



## **An exploratory study to assess the physiological and psychological impact of the COVID-19 on staff nurses working in the selected hospitals of Ambala, Haryana**

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### **Abstract**

#### **Objectives**

1. To assess the psychological impact of COVID-19 on staff nurses working in the selected hospital of Ambala, Haryana.
2. To assess the physiological impact of COVID-19 on staff nurses working in the selected hospital of Ambala, Haryana.
3. To find out association of physical impact of COVID-19 with their selected socio demographic variables on staff nurses working in the selected hospital of Ambala, Haryana.
4. To find out association of psychological impact of COVID-19 with their selected socio demographic variables on staff nurses working in the selected hospital of Ambala, Haryana.

**Methodology:** A quantitative study by using exploratory survey approach was used to a sample size of 60 Staff nurses were selected by using simple random Sampling technique, assess the psychological and physiological impact and also association between socio-demographic variables and psychological and physiological impact of COVID-19. It enables the researcher to develop the methodology, analysis and interpretation of data.

**Results:** Among 60 subjects, 18.3% had severe psychological impact of COVID-19, 45.0% had moderate psychological impact of COVID-19, 36.7% had mild psychological impact of COVID-19 and 18.3% had severe physiological impact of COVID-19, 68.3% had moderate physiological impact of COVID-19 and 13.3% had mild physiological impact of COVID-19.

The study was found feasible and reliable and the reliability was  $r=0.89$  which shows that tool was internally consistent.

**Keywords:** The keywords of this study include assess, physiological impact, psychological impact, COVID-19, Staff Nurses, Hospital

### **Introduction**

Nurse is just another word to describe a person strong enough to tolerate everything and soft enough to understand everyone.

You don't build a house without its foundation. You don't build a hospital without its nurse.

In 2019 COVID- 19 is a disease caused by a novel coronavirus that originate from the seafood and poultry market in the Chinese city of Wuhan. According to World Health organization (WHO), on March 11, 2020 COVID-19 is considered as a pandemic disease because cases are detected in most countries.

According to Johns Hopkins University, In 17 August 2020, there have been 21,901,102 confirmed coronavirus cases and 774,299 deaths in all world. The Indian Nursing Council (INC) reported that more than nurses have been died from COVID-19. Until 3 June 2020, first case of COVID-19 was founded in Ethiopia on 13 March 2020.

The pandemic disease not only affects physical health but also mental health and wellbeing. The mental wellbeing of staff nurses can be negatively affected by fear of being

exposed to the COVID-19 patients in hospitals, separation from families and confronting the death and illness of patients from COVID-19.

Previous study shown that a higher level of anxiety and depression among the nurses due to their long interaction with the patients. Nurses often face many psychological pressure due to extra work load and working for long hours and in a high risk environment. Nurses are the front line health care professional to work across acute care hospitals long term care agencies nursing home communities. Nurses play a key role in public health response to such crises delivering direct patient care and risk of exposure to the infectious disease. Psychosocial consequences of the COVID-19 are serious for nurses because of a higher level of exposure with patients. Corona virus are a large family of viruses that are known to cause a wide range of illness from the common cold more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). COVID 19 is a new strain of coronavirus that has not been previously identified in humans.

The wide spread of infectious disease COVID 19 are associated with psychological distress and symptoms of mental illness.

The study conducted in China during the initial outbreak of COVID-19 found that 53.8% of rated psychological impact of the break, 16.5% reported moderate to severe depression, 28.8% reported moderate to severe anxiety and 8.1% reported moderate to severe stress level. The review of literature revealed that symptoms of anxiety and depression (16-28%) and self-reported stress (8%) are common psychological reactions to the COVID-19.

The continuous spread of novel corona virus, strict isolation measures and delays in starting school, colleges and universities across the country is expected to influence the mental health of university students.

Due to COVID-19, 8 out of 10 nurses responding to a nurse standard survey told us their mental health had been affected by the pandemic corona disease, while 6 in 10 said their physical health was suffering. In November 2020, 1650 nurses are participated in this survey. As a nurse, it is normal to feel anxious and worried about coping with the pandemic disease COVID-19. They suffer from severe psychological side-effects which may be attributed to extremely long working hours, heavy work load and inadequate supply of personal protective equipments (PPE) supplies, over reporting by audiovisual and social media and various news channels and high rate of infection among staff nurses.

COVID-19 has brought psychological stress around the world. It include stress from significant morbidity and mortality. COVID-19 caused by the severe acute respiratory syndrome corona virus (SARS-COV-2). In South Korea the number of confirmed cases has since the country first confirmed case in 20 January 2020.

Staff nurses are under great physical and psychological pressure as they fight against the COVID-19. The main manifestations of these psychological problems are in a form of a variety if psychosomatic presentations which include onset of panic attack with depression. The negative symptoms of psychological nature are confusion, anger and post-traumatic stress. There are numerous stressors such as fear of contacting the infection virus, frustration. During the 2003 outbreak of SARS, staff nurses reported high levels of anxiety, stress and depression and 89% of staff nurses reported psychological symptoms. Psychological problems may increase the risk of various disorders that are ischemic heart disease, and major depressive disorders. COVID-19 occur more frequently in older adults and those with underlying chronic diseases. The mortality rate is especially high in older adults.

According to Sahuakat *et al.* (2020), in this study, they marked common symptoms such as pyrexia (85%), cough (70%), along with weakness (70%). Higher levels of anxiety, depression, stress, fear, anger and insomnia were seen among staff nurses.

The respiratory disease caused by a new corona virus that was 1<sup>st</sup> detected in China. The virus has been named SARS-COV-2 and the disease it causes has been named corona virus disease 2019. In January 31, 2020 health and human services declared that a public health emergency for the United States to aid the nation's health care community in responding to COVID-19. In March 11, 2020, World Health

Organization declared COVID-19 a pandemic as the number of infected countries grows.

COVID-19 is a large family of viruses that is common people and many different species of animals. The SARS-COV-2 virus is a beta corona virus like MERS-COV and SARS-COV, all three of these viruses have origins in bats. Both MERS-COV and SARS-COV have been known to cause severe illness in people. The complete clinical picture with regarding to COVID-19 is not fully understood. Reported illnesses have ranged mild to severe including illness resulting in death.

Older people compromised with immune system and health condition such as heart, lung diseases and diabetes, seem to be at greater risk of serious illness. In April 30, 2020, have been 3090445 cases of COVID-19 and 217769 death. In China alone there were reported 84373 COVID-19 cases with 4643 deaths. Staff nurses experienced that levels of workload and pressure since the outbreak of COVID-19.

### Need of the study

COVID-19 is a fatal disease and it is a matter of global health concern. Staff nurses are responding to global health crisis are trying to protect individuals, family and other equipment. The multiple roles and functions played by nurses are particularly important during this COVID-19 pandemic by providing health education screening services and support for the general public and individual in high risk categories.

It is necessary to take care of staff nurses of India. India has been already struggling with shortage of staff. There is only one doctor is available for 1343 citizens in the country. According to World Health Organization one doctor is provide care 1000 citizens. In India, 734 doctors are lost while they fighting with corona virus.

A cross-sectional study is done to assess the effect of COVID-19 infection on staff nurses in Southwest Iran. Corona virus infection were infected 5.62% that is 273 out of 4854 cases among health care workers. It mostly occurs in female and the minimal age is 35 years. The majority of infected cases were among staff nurses (51.3%).

Staff nurses have inadequate knowledge of preventive measures and risk factors of COVID-19. Risk of infection are increased due to improper use of safety measures. This study helps the staff nurses to know about the risk factors of COVID-19 and self-care preventive measures of COVID-19. This study improves the knowledge of staff nurses and helps in reducing the risk of COVID-19 infection among staff nurses. If nurses are healthy, they can fight with any pandemic diseases. In some contexts of covid 19, staff nurses face an unprecedented occupational risk of morbidity and mortality. There is need of rapid development of sustainable measures that protect staff nurses from the pandemic.

Every country needs to tailor prevention and control programs to their specific nation context. For these reason, understanding the risk factors of COVID-19 infection and evaluating adherence to IPC measures among staff nurses is important not only for characterizing virus transmission patterns but also for preventing the infection of future staff nurses and those with whom they come into the contact. As such, this study aimed to identify psychological and physiological impact of COVID-19 and self-care measures for prevention of COVID-19 among staff nurses.

### Problem Statement

An exploratory study to assess the physiological and psychological impact of the COVID-19 on staff nurses working in the selected hospitals of Ambala, (Haryana).

### Objectives

1. To assess the psychological impact of COVID-19 on staff nurses working in the selected hospital of Ambala, Haryana.
2. To assess the physiological impact of COVID-19 on staff nurses working in the selected hospital of Ambala, Haryana.
3. To find out association of physical impact of COVID-19 with their selected socio demographic variables on staff nurses working in the selected hospital of Ambala, Haryana.
4. To find out association of psychological impact of COVID-19 with their selected socio demographic variables on staff nurses working in the selected hospital of Ambala, Haryana.

### Materials Method

A quantitative study by using exploratory survey approach was used to a sample size of 60 Staff nurses were selected by using simple random Sampling technique, assess the psychological and physiological impact and also association

between socio-demographic variables and psychological and physiological impact of COVID-19. It enables the researcher to develop the methodology, analysis and interpretation of data.

### Tools for data collection

The tool consists of 3 parts

**Section A:** It comprised of 10 items seeking information of socio- demographic data such as Age, Gender, Religion, Education, Occupation, Marital status, Residence, Children, History, of disease, any habits of staff nurses.

**Section B:** It consists of checklist on psychological impact of COVID-19 of staff nurses which comprise of 10 items.

**Section C:** It consists of checklist on physiological impact of COVID-19 of staff nurses which comprise of 10 items.

### Data Analysis

Descriptive statistic was used for frequency, percentage, mean and standard deviation. Inferential statistics were calculated by Chi-test to analyze the data and to test the hypotheses. Tool was used for data collection was socio-demographic variables checklist on psychological impact and physiological impact. The content validity of tool was established by 5 experts in different field of nursing.

### Results

**Table 1:** Frequency and percentage distribution of sample characteristics according to their socio demographic variables N=60

Sr. No.	Selected Variables	Frequency(f)	Percentage (%)
<b>1)</b>	<b>Age</b>		
a)	21-30	19	32
b)	31-40	26	43
c)	41-50	13	22
d)	51-56	2	3
<b>2)</b>	<b>Gender</b>		
a)	Male	2	3
b)	Female	58	97
<b>3)</b>	<b>Religion</b>		
a)	Hindu	38	62
b)	Muslim	2	5
c)	Sikh	18	30
d)	Christian	2	3
e)	Others		
<b>4)</b>	<b>Education</b>		
a)	ANM	6	10
b)	GNM	39	65
c)	B.Sc. Nursing	14	23
d)	M.Sc. Nursing	1	2
e)	PHD in Nursing	0	0
<b>5)</b>	<b>Occupation</b>		
a)	Govt. Job (Regular)	41	68
b)	Contractual	19	32
c)	Private Job	0	0
<b>6)</b>	<b>Marital status</b>		
a)	Married	42	73
b)	Unmarried	18	27
c)	Divorced	0	0
d)	Widow	0	0
<b>7)</b>	<b>Residence</b>		
a)	Rural	23	38

b)	Urban	36	60
c)	Semi-urban	1	2
<b>8)</b>	<b>Children</b>		
a)	0	20	33
b)	1	11	19
c)	2	26	43
d)	3	3	5
e)	Above		
<b>9)</b>	<b>History of any disease</b>		
a)	Cardiac disease	0	0
b)	Diabetes mellitus	3	5
c)	Hypertension	6	10
d)	Kidney disease	0	0
e)	Other disease	0	0
f)	None	51	85
<b>10)</b>	<b>Any habits</b>		
a)	Smoking	0	0
b)	Alcohol	0	0
c)	Tobacco chewing	0	0
d)	None of the above	60	100

The data presented in table 3 depicts that less than half (32%) of staff nurses were in the age group of 21-30 years, more than half (43%) of staff nurses were in the age group of 31-40 years, more than (22%) of staff nurses were in the age group of 41-50 years, more than half (3%) of staff nurses were in the age group of 51-56 years. (97%) of staff nurses were female, more than half (3%) of staff nurses. (62%) of staff nurses were Hindu, more than half (30%) of staff nurses were Sikh, more than half (5%) of staff nurses were Muslim, more than half (3%) of staff nurses were Christian. (10%) of staff nurses was qualified with ANM, less than half (65%) of staff nurses were qualified with GNM, one third half (23%) of staff nurses were qualified with B.Sc. Nursing, less than half (2%) of staff nurses was qualified with M.Sc. Nursing. (68%) of staff nurses having Govt. job,

one third (32%) of staff nurses having contractual. (73%) of staff nurses were married, more than half (27%) of staff nurses were unmarried. (38%) of staff nurses were living in Rural area, one third (60%) of staff nurses were living in Urban area, less than half (2%) of staff nurse was living in Semi-urban area. (33%) of staff nurses were not having children, more than half (19%) of staff nurses having one children, one third (43%) of staff nurses having two children, more than half (5%) of staff nurses having 3 children. (5%) of staff nurses having history of Diabetes Mellitus, less than half (10%) of staff nurses having history of Hypertension, one third (85%) of staff nurses were not having history of any disease. 100% of staff nurses were not having any habits.

**Table 2:** Mean, median, standard deviation and range of Psychological impact of COVID-19 on staff nurses.

Descriptive Statistics	Mean	SD	Median	Maximum	Minimum	Range	Mean %
Psychological Impact Score	4.45	2.12	4.00	9	1	8	44.5

The data presented in Table 2.1 depicts that the mean psychological impact score of COVID-19 on staff nurses was 4.45, median was 4.00 with obtained range of 8,

standard deviation was 2.12, mean percentage was 44.5%, maximum value was 9 and minimum value was 1.

**Table 2:** Frequency and percentage distribution of psychological impact of COVID-19 on staff nurses according to measure the criteria. N=60

Category Score	Frequency(f)	Percentage (%)
Severe (7-10)	11	18.3%
Moderate (4-6)	27	45.0%
Mild (0-3)	22	36.7%

The data presented in Table 2.2 depicts that more than half (45.0%) of staff nurses had moderate score of psychological impact followed by less than half (36.7%) had mild score and 18.3% had severe score of psychological impact.

#### Checklist on Physiological impact of COVID-19 on staff nurses

Mean, median, standard deviation and range of Physiological impact of COVID-19 on staff nurses. These are presented in Table.

**Table 3:** Mean, Median, S.D and range of Physiological impact of COVID- 19 on staff nurses.

Descriptive Statistics	Mean	SD	Median	Maximum	Minimum	Range	Mean %
Physical Impact score	5.18	1.31	5.00	7	2	5	51.8

The data presented in Table 2.3 Shows that Physiological impact score of COVID-19 on staff nurses was  $5.18 \pm 1.31$ , median was 5.00 with obtained range of 5.

Frequency and distribution of Physiological impact of COVID-19 on staff nurses were presented in Table

**Table 4:** Mean, Median, S.D and range of Physiological impact of COVID- 19 on staff nurses.

Descriptive Statistics	Mean	SD	Median	Maximum	Minimum	Range	Mean %
Physical Impact score	5.18	1.31	5.00	7	2	5	51.8

The data presented in Table 2.3 Shows that Physiological impact score of COVID-19 on staff nurses was  $5.18 \pm 1.31$ , median was 5.00 with obtained range of 5.

Frequency and distribution of Physiological impact of COVID-19 on staff nurses were presented in Table

**Table 5:** Frequency and distribution of Physiological impact of COVID-19 on staff nurses according to measure the criteria. N=60

Category Score	Frequency (f)	Percentage (%)
Severe (7-10)	11	18.3%
Moderate (4-6)	41	68.3%
Mild (0-3)	8	13.3%

The data presented in Table 2.4 depicts that more than half (68.3%) of staff nurses were mild score following by one

third (18.3%) had severe score and (13.3%) had mild score of physiological impact.

**Table 6:** Association of psychological impact of COVID-19 on staff nurses with socio demographic variables. N=60

Sr. No.	Variables	Frequency (f)	Percentage (%)	Chi test	df	p-value	Result
1)	Age						
a)	21-30	19	32	9.385	6	0.153	NS
b)	31-40	26	43				
c)	41-50	13	22				
d)	51-56	2	3				
2)	Gender						
a)	Male	2	3	2.529	2	0.282	NS
b)	Female	58	97				
3)	Religion						
a)	Hindu	38	62	4.819	6	0.567	NS
b)	Muslim	2	5				
c)	Sikh	18	30				
d)	Christian	2	3				
e)	Others						
3)	Religion						
a)	Hindu	38	62	4.819	6	0.567	NS
b)	Muslim	2	5				
c)	Sikh	18	30				
d)	Christian	2	3				
e)	Others						
4)	Education						
a)	ANM	6	10	7.030	6	0.318	NS
b)	GNM	39	65				
c)	B.Sc. Nursing	14	23				
d)	M.Sc. Nursing	1	2				
e)	PHD in Nursing	0	0				
5)	Occupation						
a)	Govt. Job (Regular)	41	68	2.094	2	0.351	NS
b)	Contractual	19	32				
c)	Private Job	0	0				
6)	Marital status						
a)	Married	42	73	0.711	2	0.701	NS
b)	Unmarried	18	27				
c)	Divorced	0	0				
d)	Widow	0	0				
7)	Residence						
a)	Rural	23	38	3.139	4	0.535	NS
b)	Urban	36	60				
c)	Semi-urban	1	2				
8)	Children						

a)	0	20	33				
b)	1	11	19	5.504	6	0.481	NS
c)	2	26	43				
d)	3	3	5				
e)	Above						
9)	History of any disease						
a)	Cardiac disease	0	0	5.359	4	0.252	NS
b)	Diabetes mellitus	3	5				
c)	Hypertension	6	10				
d)	Kidney disease	0	0				
e)	Other disease	0	0				
f)	None	51	85				
10)	Any habits						
a)	Smoking	0	0	NS			
b)	Alcohol	0	0				
c)	Tobacco chewing	0	0				
d)	None of the above	60	100				

Significant ( $p < 0.05$ )NS Non Significant ( $p > 0.05$ )

The data presented in Table 3.1 depicts that the findings suggest that computed chi-square ( $\chi^2$ ) value of psychological impact of COVID-19 on staff nurses in age 9.385, gender 2.529, religion 5.925, educational status 7.030, occupation 4.652, marital status 0.711, residence 3.139, children 5.504, history of any disease 5.359, any

habits NS were found to be statistically non-significance at 0.05 level of significance. Thus there was no significance association of psychological impact of COVID-19 on staff nurses with socio demographic variables. Hence research hypothesis (H2) was rejected in this study.

**Table 7:** Association of Physiological impact of COVID-19 on staff nurses with socio demographic variables. N=60

Sr. No.	Variables	Frequency (f)	Percentage (%)	Chi test	df	p- value	Result
1)	Age						
a)	21-30	19	32	5.638	6	0.465	NS
b)	31-40	26	43				
c)	41-50	13	22				
d)	51-56	2	3				
2)	Gender						
a)	Male	2	3	0.959	2	0.619	NS
b)	Female	58	97				
3)	Religion						
a)	Hindu	38	62	2.941	6	0.816	NS
b)	Muslim	2	5				
c)	Sikh	18	30				
d)	Christian	2	3				
e)	Others						
4)	Education						
a)	ANM	6	10	3.907	6	0.689	NS
b)	GNM	39	65				
c)	B.Sc. Nursing	14	23				
d)	M.Sc. Nursing	1	2				
e)	PHD in Nursing	0	0				
5)	Occupation						
a)	Govt. Job (Regular)	41	68	1.798	2	0.407	NS
b)	Contractual	19	32				
c)	Private Job	0	0				
6)	Marital status						
a)	Married	42	73	0.886	2	0.642	NS
b)	Unmarried	18	27				
c)	Divorced	0	0				
d)	Widow	0	0				
7)	Residence						
a)	Rural	23	38	0.955	4	0.916	NS
b)	Urban	36	60				
c)	Semi-urban	1	2				
8)	Children						
a)	0	20	33	2.318	6	0.888	NS
b)	1	11	19				



c)	2	26	43				
d)	3	3	5				
e)	Above						
9)	History of any disease						
a)	Cardiac disease	0	0	5.061	4	0.281	NS
b)	Diabetes mellitus	3	5				
c)	Hypertension	6	10				
d)	Kidney disease	0	0				
e)	Other disease	0	0				
f)	None	51	85				
10)	Any habits						
a)	Smoking	0	0				
b)	Alcohol	0	0				
c)	Tobacco chewing	0	0	NS			
d)	None of the above	60	100				

Significant (p&lt;0.05)

NS Non Significant (p&gt;0.05)

The data presented in Table 3.2 depicts that the findings suggest that computed chi-square ( $X^2$ ) value of physiological impact of COVID-19 on staff nurses in age 5.638, gender 0.959, religion 2.749, educational status 3.907, occupation 3.583, marital status 0.886, residence 0.955, children 2.318, history of any disease 5.061, any habits NS were found to be statistically non-significant at 0.05 level of significance. Thus there was no significant association of physiological impact of COVID-19 on staff nurses with socio demographic variables. Hence research hypothesis (H2) was rejected in this study.

### Conclusion

It was concluded that there was 60 subjects, 18.3% had severe psychological impact of COVID-19, 45.0% had moderate psychological impact of COVID-19, 36.7% had mild psychological impact of COVID-19 and 18.3% had severe physiological impact of COVID-19, 68.3% had moderate physiological impact of COVID-19 and 13.3% had mild physiological impact of COVID-19.

### Conflict of interest

There was no such conflict and bias during the study.

**Source of Finding:** It is self funded research study.

**Ethical clearance:** No ethical issue exist.

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