

# Occupational Health Survey among Indian Postal Workers during COVID-19 Pandemic

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## ABSTRACT

In December 2019, the Corona-virus-disease (COVID-19) outbreak was first reported in Wuhan, China. Later on 11th March 2020, World Health Organisation declared this COVID-19 as pandemic. At present, worldwide more than 30 million people get infected by this. To suppress the frequency of the consequences of this disease when India went into complete lockdown, the largest postal network in the world i.e. Indiapost has become a lifesaver. Even in this critical situation, Indiapost is serving our country by delivering medical equipments including COVID-19 testing kits, ventilators, PPEs, medicines and unlike world-post providing essential financial services even in doorstep. The workers who are providing these tireless services to our nation must not be ignored, so the aim of the present study is to assess their health challenges among postal workers due to COVID 19, using the knowledge of Ergonomics. This is a cross-sectional study performed using online survey procedures from April 1 to September 1, 2020. Study participants were 310 postal workers from different states of India. Among study participants greater number of postal workers both male and female had complained about unintentional panic, sleep deterioration, acute headache than acute body ache. This study can conclude that during this COVID-19 there was both physical and psychological health challenges faced by postal workers but a higher prevalence of psychological symptoms among postal workers were found. These can be mitigated by proper sleep during night, avoiding discussing about panic news for longer time, practicing simple and regular exercises or yogasana etc.

## KEYWORDS

Corona-virus-disease 2019, India post, Health, Sleep, Yogasana.

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## Introduction

In December 2019, China reported the first outbreak of the coronavirus disease (LiQ et al., 2020). World Health Organisation (WHO) on 11 March 2020 declared this coronavirus spreading as pandemic (WHO, 2020). At present, worldwide more than 35 million people get infected by this. This virus is spreading through respiratory droplets from infected persons. Many researchers from various countries have achieved many accomplishments on covid-19, including bunch of important information about virus, clinical characteristics (Guan, 2020), diagnostic protocols (Day, 2020), but no globally approved vaccine is available yet (Lancet, 2020). Considering the seriousness of this pandemic when India went into complete lockdown having an aim to stop the spread of this novel coronavirus. In this condition being the largest postal network in the world, India post has become a lifesaver. When every single day the number of Corona Virus Disease 19 (COVID-19) infected cases are increasing on the other side of this coin postal workers are facing high risk of getting or

being infected and are exposed to long and distressing working hours to meet public requirements. For more than 150 years, the department of posts has been the backbone of the country's communication and has played a crucial role in the country's social economic development. At the very beginning during year 1727 the first post office in country was set up in the Kolkata. In the year 2001, in the form of anthrax United States experienced its first bioterrorism attack, at that time postal workers in U.S. played a crucial role to develop the best practices to cope crisis and made an important emergency risk communication (Quinn et al., 2005). To save postal workers' life against Anthrax Outbreak bioterrorism, occupational risk exposure studies are necessary (Dewan et al., 2002).



Figure 1: Packaging of mails/parcels for delivery.



Figure 2: India Post Serving general public during COVID 19 situation.

Unlike World Post, India Post provides banking facilities everywhere across the nation. Even in this emergency as well critical situation, Indiapost is serving our country by delivering medical equipments including COVID-19 testing kits, ventilators, personal protective equipments (PPEs), medicines and providing essential financial services even at doorstep. In remote corners of India where there is no other option except Indiapost, citizens are getting banking facilities, receiving urgent medicines via parcels from post offices. Despite the fact that postal workers who are providing these tireless services to our nation during this COVID-19 emergency, they must not be ignored so the aim of the present study is to assess their physical along with mental health by using the knowledge of Ergonomics. Ergonomics or Human Factor is a vast area which takes into consideration mainly physical, physiological, psychological and also biomechanical capabilities and improves the effectiveness and productivity of work systems along with ensuring the health, safety and well being of workers (Farnandez, 1998). Participants of this study can broadly be divided into two groups according to their work pattern one is postal assistant these study group mainly do counter related responsibilities and usually need to stay in the office premises during working hours to interact with general public whereas the second group i.e. postmen group who need to provide door to door services during to fulfil their work responsibilities.

## Materials and Methods

This is a cross-sectional study performed using both online and offline survey procedures from April 1 to September 15, 2020. The major study period lies under lockdown period in India due COVID-19. Among total 310 participants online survey study participants were 285 postal workers from different states of India and offline study participants were 25 postal workers from several post offices of Kolkata. Postal workers from 24 to 50 years of age had been surveyed. Among the total study participants 220 were postal assistants and 90 participants were postmen. 235 study participants were working in urban areas and 75 were directly serving rural areas. Among these

total 310 subjects 160 participants were male and 150 were female. Authors followed exclusion criteria that whoever from participants will complain about any previous psychiatric or organic disease diagnosis they will be excluded from statistical evolution but none of the participants have had any.

### **Questionnaire**

Discomfort Analysis Questionnaire- COVID 19 Version (DAQ COVID 19 version) had been developed by the authors in the Occupational Ergonomics Laboratory, University of Calcutta, India. This questionnaire will focus on mainly two aspects and these are psychological symptoms and body ache related symptoms during COVID 19 situation. The principle purpose of this dichotomous questionnaire is to analyse physical and mental discomfort among postal workers working in COVID 19 situation. This questionnaire has 40 components that are dichotomous in nature and the reliability status or the Cronbach Alpha score of this questionnaire is 0.99 i.e. 'excellent'. Online written consents had been taken from all the participants. Before performing the questionnaire subjects were being asked about their demographic data like their gender, age, occupation related details, marital status, from which area they belong (rural or urban), educational status etc. participants were also asked about their previous diagnostic history.

### **Statistical Analysis**

Reliability test, frequency distribution, descriptive report, Z test between groups were being done by using SPSS version 22.0 software.

### **Results**

The mean value of age of the groups in male and female were 38 and 32 years, respectively. Among study participants total percentage of males and 40% of females need to talk to different people from very close proximity everyday to fulfil their tasks. More than 95% of participants failed to maintain proper physical distance while at work.

None of the male participants had sound sleep and in case of female, 81.4% complained the same. About 67.1% of female postal workers and 92.2 % of male postal workers inadvertently worry all day. Among respondents about 82% of workers were staying with their own family after working hours. More than 50% of the study population felt difficulties in remembering things. In Iran among 304 health workers disorders in 28.0% complained anxiety, 30.6% depression 30.6% and 20.1% complained distress due to COVID 19 (Zhang et al. 2020). In United States among 426 doctors 90.8% were noticed negative changes in their behaviour towards family during COVID 19 pandemic (Rodriguez et al 2020).

Prevalence of Sleep disturbances among postal workers living in urban areas is greater than the postal worker living rural areas. In urban area about 84 participants in every 100 people were experiencing inadequate sleep pattern during COVID 19, whereas in rural area about 69 persons were complaining, there is a significant difference between these two group ( $p$  value  $\leq 0.01$ , significance level 99.82%). Study result shows that there is no significant difference between postal assistant and postmen group in case of complaining sleep disturbances ( $p$  value  $> 0.05$ , significance level 14.88%). In case of 'worrying all the time' there is also no significant difference between postal assistants and postmen group ( $p$  value  $> 0.05$ , significance level 18.30%) but there is a significant difference between postal workers working in urban areas and postal workers from rural zone ( $p$  value  $\leq 0.001$ , significance level 100%). Table 2: Prevalence (%) of components of DAQ-COVID 19 Questionnaire (Focusing Body ache related symptoms)

Table 1: Prevalence (%) of components of DAQ- COVID 19 Questionnaire (Focusing Psychological symptoms)

Components	Male (n=160)		Female (n=150)	
	Yes	No	Yes	No
1. Do you need to talk different people face to face every day in your work formula?	100	0	37	63
2. Is physical distancing being maintained properly in your office?	3	97	6	94
3. Are you satisfied with your current sleep pattern?	0	100	18.6	81.4
4. While entering the office is there any provision for the customers to wash their hands with hand sanitizer?	6	94	5	95
5. Do you need to visit people at their doorsteps to fulfil your tasks?	37.9	62.1	57.1	42.9
6. Do you have negative thoughts in your mind all the time?	100	0	82.9	17.1
7. Do you notice any unwanted changes in your sleep pattern?	100	0	81	19
8. Recently do you get worried maximum of the time?	92.2	7.8	67.1	32.9
9. Are you constantly panicking about the current situation?	92.2	7.8	67.1	32.9
10. Do you have to use sharing car facilities on the way to office and to get back home?	81.4	18.6	60.7	39.3
11. Do you prefer self ride by-cycle facilities for the above mentioned function?	96	4	85	15
12. Have you had any sudden headache in last one week?	99	1	83	17
13. Do you exercise or practice yoga regularly?	32.9	67.1	27.1	72.9
14. Do you have flexible working hours facility?	17.1	82.9	37.1	62.9
15. Are you alone at home during this lockdown period?	16.4	83.6	22.1	77.9
16. Are you staying with your own family during this lockdown period?	83.6	16.4	77.9	22.1
17. After returning home from work do you follow the complete disinfection procedure and then meet with your family members?	62	38	76	24
18. Are you able to maintain physical distance from the rest of the households?	5.2	94.8	17	83
19. Do you have any previous dust allergy problem?	11.4	88.6	5	95
20. Do you feel any trouble in remembering things?	62.1	37.9	54.3	45.7

Components	Male (n=160)		Female (n=150)	
	Yes	No	Yes	No
21. Do you take immune rich foods in your daily diet?	62	38	67	33
22. Do you get enough cooperation from your colleagues?	83	17	83	17
23. Do you get enough cooperation from your neighbours?	29	71	46	54
24. In this present situation, are you getting irritated easily?	70	30	43.6	56.4
25. Do you notice any new problems with your appetite?	76	24	59	41
26. Do you feel any new body ache?	32.1	67.9	27.1	72.9
26 a. Do you feel any new pain in your upper back?	74	26	21.1	78.9
26 b. Do you feel any new pain in your lower back?	79	21	5.3	94.7
26 c. Do you feel any new pain in your chest?	4.4	95.6	0	100
26 d. Do you feel any new pain in upper limb muscles?	82.2	17.8	13.2	86.8
26 e. Do you feel any new pain in lower limb muscles?	47.9	52.1	92	8
27. Is there any facility of covid-19 screening of office workers everyday at the entrance of your office?	21.4	78.6	30.7	69.3
28. Have you been given the optimum amount of hand sanitizer from your authorities?	35.7	64.3	36.4	63.6
29. Have you been given the proper mask from the authorities?	18.6	81.4	20	80
30. Have you been given the proper gloves from your authorities?	12.9	87.1	14.3	85.7
31. Have you been given proper apron or gown from your authorities?	0	100	0	100
32. Do physical distancing is properly maintained all the time while at work?	3	97	5	95
33. Whether your office has sufficient cash counting machine?	1.4	98.6	3.6	96.4
34. Do you need to touch papers/cash (given by the customers) directly?	97.1	2.9	95.7	4.3
35. Are you getting proper toilet or restroom facilities while at work?	32.1	67.9	20	80

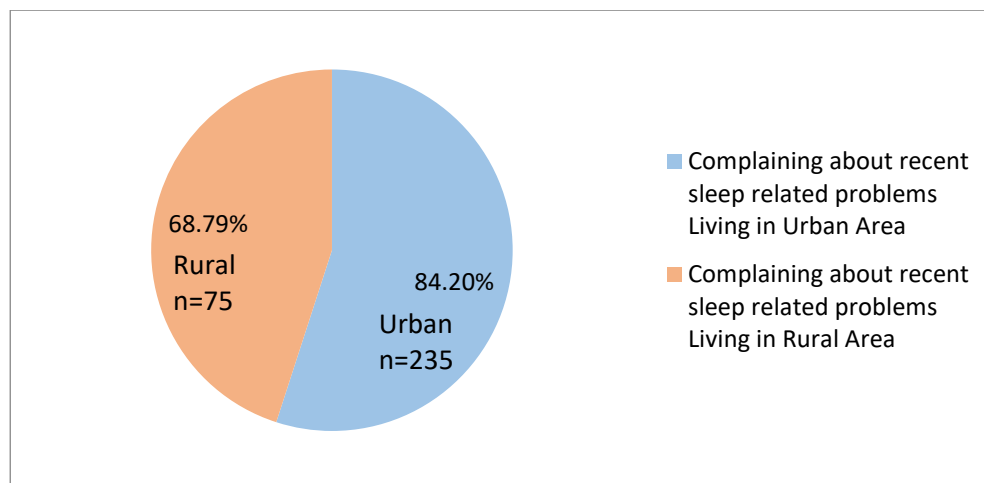


Figure 3: Prevalence (%) of Sleep disturbance among postal workers during COVID-19

About 38% male and 33% female respondents were not conscious about their daily diet. About 17% of participants were not getting enough cooperation from their colleagues whereas 71% of male and 54% of female participants complained of unwanted changed behaviour from their neighbours. 32.1% and 27.1% of male and female participants complained of acute body ache and among them more than 70% of male complained upper and lower back pain whereas 92.1% females complained lower limb pain.

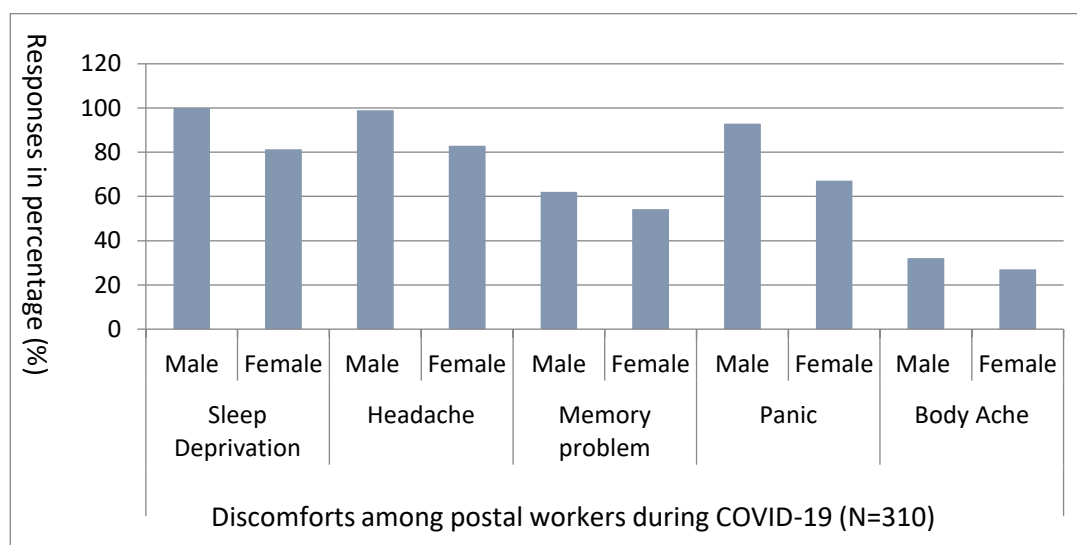


Figure 4: Prevalence (%) of Discomforts among postal workers during COVID-19

Among study participants prevalence of psychological related symptoms are greater than physical discomforts. Memory related difficulties, sleep deprivation were strongly affected postal workers during COVID-19.

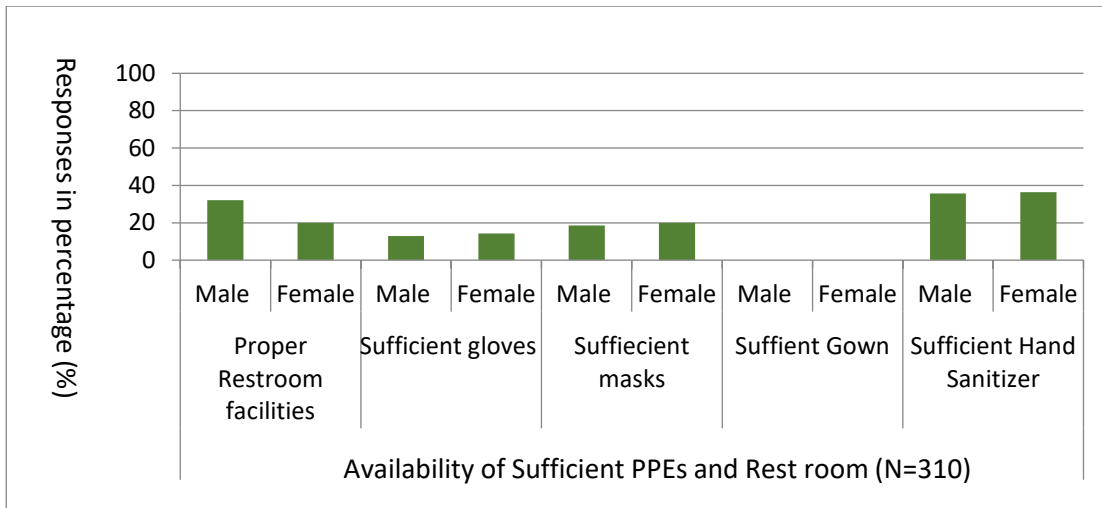


Figure 5: Graphical representation of availability of PPEs and Rest room

Very few participants were getting safety masks or hand sanitizer; only about 18% participants were getting masks from authority. None of the participants were getting any apron.

Postal workers during COVID 19 situation had a high prevalence rates of psychological discomforts. Among study participants a greater number of postal workers both male and female had complained about unintentional panic, sleep deterioration and acute headache. The stressors behind these can be uncertainty, poor health screening, insufficient PPE availability, social demoralization etc.

#### ***How Ergonomics can help postal-workers?***

Where there is shortage of personal-protective-equipment, workers can use a clean-handkerchiefs (as masks), self-made protective-face-shield by thick transparent A4 Over Head Projector (A4-OHP)sheets or transparent file paper and rubber-bands that will cost only 15 INR or they may use glass-covered-helmets, self-made plastic-gloves (disposable), gown or full body covered apron (if not available then they may use raincoat). Workers can set an alarm in their own cell-phone to alert themselves for hand-washing, intake of immunity-rich-foods and lukewarm-water, and practice regular exercises or Yogasana.



Figure 6: Self made protective face shield (reusable)

It will be better to give paid-leave to aged workers during this period. During lockdown, government is providing four-wheelers to pick and drop the workers but this can hamper ‘physical-distancing’, to avoid this, workers can use self-operable two-wheelers. Workers must carry minimum belongings in post office and that must not be touched by their households before disinfection. They may enjoy music or read comic books at their free time to avoid stress (Fava, 2016). Refreshing activities with family members while maintaining physical distance (if needed) may help them to cope up with stress or irritation. Also meditation or Yogasana can improve their sleep quality as well as can help to reduce stress.

## Conclusion

This study has been done for awareness regarding health among Indian postal workers during COVID 19. From this study result it can be presumed that COVID 19 has a significant psychological health impact on urban areas than rural areas. This may be due to the higher COVID 19 incidence among urban population during the study period. Regarding the work pattern, postal assistants and postmen do not share any significant differences, this may be due to both groups have to interact with large number of general public everyday during their work schedule. From this study it can be concluded that during this COVID-19 there was a higher prevalence of psychological symptoms than physical stress among postal workers. These “Unsung COVID-19 Warriors” are in need to take care of their health and required adequate working conditions, e.g. arrangements of optimum personal protective equipment, provision of adequate rest, as well as recovery programs to empower their psychological and physical well-being. Respondents need to take care regarding their perceived stress level and improve their sleep quality for their better health and also better work performance.

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