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Post COVID Symptoms among Employees in a Tertiary Care Centre

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Abstract
*The present study was conducted to assess the Post COVID symptoms among employees in a tertiary care centre, Thiruvananthapuram. The objectives of the study were to assess the Post COVID symptoms among employees and to find the association of Post COVID symptoms with selected socio personal and clinical variables. Non-**e**xperimental retrospective study design was used for the study. 130 employees who tested positive for COVID-19 by RTPCR or antigen assay in KIMSHEALTH, Thiruvananthapuram and who satisfied the inclusion criteria during the period from July 2020 to 31st December 2020 were participated in the study by purposive sampling technique. Self reported questionnaire to assess sociopersonal variables and clinical variables and Post COVID Symptom Assessment Checklist consisting of 27 questions to assess the Post COVID symptoms among employees were administered via Google forms. The study findings showed that among the study participants in systemic symptoms, 23.8% had fever, 59.2% had fatigue and 40% had sleep disturbance during the first month of infection. In respiratory system, 24.6% had difficulty in breathing, 31.5% had dyspnea on exertion and 23.8% had nasal congestion /runny nose, 30.8% had sore throat /throat pain, 25.4% had cough. In cardio vascular system 8.5% had chest pain and 19.2% had palpitation. Regarding gastrointestinal symptoms, 13.8% had nausea, 6.2% had vomiting, 16.2% had heart burn/gastritis and 10.8% had diarrhea and in central nervous system symptoms, 46.9% had headache, 9.2% had mental confusion 18.5% had anxiety/distress. Considering the musculoskeletal symptoms 46.2% had body ache, 42.3% had joint pain and 31.5% had muscle weakness. In sensory symptoms majority (44.6%) had loss of taste, 46.9% had loss of smell and 6.9% had blurred vision. Regarding genitourinary symptoms, 4% had decreased urine output, 9.2% had excessive discharge from genitalia. In Integumentary symptoms 4.65% had skin rashes during 3-6 months and 3.1% had other symptoms during the first month. There was statistically significant association between post COVID symptoms with selected socio personal variables and clinical variables.*

***Key word**: Post Covid symptoms*

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I. Background of the study

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered corona virus which has spread worldwide affecting developed, developing and underdeveloped countries in more than one year. The COVID-19 infection had adversely affected all dimensions of human life including physical, psychological, social and financial aspects of health. The ferocity of COVID-19 ranges from mild to severe ARDS and even death.[1]

The COVID-19 is a multisystem disease, with extra respiratory complications affecting the cardiac (arrhythmias and myocardial injury), renal (acute kidney injury), gastrointestinal, nervous (neuropathy, encephalopathy), endocrine and musculoskeletal (weakness, pain, and fatigue) systems. [2]Post COVID-19 syndrome is manifested with clinical features which are persistent after recovering from COVID-19 infection. It affects major body organs like heart, brain, kidney, lungs, alimentary tract, skin, endocrine system, joints, muscles and general immunity.[2]

The impact of COVID-19 on workers and workplaces across the globe has been dramatic and peak in magnitude. It is evident that either symptoms persist or new symptoms emerge after the COVID-19 infection for majority of people.[2] Hence it is important to evaluate Post COVID related emergent symptoms and their sustained ill effects.

II. Need And Significance

The Coronavirus disease 2019 (COVID-19) pandemic has evolved as a global emergency affecting millions of people including healthcare workers.[1]

A cohort study was conducted among 1733 patients who discharged from hospital in China during January to May 2020 to assess the consequences of COVID -19. The authors reported that 56% of patients had symptoms that ranged from fatigue to muscle weakness, 23% had insomnia, 15% experienced alteration in smell and taste, 12% of patients reported serious complications that include dyspnoea and chest pain and 6% had acute kidney injury after COVID infection.[3]

Another study in China also reported various post COVID complications. It was a retrospective study aimed at evaluating the clinical and epidemiological characteristics of patients with COVID -19. Twenty nine patients were included in the study between the periods of January 2020 and April 2020. The analysis revealed that 65% of them had co-morbidities like cardiovascular disease, digestive disease and type2 diabetes mellitus. Many post COVID patients were found to have elevated white blood cell counts and infection markers with decreased hemoglobin and altered coagulation profile. Myocarditis and thyroiditis were more frequent in patient with co- morbid diseases and 70% of patients showed ground-glass opacities in X- ray. [4]

An observational cohort study conducted in US also reconfirms that post COVID complications among the survivors. It was a study conducted among 1648 patients with COVID-19 with the objective of describing sixty day post discharge clinical, financial and mental health outcomes .The study was conducted from March to July 2020.The result showed that 24.2% died during hospitalization and 75.8% survived. Cardiopulmonary symptoms like dyspnoea, palpitation and chest pain were reported by 12.7% patients, 4.6% patients reported new or worsening difficulty in completing activities of daily living. 48.7% of patients reported being emotionally affected and among them 11.7% had sought for mental health support after their discharge. 14.32% patients were reported to have a mild financial impact from their hospitalization. [5]

Another study conducted in Wuhan among 5062 Health care workers to measure psychological impact of COVID-19.[7] The authors measured stress, depression, and anxiety, discovering that 29.8% of respondents reported stress, 24.1% reported anxiety, and 13.5% reported depression. Women, individuals with history of mental disorders, and HCWs with infected family members were more vulnerable to undesirable health consequences of stress, anxiety, and depression. [6]

Statement of the problem

A study to assess the Post COVID symptoms among employees in a tertiary care centre, Thiruvananthapuram.

Objectives

- To assess the Post COVID symptoms among employees.
- To find the association of Post COVID symptoms with selected socio personal and clinical variables

III. Materials And Methods

Study Setting:

KIMSHEALTH, Thiruvananthapuram.

Study Period:

March 2021 to July 2021

Study Design:

Non-**e**xperimental retrospective study.

Study Population:

All employees tested positive for COVID-19 by RTPCR or antigen assay in KIMSHEALTH, Thiruvananthapuram during the period from July2020 to 31st December 2020 were eligible for this study.

Inclusion criteria:

1. Employees who have completed six months after the COVID-19 infection.
2. Employees who were able to read and understand Malayalam and English.

Exclusion criteria:

1. Employees who were not willing to participate.
2. Employees who cannot comply the online modes of data collection.
3. Employees who were pregnant.
4. Patients who had COVID-19 infection more than one time.

Sample size:
Sample size n =130
Sampling technique: Purposive Sampling.

IV. Methodology

The study subjects were selected on the basis of information received from KIMSHEALTH Infection control department. From the details, the study subjects meeting the inclusion criteria enrolled into the study using purposive sampling technique. The participants contacted personally and informed about the study. The informed consent obtained via online (all their doubts were clarified over phone or in person) and the data collection forms administered via Google forms. The link for it shared either by watsapp or email. The participants accessed the same on their mobile phones or laptops or desktop computers.

STUDY VARIABLES:
1. Demographical variables- Age, gender, education, place of residence and profession.
2. Clinical variables- Co-morbidities, habits, source of COVID infection, history of hospitalization, ICU Admission and date of COVID tested negative.
3. Post COVID symptoms -Symptoms either persisting or newly emerged after incidence of COVID-19 infections.

STUDY TOOLS:
Tool 1: Self reported questionnaire.
Section A: Socio personal variables
Section B: Clinical variables.
Tool 2: Post COVID Symptom Assessment Checklist
DATA COLLECTION METHODS
All the data collected using structured questionnaire and checklist via Google forms.

V. Analysis and Interpretation of data:

The data collected from 130 study participants were tabulated and analyzed using SPSS (Statistical Package for Social Sciences) software on the basis of objectives and hypothesis formulated in the study.
The data were organized and presented under the following headings.
Section A: Description of sociopersonal variables of Post COVID symptoms among employees.
Section B: Description of Post COVID symptoms among employees.
Section C: Association of Post COVID symptoms with selected socio personal and clinical variables.

Section A: Description of sociopersonal variables of Post COVID symptoms among employees.

Table 1: Frequency distribution and percentage of sociopersonal variables:
n=130

Sample characteristics	Frequency	Percentage
Age		
Below 30 yrs	59	45.4
30-39 yrs	52	40.0
40-49 yrs	15	11.5
50-59 yrs	4	3.1
Gender		
Male	29	22.3
Female	101	77.7
Education		
Primary	5	3.8
Higher secondary	12	9.2
Graduate/diploma	91	70.0
Post graduate and above	22	16.9
Profession		
Health care professional	104	80.0
Non health care professional	26	20.0

Table 2: Frequency distribution and percentage of clinical variables: n=130

Sample characteristics	Frequency	Percentage
Co morbidities		
Hypertension	5	3.8
Diabetes	4	3.1
Asthma /COPD	7	5.4
Heart disease	2	1.5
Neurological disease	2	1.5
Using immunosuppressive drugs	3	2.3
none	107	82.3
Habits		
Smoking	1	.8
Alcoholism	6	4.6
None	123	94.6
Source of COVID infection		
Co worker	54	41.5
family/relatives	19	14.6
Friends	2	1.5
Unknown	55	42.3
Hospitalization		
Yes	75	57.7
No	55	42.3
ICU admission		
No	130	100.0
COVID-19 test negative		
After 1 week	69	53.1
After 2 weeks	52	40.0
After 3 weeks	7	5.4
More than 3 weeks	2	1.5

Section B: Description of Post COVID symptoms among employees.

Table 3: Frequency distribution and percentage of Post COVID symptoms among employees: n=130

Post COVID symptoms	Frequency	Percentage
Fever		
0-1 month	31	23.8
1-3 months	2	1.5
3-6 months	3	2.3
Fatigue		
0-1 month	77	59.2
1-3 months	31	23.8
3-6 months	13	10.0
Sleep disturbance		
0-1 month	52	40.0
1-3 months	19	14.6
3-6 months	10	7.7
Difficulty in breathing		
0-1 month	32	24.6
1-3 months	13	10.0
3-6 months	12	9.2
Dyspnea on exertion		
0-1 month	41	31.5
1-3 months	20	15.4
3-6 months	18	13.8
Nasal congestion /running nose		
0-1 month	31	23.8
1-3 months	6	4.6
3-6 months	6	4.6
Cough		
0-1 month	33	25.4
1-3 months	8	6.2
3-6 months	6	4.6
Sore throat/throat pain		
0-1 month	40	30.8

1-3 months	16	12.3
3-6 months	7	5.4
Chest pain		
0-1 month	11	8.5
1-3 months	4	3.1
3-6 months	4	3.1
Palpitation		
0-1 month	25	19.2
1-3 months	9	6.9
3-6 months	9	6.9
Nausea		
0-1 month	18	13.8
1-3 months	3	2.3
3-6 months	4	3.1
Vomiting		
0-1 month	8	6.2
1-3 months	1	.8
3-6 months	2	1.5
Heartburn/gastritis		
0-1 month	21	16.2
1-3 months	9	6.9
3-6 months	9	6.9
Diarrhea		
0-1 month	14	10.8
1-3 months	3	2.3
3-6 months	1	.8
Headache		
0-1 month	61	46.9
1-3 months	21	16.2
3-6 months	11	8.5
Mental confusion		
0-1 month	12	9.2
1-3 months	4	3.1
3-6 months	3	2.3
Anxiety/ distress		
0-1 month	24	18.5
1-3 months	7	5.4
3-6 months	6	4.6
Body aches		
0-1 month	60	46.2
1-3 months	19	14.6
3-6 months	13	10.0
Joint pain		
0-1 month	55	42.3
1-3 months	21	16.2
3-6 months	14	10.8
Muscle weakness		
0-1 month	41	31.5
1-3 months	14	10.8
3-6 months	13	10.0
Loss of taste		
0-1 month	58	44.6
1-3 months	14	10.8
3-6 months	2	1.5
Loss of smell		
0-1 month	61	46.9
1-3 months	8	6.2
3-6 months	2	1.5
Blurred vision		
0-1 month	9	6.9
1-3 months	1	.8
Decreased urine output		
0-1 month	1	4
3-6 months	2	1.5
Excessive discharge from genitalia		
0-1 month	12	9.2
1-3 months	5	3.8
3-6 months	5	3.8
Skin rashes		
0-1 month	4	3.1
1-3 months	4	3.1

3-6 months	6	4.6
Other symptoms		
0-1 month	4	3.1
1-3 months	1	.8
3-6 months	2	1.5

Section C:

Table 4: Association of Post COVID symptoms with selected socio personal and clinical variables.

n=130

Post COVID symptoms	df	Chi square value	'P' value
FEVER AND CHILLS			
Education			
0-1 month	3	17.914*	7.81
1-3 months	3	16.673*	7.81
Profession			
0-1 month	1	6.100*	3.84
Co morbidities			
1-3 months	6	15.010*	12.59
Source of infection			
0-1 month	3	10.092*	7.81
COVID negative			
1-3 months	3	8.35*	7.81
FATIGUE			
Source of infection			
1-3 months	3	11.831*	7.81
Covid test negative			
1-3 months	3	8.514*	7.81
SLEEP DISTURBANCE			
Gender			
0-1 month	1	8.056*	3.84
Co morbidities			
3-6 months	6	17.504*	12.59
DYSPNEA ON EXERTION			
Hospitalization			
1-3months	1	4.819*	3.84
NASAL CONGESTION			
Age			
0-1 month	3	11.088*	7.81
3-6 m0nths	3	14.765*	7.81
Education			
0-1 month	3	9.147*	7.81
Hospitalization			
0-1 month	1	6.010*	3.84
COUGH			
Education			
3-6 months	3	10.602*	7.81
Hospitalization			
1-3 months	1	6.251*	3.84
Covid test negative			
0-1 month	3	8.180*	7.81
SORE THROAT			
Profession			
0-1 month	1	5.642*	3.84
Co morbidities			
3-6 months	6	16.567*	12.59
CHEST PAIN			
Covid test negative			
3-6 months	3	15.228*	7.81
PALPITATION			
Gender			
0-1 month	1	5.986*	3.84
Hospitalization			
1-3 months	1	7.091*	3.84
3-6 months	1	3.855*	3.84
NAUSEA			
Gender			
0-1 month	1	5.999*	3.84
VOMITTING			

Education			
0-1 month	3	11.521*	7.81
Covid test negative			
3-6 months	3	8.356*	7.81
HEART BURN			
Habits			
1-3 months	2	6.859*	5.99
Hospitalization			
3-6 months	1	3.855*	3.84
DIARRHEA			
Hospitalization			
0-1 month	1	5.451*	3.84
HEADACHE			
Gender			
0-1 month	1	5.604*	3.84
1-3 months	1	7.191*	3.84
Hospitalization			
1-3 months	1	5.552*	3.84
3-6 months	1	5.432*	3.84
MENTAL CONFUSION			
Hospitalization			
3-6 months	1	4.188*	3.84
ANXIETY/ DISTRESS			
Gender			
0-1 month	1	5.589*	3.84
BODY ACHE			
Hospitalization			
1-3 months	1	4.119*	3.84
3-6 months	1	4.290*	3.84
JOINT PAIN			
Age			
0-1 month	3	11.192*	7.81
Gender			
1-3 months	1	7.191*	3.84
Co morbidities			
3-6 months	6	27.298*	12.59
Source of infection			
0-1 month	3	8.181*	7.81
Hospitalization			
3-6 months	1	5.047*	3.84
MUSCLE WEAKNESS			
Gender			
1-3 months	1	4.505*	3.84
Source of infection			
0-1 month	3	10.758*	7.81
LOSS OF TASTE			
Gender			
1-3 months	1	4.505*	3.84
Co morbidities			
0-1 month	6	14.405*	12.59
3-6 months	6	15.090*	12.59
Covid test negative			
0-1 month	3	8.669*	7.81
LOSS OF SMELL			
Co morbidities			
0-1 month	6	13.510*	12.59
1-3 months	6	19.176*	12.59
Source of infection			
0-1 month	3	11.552*	7.81
BLURRED VISION			
Co morbidities			
0-1 month	6	18.461*	12.59
EXCESSIVE DISCHARGE			
Source of infection			
0-1 month	3	7.793*	7.81
OTHER SYMPTOMS			
Co morbidities			
3-6 months	6	20.591*	12.59

VI. Results

Section A:

Sample characteristics based on socio personal variables.

Socio personal data showed that among 130 patients, 45.4% were within the age group of below 30 years and 77.7% were females. Among the study participants, 70.0% were graduate/diploma and 80% were health care professionals.

Sample characteristics based on clinical variables.

Among the 130 participants, 17.6 % had various co morbidities, 94.6% had no habits and 42.3 % had unknown source of infection. Regarding hospitalization, 57.7% were hospitalized, none had ICU admission and 53.1% become negative after one week of COVID infection.

Section B:

Sample characteristics based on Post COVID symptoms among employees.

The study findings showed that among 130 the study participants in systemic symptoms, 23.8% had fever, 59.2% had fatigue and 40% had sleep disturbance during the first month of infection. In respiratory system, 24.6% had difficulty in breathing, 31.5% had dyspnea on exertion and 23.8% had nasal congestion /runny nose, 30.8% had sore throat /throat pain, 25.4% had cough. In cardio vascular system 8.5% had chest pain and 19.2% had palpitation. Regarding gastrointestinal symptoms, 13.8% had nausea, 6.2% had vomiting, 16.2% had heart burn/gastritis and 10.8% had diarrhea and in central nervous system symptoms, 46.9% had headache, 9.2% had mental confusion and 18.5% had anxiety/distress. Considering the musculoskeletal symptoms 46.2% had body ache, 42.3% had joint pain and 31.5% had muscle weakness. In sensory symptoms majority (44.6%) had loss of taste, 46.9% had loss of smell and 6.9% had blurred vision. Regarding genitourinary symptoms, 4% had decreased urine output, 9.2% had excessive discharge from genitalia. In Integumentary symptoms 4.65% had skin rashes during 3-6 months and 3.1% had other symptoms during the first month.

Section C:

Association of Post COVID symptoms and selected socio personal and clinical variables

- There was statistically significant association with fever and education in 0-1 month (χ^2=17.914, $p < 0.05$) and 1-3 months (χ^2 =16.673) $p < 0.05$ .The result showed that there was statistically significant association between fever with profession in 0-1 month (χ^2 =6.100) $p < 0.05$, co morbidities within 1-3 months (χ^2 =15.010) $p < 0.05$, source of infection in 0-1 month(χ^2 =10.092) $p < 0.05$ and COVID test negative in 1-3 month (χ^2 =8.35) $p < 0.05$.
- There was statistically significant association with fatigue and source of infection in 1-3 months (χ^2 =11.831) $p < 0.05$ and COVID test negative in 1-3 months (χ^2 =8.514) $p < 0.05$.
- There was statistically significant association with sleep disturbance and gender in 0-1 month (χ^2 =8.056) $p < 0.05$.
- There was statistically significant association with difficulty in breathing and co morbidities in 3-6 months (χ^2 =17.504) $p < 0.05$.
- There was statistically significant association with dyspnea on exertion and hospitalization in 1-3 months (χ^2 =4.819) $p < 0.05$.
- There was statistically significant association with nasal congestion and age in 0-1 month (χ^2 =11.088) $p < 0.05$ and 3-6 months (χ^2 =14.765) $p < 0.05$. There was statistically significant association with nasal congestion and education in 0-1 month (χ^2 =9.147) $p < 0.05$ and hospitalization in 0-1 month (χ^2 =6.010) $p < 0.05$.
- There was statistically significant association with cough and education in 3-6 months (χ^2 =10.602), $p < 0.05$,hospitalization in 1-3 months (χ^2 =6.251) $p < 0.05$ and COVID test negative in 0-1 month (χ^2 =8.180) $p < 0.05$.
- There was statistically significant association with sore throat and profession in 0-1 month (χ^2 =5.642) $p < 0.05$ and co morbidities in 3-6 months (χ^2 =16.567) $p < 0.05$.
- There was statistically significant association with chest pain and COVID test negative in 3-6 months (χ^2 = 15.228) $p < 0.05$.
- There was statistically significant association with palpitation and gender in 0-1 month (χ^2 =5.986) $p < 0.05$ and hospitalization in 1-3 months (χ^2 =7.091) $p < 0.05$ and 3-6 months (χ^2 =3.855) $p < 0.05$.
- There was statistically significant association with nausea and gender in 0-1 month (χ^2 =5.999) $p < 0.05$.
- There was statistically significant association with vomiting and education in 0-1 month (χ^2 =11.521) $p < 0.05$ and COVID test negative in 3-6 months (χ^2 =8.356) $p < 0.05$.

- There was statistically significant association with heartburn and habits in 1-3 months (χ^2 =6.859) p < 0.05 and hospitalization in 3-6 months (χ^2 =3.855) p < 0.05.
- There was statistically significant association with diarrhea and hospitalization in 0-1month (χ^2 =5.451) p < 0.05.
- There was statistically significant association with headache and gender in 0-1 month (χ^2 =5.604) p < 0.05 and in 1-3 months (χ^2 =7.191) p < 0.05 and statistically significant association with headache and hospitalization in 1-3 months (χ^2 =5.552) p < 0.05 and in 3-6 months (χ^2 =5.432) p < 0.05.
- There was statistically significant association with mental confusion and hospitalization in 3-6 months (χ^2 =4.188) p < 0.05.
- There was statistically significant association with anxiety /distress and gender in 0-1 month (χ^2 =5.589) p < 0.05.
- There was statistically significant association with body ache and hospitalization in 1-3 months (χ^2 =4.119) p < 0.05 and in 3-6 months (χ^2 =4.290) p < 0.05.
- There was statistically significant association with joint pain and age in 0-1 month (χ^2 =11.192) p < 0.05, gender in 1-3 months (χ^2 =7.191) p < 0.05 and co morbidities in 3-6 months (χ^2 =27.298) p < 0.05. There was statistically significant association with joint pain and source of infection in 0-1 month (χ^2 =8.181) p < 0.05 and hospitalization in 3-6 months (χ^2 =5.047 p < 0.05).
- There was statistically significant association with muscle weakness and gender in 1-3 months (χ^2 =4.505) p < 0.05 and Source of infection in 0-1 month (χ^2 =10.758) p < 0.05.
- There was statistically significant association with loss of taste and gender in 1-3 months (χ^2 =4.505) p < 0.05 ,co morbidities in 0-1 month (χ^2 =14.405) p < 0.05 and 3-6 months (χ^2 =15.090) p < 0.05 and statistically significant association with loss of taste and COVID test negative in 0-1 month (χ^2 =8.669) p < 0.05.
- There was statistically significant association with loss of smell and co morbidities in 0-1 month (χ^2 =13.510) p < 0.05 and 1-3 months (χ^2 =19.176) p < 0.05 and statistically significant association with loss of smell and source of infection in 0-1 month (χ^2 =11.552) p < 0.05.
- There was statistically significant association with blurred vision and co morbidities in 0-1 month (χ^2 =18.461) p < 0.05.
- There was statistically significant association with excessive discharge and source of infection in 0-1 month (χ^2 =7.793) p < 0.05.
- There was statistically significant association with other symptoms and co morbidities in 3-6 months (χ^2 =20.591) p < 0.05.

VII. Discussion

Section A: Sample characteristics based on socio personal and clinical variables

The present study revealed that among 130 participants, 45.4% were within the age group of below 30 years and 77.7% were females. Among the study participants, 70.0% were graduate/diploma and 80% were health care professionals. Considering the clinical variables, 17.6 % had various co morbidities, 94.6% had no habits and 42.3 % had unknown source of infection. Regarding hospitalization, 57.7% were hospitalized, none had ICU admission and 53.1% become negative after one week of COVID infection.

This study findings is consistent with findings of another prospective cohort study done in Bangladesh among 355 patients showed that 60% patients were aged <40 years and the post-COVID-19 syndrome was associated with female gender; the ratio of male and female patients was 1.4:1.

Section B: Sample characteristics based on Post COVID symptoms among employees:

Among the study participants in systemic symptoms, 23.8% had fever, 59.2% had fatigue and 40% had sleep disturbance during the first month of infection. In respiratory system,24.6% had difficulty in breathing, 31.5% had dyspnea on exertion and 23.8% had nasal congestion /runny nose, 30.8% had sore throat /throat pain, 25.4% had cough. In cardio vascular system 8.5% had chest pain and 19.2% had palpitation. Regarding gastrointestinal symptoms, 13.8% had nausea, 6.2% had vomiting, 16.2% had heart burn/gastritis and 10.8% had diarrhea. Regarding central nervous system symptoms, 46.9% had headache, 9.2% had mental confusion 18.5% had anxiety/distress during the first month of infection. Considering the musculoskeletal symptoms 46.2% had body ache, 42.3% had joint pain and 31.5% had muscle weakness. In sensory symptoms majority (44.6%) had loss of taste, 46.9% had loss of smell and 6.9% had blurred vision. Regarding genitourinary symptoms, 4% had decreased urine output, 9.2% had excessive discharge from genitalia. In Integumentary symptoms 4.65% had skin rashes during 3-6 months and 3.1% had other symptoms during the first month.

This study findings is consistent with findings of another population-based prospective cohort study conducted among 431 adults showed that 55% had fatigue, 25% had dyspnea, 26% reported symptoms of depression,

32% reported symptoms of anxiety, and 16% reported symptoms of stress, 9% had sore throat and 9% had headache, taste and smell disturbances were reported 5% and rash by 1% of individuals.

Section C: Association of Post COVID symptoms and selected socio personal and clinical variables

There was statistically significant association between post COVID symptoms with selected socio personal variables and clinical variables.

This study finding is consistent with findings of another prospective cohort study conducted in a tertiary care center in Bangladesh. The study was conducted among 400 hospitalized adults patients showed that there is significant association with fever and co morbidities and fever with profession. There is statistically significant association with fatigue and co morbidities and also fever and fatigue with increasing age. The study concluded that the female gender, respiratory distress, lethargy, and long disease duration are critical risk factors for the development of post-COVID-19 syndrome.

VIII. Recommendations

- The study can be repeated to assess the symptoms as the new variance of corona virus is emerging.
- The study can be done among general population with large sample size.
- The study can be repeated among patients with co morbidities.

IX. Conclusion

The study focused on Post COVID symptoms among employees in a tertiary care centre. The study concluded that there are symptoms in each system assessed and found more in 0-1month and the common symptoms include fatigue, sleep disturbance, headache, body ache, joint pain, loss of taste, loss of smell and there is statistically significant association of symptoms with selected sociopersonal and clinical variables.

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