as studies proved that negligence can lead to suicidal tendencies especially during pandemics.

In the present study changes in exercise pattern was not significantly associated with decrease in prevalence of depression, our findings go against the study done in Spain <sup>29</sup>.

Findings of the study found that depression was significantly associated with participants who felt lonely similar

to study in Germany by Felix Müller<sup>30</sup>, Sindhu Gopal<sup>9</sup> study and Anupam Joya<sup>27</sup> et al study.

Depression prevalence was higher, among participants who had difficulty in obtaining essential goods in the current study similar to Usama Rehman et al<sup>26</sup> study.

It was found from the present study that Depression was significantly associated among persons having financial losses similar to Prasanth AK et al<sup>31</sup> study, Usama Rehman<sup>26</sup> et al study and Christoph Pieh<sup>32</sup> et al study.

There were certain Limitations in the present study, that study was not conducted before the COVID-19 outbreak so that results could be compared hence other potential confounding effects on outcomes not attributed to the impact of COVID-19 could not be excluded, including the natural history of deteriorating mental health over time. To overcome this limitation, present results were compared with results before Covid pandemic.

Secondly, study design being Cross sectional study, transient variables that may impact on the depression levels could have been missed.

Thirdly, Data collection method was through Google form/ WhatsApp and not by Face to face interview, hence certain hidden changes would have been unnoticed and persons who have not submitted the Google form were excluded, hence lacking representation of real Geriatric population.

## CONCLUSIONS

Prevalence of depression was 29.01% out of which 20.87% were moderately and 8.14% were severely depressed. Factors contributing were increasing Age, Female sex, higher education, lower income, unemployment, nuclear family/single living, among persons suffering from chronic illness and having alcohol and smoking habit. Covid factors contributing were history of covid positivity, history of family members covid positive, death of family members due to covid, worries regarding acquiring Infection, difficulty in obtaining medication, essential goods, not having care taker, lonely, increase in physical or emotional abuse and financial loss.

## Recommendations

Because of the increasing prevalence of depression due to pandemic, Hospitals should implement remote mental health screening programs and psychiatric consultations using technologies, such as telemedicine and internet based mental health interventions

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