

Burn Out Among Healthcare Workers (HCWs) at Middle Stage of COVID-19 Pandemic in Addis Ababa, Ethiopia: A Multicentre Cross-Sectional Study

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Abstract: *Background:* The COVID-19 pandemic has challenged healthcare systems worldwide, including Ethiopia. Since HCWs are involved in the direct care of patients, they are more likely to be infected than the general population. A large numbers of frontline HCWs face high adversity, workloads, and stress, making them vulnerable to burnout. The aim of this study was to assess the magnitude of personal and pandemic related burnout and factors associated with pandemic related burnout. *Method:* A multicentre cross-sectional study design was conducted. A total of 544 HCWs was drawn by a systematic sampling technique. Frequency tables and graphs were used to describe the study variables. A logistic regression model was used to measure the association between the predictors and the outcome variable, and a P-value < 0.05 was accepted as statistically significant. OR and 95% CI were used to express the direction and strength of the association. *Result:* From total of 544 HCWs, 273 (53.8%) of the participants had received training related to COVID-19 and 354 (68.5%) were perceived COVID-19 is a severe disease. Two hundred forty two (46.8%) and 241 (46.6%) of HCWs were developed personal and pandemic related burnout respectively. HCWs that experienced flulike symptoms (AOR = 2.20, 95% CI: 1.25, 3.86), being tested positives for COVID-19 (AOR = 1.44, 95% CI: 1.78, 11.67), satisfied with the current working condition (AOR = 0.41, 95% CI: 0.12, 0.67) and having personal burnout (AOR = 0.07, 95% CI: 0.03, 0.16) were significantly associated with pandemic related burnout. *Conclusion:* Proportion of HCWs who developed personal and pandemic related burnout was high. Experiencing flue like symptom, tested for COVID-19, satisfied with current working condition and personal related burnout were significantly associated with pandemic related burnout. This study has highlighted that burnout is a problem that needs to be addressed at the health facilities. Providing incentives, shortening the rotation of the shift, and give leave for HCWs are way to reduce burnout.

Keywords: Burnout, Healthcare Workers, COVID-19 Pandemic, Addis Ababa, Ethiopia

1. Background

Burnout is a psychological disorder that causes physical, emotional, and mental exhaustion resulting from long-term involvement in emotionally stressful work situation. [1, 2] Its impact may result in decreased job satisfaction, absenteeism, and turnover and it may also

have effect on personal life like feelings of unhappiness, anxiety, depression, isolation, substance use, and divorce.[1, 3] Studies showed that approximately, one in three physicians is experiencing burnout at any given time [4, 5].

The COVID-19 pandemic has challenged healthcare systems worldwide, including Ethiopia. [6, 7]. It is evident

that people may be feeling anxious, worried, and depressed during this pandemic due to the continuous changing alerts regarding the spread of the virus.[8, 9] Since health workers are involved in caring for patients directly, they are more likely to become infected than the general population [10]. In a recent review, it was reported that such pandemic result to psychological distress and posttraumatic stress in the HCWs [8, 10, 11].

various risk factors may predispose to the high burden of the mental health impacts such as being a female gender, increasing age, the presence of co morbidities disease, insufficient social support, increased the number of family size, low socio-economic status, occupations and level of educations [7, 10, 12, 13]. In addition, the fear of being contagious and infecting others, physical exhaustion, and a lack of adequate protective equipment are a predictors of poor mental health impacts [6, 14, 15].

According to our literature review, there is currently no published study on the level of burnout among HCWs during the COVID-19 pandemic, but some studies have been conducted in Ethiopia in various settings that have mentioned an increase in stress and depression among HCWs fighting the pandemic [6, 7, 14, 16, 17].

Therefore this study aimed to estimate the magnitude of personal and pandemic related burnout and factors associated with pandemic related burnout.

2. Methods and Material

2.1. Study Area and Period

The study was conducted in Addis Ababa, which is the capital city of Ethiopia with a population of around 5 million. There are 38 hospitals (13 public and 25 NGO and private) and 115 health centres in the study area. The study was conducted among HCWs selected from eight hospitals and twelve health centres' in Addis Ababa, Ethiopia. The study was conducted in January 2021.

2.2. Study Design

A multicentre cross-sectional study design was used among HCWs working in Addis Ababa, Ethiopia.

2.3. Population

The source of population for this study was all HCWs who are working in hospitals and health centers in Addis Ababa town. The study population were all HCWs who are working in randomly selected governmental health institutions in Addis Ababa town during the data collection period.

2.4. Sample Size

The sample size (n) was calculated based on a single population proportion formula, by taking burnout among HCWs during the COVID-19 pandemic in India to be 31.4%. (10), 95% CI, and 5% marginal error. Therefore, by adding a

design effect of 1.5 and a 10% non-response rate, the final sample size was 544.

2.5. Sampling Procedure

Healthcare facilities were selected by simple randomly sampling technique from the list of healthcare facilities. The sample size was proportionally allocated to each of the governmental and private health institutions. A systematic sampling method was then used to select the study participants from each health institutions.

2.6. Data Collection Tools and Procedures

A structured questionnaire was developed by reviewing different literature on both personal and pandemic related burns out. Depending on the level of education, both interviewers and self-administered questioners were used for data collection. The questionnaire contained socio-demographic characteristics (age, sex, occupation, qualification, marital status, and work experience). Data on burn out was collected using a burn out scale; the tool has a 5-point likert response. Each item was scored with 1= never, 2 = seldom, 3= sometimes, 4= often, and 5= always.

2.7. Data Quality Assurance

A pre-test was performed on 5% of the sample size to assess the validity and reliability of the question before to its use. The data collectors and supervisors received two days training on the data collection tool and sampling techniques. Monitoring by investigators and supervisors took place regularly during the data collection period. The data was checked daily for completeness and consistency. Data was used to assess the reliability using Cronbach's alpha. The results showed adequate internal consistency reliability (with Cronbach's alpha of 0.90 for personal related burnout and Cronbach's alpha of 0.83 for pandemic related burnout questions).

2.8. Statistical Analysis and Processing

SPSS version 25 computer package was used to analyze the data. Variables measured on a nominal scale were summarized using proportions (%). Frequency tables and graphs were used to describe the study variables. Bi-variable and multivariable logistic regressions model was used to measure the association between the predictors and the outcome variable. Variables with a p value <0.2 during the bi-variable binary logistic regression analysis were included in the multivariable logistic regression analysis. In multivariable binary logistic regression, variables were considered as significant at a p -value of <0.05 . Hosmer and Lemeshow goodness- of -fit test ($p>0.05$) was used to check model fitness. OR and 95% CI were used to express the direction and strength of the association.

2.9. Ethical Considerations

Ethical approval was obtained from the Institutional Review Board of the Addis Ababa Regional Health Bureau. Permission paper was obtained from health care facilities that were included. Verbal informed consent was obtained from each study participant. Participants are free to withdraw at any time, without reason, and without any effect on their professional responsibilities. Participants indirectly benefited from the data collected as this lead to better understanding of the burnout and, therefore, improved service. The study was conducted in compliance with this protocol, the Declaration of Helsinki, good clinical practice, and the applicable regulatory requirements.

3. Result

3.1. Socio-demographic Characteristics of the Respondents

A total of 517 participants were included in the study with a response rate of 95%. Among the respondents, the more than half were female 286 (55.3%), while the majority of respondents in the age range of 26–30 years 235 (45.5%) with minimum 23 and maximum 59 years, median 30, mean 31.34 and standard deviation ± 6.66 . Of the total participants, 247 (53%) were married, and 246 (46.8%) were nurses by profession. The work unit of participants indicated that 160 (30.9%) of them were assigned to the ward, and 131 (25.3%) of the participants to OPD. The majority of the respondents 250 (48.4%) had working experiences greater than six years (Table 1).

Table 1. Socio-demographic characteristics of study participants at selected public health facility in Addis Ababa, Addis Ababa, Ethiopia, and January 2021 (N=517).

Socio-demographic	Category	Frequency	Percentage
Sex	Male	231	44.7
	Female	286	55.3
Age	23-25	77	14.9
	26-30	235	45.5
	31-35	107	20.7
	36-40	51	9.9
	41-59	47	9.1
Marital status	Single	243	47
	Married	274	53
Professional status	Nurse	242	46.8
	Pharmacist	60	12.0
	GP & specialist	78	15.1
	Health officer	62	8.9
	Radiologist	25	4.8
	Laboratory	20	3.9
	Others*	30	5.8
Work unit	ICU	59	11.4
	Emergency	75	14.5
	Ward	160	30.9
	OPD	131	25.3
	Pharmacy	30	5.8
	Radiology	21	4.1
	Laboratory	21	4.1
	Others **	20	3.9
Work experience	≤ 3 years	111	21.5
	4-6 years	156	30.2
	≥ 7 years	250	48.4

*Anaesthetics and midwifery

**OT unit and OR unit.

3.2. Personal Related Experience of the Respondents

Less than half 228 (44.1%) of the respondents were experienced flulike symptom or symptoms suggestive of COVID-19 infection. Out of this only 69 (30.3%) of the respondents were stopped working after experiencing symptoms. More than half 292 (56.5%) of the respondents

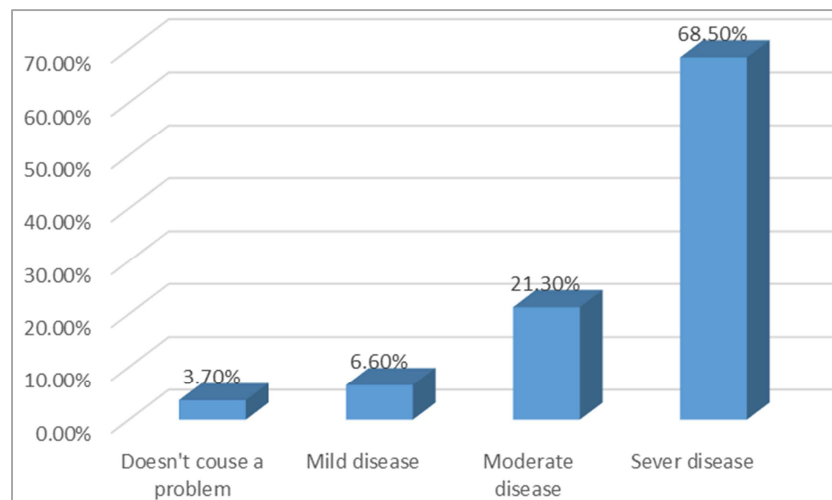
were tested for COVID-19 and majority 107 (36.6%) of them were reported easy to get tested for COVID-19. Half 150 (51.4%) of them were tested for COVID-19 once and thirty nine (13.4%) were tested positive for COVID-19. Less than half 229 (44.3%) of the respondents were engaged in COVID related activities. (Table 2)

Table 2. Personal experience of the study participants at selected public health facility in Addis Ababa, Addis Ababa, Ethiopia, and January 2021 (N=517).

Personal experience	Category	Frequency	Percentage
Experienced flulike symptom	Yes	228	44.1
	No	289	55.9
Stop working after experiencing symptoms	Yes	69	30.3
	No	159	69.7
Tested for COVID-19	Yes	292	56.5
	No	225	43.5
How easy to get tested for COVID-19?	Very difficult	31	10.6
	Difficult	73	25
	Not difficult/easy	54	18.5
	Easy	107	36.6
	Very easy	27	9.2
Frequency of testing	1	150	51.4
	>1	142	48.6
Positive result	Yes	39	13.4
	No	253	86.6
Engaging in COVID related activities	Yes	229	44.3
	No	288	55.7
Duration of engaged in COVID-19 related activities	≤5 months	150	65.5
	> 5months	79	34.5

3.3. Perception of the Respondent About COVID-19

Regarding the perception of the respondents about COVID-19 majority 354 (68.5%) were perceived COVID-19 is a sever disease and 19 (3.7%) were perceived a disease doesn't cause a problem (Figure 1).

**Figure 1.** Current perception of the health worker about the severity of COVID-19 at selected Public health facilities of Addis Ababa, Addis Ababa, Ethiopia, and January 2021.

3.4. Institutional Support Related Factors of the Respondents

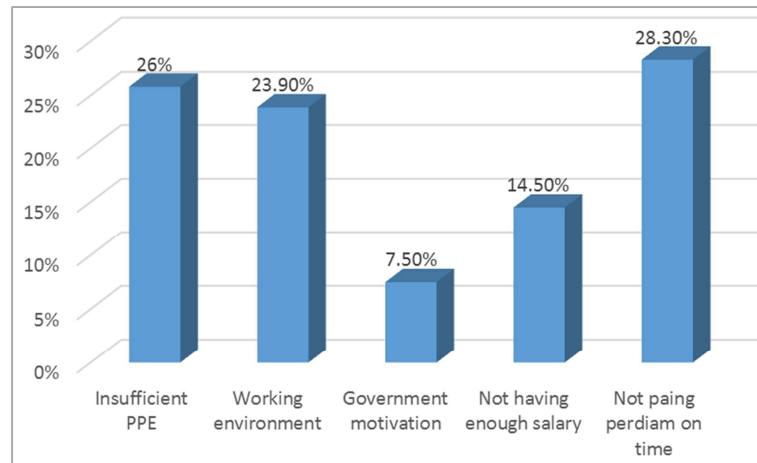
Related to the institutional support to the staffs to prevent COVID-19 only 273 (53.8%) of the participants had received training related to COVID-19. Out of this 95 (34.2%) of them felt the training was sufficient. On the other hand less than half 253 (48.9%) of the participants had received guideline related to COVID-19. With regard to provision of PPE, half of the study participants had provided PPE material to prevent COVID-19 by their

institution and the type of PPE material provided by the institution were 249 (95.4%) mask, 146 (55.9%) sanitizer, 89 (34.1%) eye-goggle, 72 (27.6%) apron, 93 (35.6%) glove and 71 (27.2%) face-shield. Only 124 (24%) of the participants have extra working hour due to pandemic and 358 (69.2%) of the study participants were satisfied with the current working condition (Table 3).

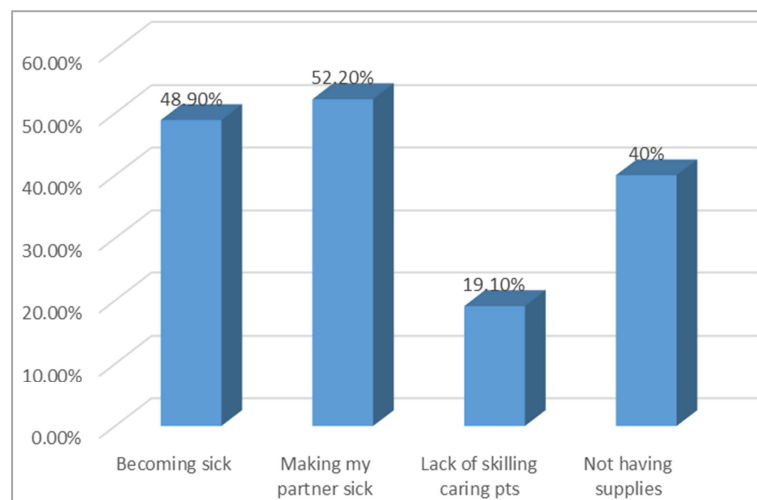
The main reasons for dissatisfaction with their current working condition were insufficient PPE 41 (25.8%), lack of conducive working environment 38 (23.9%), not paying per diem on time 45 (28.3%), inadequate salary 23 (14.5%) (Figure 2).

Table 3. Institutional support to health professionals at selected public health facilities in Addis Ababa, Addis Ababa, Ethiopia, and January 2021 (N=517).

Type of institutional support	Category	Frequency	Percentage
Received any training related to COVID-19	Yes	278	53.8
	No	239	46.2
Feeling the training was sufficient	Yes	95	34.2
	No	183	65.8
Received appropriate guideline	Yes	253	48.9
	No	264	51.1
Provided adequate PPE	Yes	261	50.5
	No	256	49.5
Type of PPE items provided	Mask	249	95.4
	Sanitizer	146	55.9
	Eye-goggle	89	34.1
	Apron	72	27.6
	Glove	93	35.6
	Face-shield	71	27.2
Having extra working time due to the pandemic	Yes	124	24
	No	393	76
Extra working time per week	≥25	92	74.2
	<25	32	25.8
Satisfied with current working condition	Yes	358	69.2
	No	159	30.8

**Figure 2.** Reasons for the dissatisfaction with current working condition of the health workers at selected Hospital in Addis Ababa, Addis Ababa, Ethiopia, and January 2021.

3.5. Health Care Workers Worries

**Figure 3.** Health workers worries being working during COVID-19 pandemic at selected Hospital in Addis Ababa, Addis Ababa, Ethiopia, and January 2021.

Most 253 (48.9%) of the participants were worried about making their loved ones sick and 253 (48.9%) becoming sick, 207 (40%) not having supplies to care for COVID-19 patients and 99 (19.1%) not having the appropriate skill to care for COVID-19 patients (Figure 3).

3.6. Personal Related Burnout

Related to the personal burnout, 168 (32.5%) sometimes,

112 (21.7%) often and 94 (18.2%) always of the participants were exhausted physically whereas 167 (32.3%), 112 (21.7%), and 78 (15.1%) were emotionally exhausted sometimes often and always respectively. 148 (28.6%), 99 (19.1%), and 73 (14.1%) of the participants were weak and susceptible to illness sometimes, often and always respectively (Table 4).

Table 4. Personal related burnout of the health care worker at selected public health facilities in Addis Ababa, Addis Ababa, Ethiopia, and January 2021.

Items	Never		Seldom		Sometimes		Often		Always	
	N	%	N	%	N	%	N	%	N	%
Physically exhausted	87	16.8	56	10.8	168	32.5	112	21.7	94	18.2
Emotionally exhausted	86	16.6	74	14.3	167	32.3	112	21.7	78	15.1
Weak and susceptible to illness	115	22.2	82	15.9	148	28.6	99	19.1	73	14.1
worn out (extremely tired)	96	18.6	78	15.1	134	25.9	120	23.2	89	17.2
Over all personal related burnout	242 (46.8%), median 12, Cronbach's alpha= 0.90									

3.7. Pandemic Related Burnout

With regard to pandemic related burnout, 153 (29.6%), 135 (26.1%) and 97 (18.8%) of the study participants felt hard to work sometimes, often and always in the current scenario respectively. More over 133 (25.7%) sometimes, 155 (30%) often, and 93 (18%) always of them were drained more of their energy to work in the current scenario and 157

(30.4%), 80 (15.5%) and 42 (8.1%) of them hesitate to work in the current scenario sometimes, often and always respectively.

Most of the participants were felt as if they were not protected by the institutions in the current scenario. As this is evidenced by 129 (25%) some times, 102 (19.7%) often and 74 (14.3%) always were felt not protected by their health facilities (Table 5).

Table 5. Pandemic-related burnout of the health care worker at selected health facilities in Addis Ababa, Addis Ababa, Ethiopia, and January 2021 (N=517).

Items	Never		Seldom		Sometimes		Often		Always	
	N	%	N	%	N	%	N	%	N	%
Hard to work	59	11.4	73	14.1	153	29.6	135	26.1	97	18.8
Drain more of your energy to work	62	12	74	14.3	133	25.7	155	30	93	18
Hesitate to work	130	25.1	108	20.9	157	30.4	80	15.5	42	8.1
Depressed	121	23.4	84	16.2	137	26.5	103	19.9	72	13.9
Patience is tested while working	93	18	113	21.9	142	27.5	100	19.3	69	13.3
Fear to catch COVID-19 infection	66	12.8	47	9.1	116	22.4	145	28	143	27.7
Fear of family members catching infection b/c of his/her exposure	49	9.5	46	8.9	99	19.1	131	25.3	192	37.1
Fear of death	161	31.1	84	16.2	101	19.5	80	15.5	91	17.6
Properly protected by the hospital*	118	22.8	94	18.2	129	25	102	19.7	74	14.3
Over all pandemic related burnout	241 (46.6%), median 28, Cronbach's alpha= 0.83									

*reverse code.

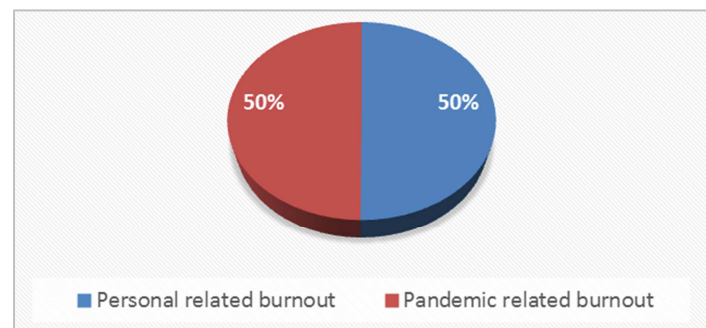


Figure 4. Percentage distribution personal and pandemic related burnout of the health workers at selected public health facilities of Addis Ababa, Addis Ababa, Ethiopia, and January 2021.

Two hundred forty one (46.6%) of the respondent had stress related to pandemic with mean score \pm SD of 27.6 ± 7.66 and median value of 28. Whereas 242 (46.8%)

of the study participants had stress related to personal with mean score \pm SD of 12.1 ± 4.63 and median value of 12 (Figure 4).

3.8. Factors Associated with Pandemic Related Burnout Among Health Workers

Experienced flulike symptom, working after experiencing symptoms, tested for COVID-19, engaging in COVID related activities, current perception of the health worker, received any training related to COVID-19, having extra working time due to the pandemic, satisfied with current working condition and personal related burnout were found to be significantly associated with pandemic related burnout with a P-value < 0.2. After controlling the confounding factors only Experiencing flue like symptom, Tested for COVID-19, satisfied with current working condition and personal related burnout were significantly associated with pandemic related

burnout with p-value <0.05.

HCWs that experienced flulike symptom are more likely to develop pandemic related burnout (AOR = 2.2, 95% CI: 1.25, 3.86). HCWs that tested positives are more likely to develop pandemic related burnout than those who test negative (AOR = 1.44, 95% CI: 1.78, 11.67).

Similarly HCWs who are not satisfied with the current working condition were more likely to develop pandemic related burnout than those who are satisfied with the current working condition ((AOR = 0.41, 95% CI: 0.12, 0.67). HCWs that have no personal burnout were less likely to develop pandemic related burnout than those who have personal burnout (AOR = 0.07, 95% CI: 0.03, 0.16). (Table 6).

Table 6. Factors associated with pandemic related burnout among health workers at selected Hospital in Addis Ababa, Addis Ababa, Ethiopia, and January 2021.

Variable	Category	Pandemic related burnout		COR (95% CI)	AOR (95% CI)
		No	Yes		
Experienced flulike symptom	Yes	107	121	1.59 (1.12, 2.26)*	2.20 (1.25, 3.86)**
	No	169	120	1	1
Stop working after experiencing symptom	Yes	38	31	0.62 (0.35, 1.10)*	0.86 (0.13, 5.88)
	No	69	90	1	1
Test for COVID	Yes	158	134	2.08 (1.04, 4.15)*	1.44 (1.78, 11.67)**
	No	118	107	1	1
Engaged in COVID activities	Yes	113	116	1.34 (0.95, 1.89)*	3.20 (0.38, 27.24)
	No	163	125	1	1
Perception about COVID	Not cause problem	15	4	0.26 (0.09, .81)*	9.2 (3.44, 25.02)**
	Mild	25	9	0.36 (0.16, .78)*	0.4 (0.09, 2.16)
	Moderate	60	50	0.82 (0.54, 1.27)	0.36 (0.31, 10.78)
	Sever	176	178	1	1
Had training related to COVID	Yes	141	137	1.26 (0.89, 1.79)*	2.08 (0.37, 11.67)
	No	135	104	1	1
Have extra working	Yes	58	66	1.42 (0.95, 2.13)*	2.67 (0.26, 1.69)
	No	218	175	1	1
Satisfied with the current working	Yes	206	152	0.58 (0.39, 0.85)*	0.41 (0.12, 0.67)**
	No	70	89	1	1
Personal burnout	Yes	213	62	0.1 (0.07, 0.15)*	0.07 (0.03, 0.16)**
	No	63	179	1	1

*p<0.2

**<0.05.

4. Discussion

Burnout is a work-related stress syndrome resulting from chronic exposure to job stress [18]. Its impact may result in decrease job satisfaction, absenteeism, and turnover and it may also effect on personal life like feeling unhappy, anxiety, depression, isolation and substance use and divorce [1-3]. This study showed that 241 (46.6%) 95% CI (42.7, 50.2%) of the respondents had stress related to the pandemic. This result is similar with the study conducted among health care providers in the tertiary care hospitals of Karachi, Pakistan [11] and with the study conducted among health-care professionals working at Assiut University hospitals, Egypt during the COVID-19 pandemic [19]. This result was slightly lower than with the study conducted among healthcare providers in Dilla, Southern Ethiopia, which reported the level of burnout was 51.6%, [7] with the study conducted at

north west Ethiopia which was conducted to identify the prevalence of stress related to COVID-19 among health professionals was 63.7%. [16] This might be due to the exclusion of salary tax in the study site. Furthermore the current study is lower than study conducted in southern Ethiopia with a prevalence of stress during COVID-19 of 38.5%, [17] and was also compared to the study conducted using a systematic review and meta-analysis conducted in Ethiopia to determine the pooled prevalence of occupational stress among health care professionals which was 52.5% of them had stress as a result of their occupation [20]. The current study was also slightly lower compared to the study done among PHC workers, in a region in the west of Iran which was 52.9% them had burnout,[21] with the study conducted among HCWs during COVID-19 Pandemic in India which was 52.8% of them had pandemic related burnout, [13] and with the study conducted among nurses working in critical care settings in selected tertiary hospital in

Rwanda which was 61.7% of them had burnout [22] This discrepancy might be due to the difference in tool.

The current study is far higher than the study conducted among medical students at an Indian tertiary care medical center, in which 16.84% had burnout, [23] and the study conducted among health professionals at Jimma University Teaching Hospital which was 36.7% of them had burnout, [24] according to the study done among health-care professionals working at Gondar University Hospital in Ethiopia, 13.7% had burn out, [25] according to the study conducted among physicians and nurses working at Tanta University Emergency Hospital in Egypt, 24.5% of them had burnout.[26]. This high level of burnout could be due to poor payment, work overload, poor resilience to the pandemic.

This Study finds out that there were no significant associations between demographic factors and burnout levels. This is similar with the previous study conducted among doctors at the University Teaching Hospital in Lusaka, Zambia [27].

A study conducted in south Gonder zone hospital Amhara region, Ethiopia identified that health professional who had contact with confirmed COVID-19 cases, were more likely stressed as compared with their counterparts [16]. But the current study filed to show this linkage after controlling the confounding factors. More over a systematic review and meta-analysis conducted in Ethiopia identified that female sex was identified as a significant predictor for occupational stress with a pooled effect of 3.75 [20]. Nonetheless the current study filed to show the association. This divergence might be due to the difference in study area or it needs further investigation.

Job satisfaction is considered hugely important within the field of human resources and organizational behavior [28]. Job satisfaction is an essential necessity for health care providers' commitment towards their responsibilities. Moreover, health care providers' burnout is the result of different responsibilities which is given to them and other factors as it was mentioned in the current study the reason why not satisfied with their current working condition were insufficient PPE 41 (25.8%), lack of conducive working environment 38 (23.9%), not paying per diem on time 45 (28.3%), inadequate salary 23 (14.5%).

A study conducted among 234 health professionals working at a public hospital in southern Brazil showed that increased job satisfaction were associated with decreasing burnout of the health care professionals [29] and with the study conducted among HCWs in Golestan Province, Iran [30]. Similarly the current study also identified that HCWs who were not satisfied with the current working condition were more likely to develop pandemic related burnout than those who were satisfied with the current working condition ((AOR = 0.41, 95% CI: 0.12, 0.67). This might be due to the inadequacy of institutional support to the health care provider like training related to COVID-19. As this is evidenced by only 53.8% of the health care provider had received training related to COVID-19 and out of this 95 (34.2%) of them felt the training was sufficient but the rest 66% of them didn't

feel the training was sufficient which may lead them to dissatisfy with the current working condition. Furthermore the current study identified that health workers who had perceived COVID-19 is a sever disease is less likely to develop pandemic related burn out than those who had apperception of COVID-19 is not cause any problem (AOR=9.2, 95%CI: 3.44, 25.02).

Healthcare providers are at the frontline in the fight against COVID-19 and are at an increased risk of becoming infected with corona virus [31]. Risk of COVID-19 infection can be minimized by use of proper personal protective equipment (PPE) [32]. Thus the second reason for the distinction that leads to burn out might be due to the inadequacy of provision PPE materials to the health care provider as this is evidenced by the current study more than half of the health care provider didn't get adequate PPE material by their institution.

5. Conclusion

Proportion of HCWs who developed personal and pandemic related burnout was high. Experiencing flue like symptom, tested for COVID-19, satisfied with current working condition and personal related burnout were significantly associated with pandemic related burnout. This study has highlighted that burnout is a problem that needs to be addressed at the health facilities and further investigation is required to assess what factors may be contributing to it, particularly those related to the work environment. Providing incentives, shortening the rotation of the shift, and give leave for HCWs are way to reduce burnout.

Conflict of Interests

All authors declare that they have no computing of interest.

Availability of Data and Materials

The data set generated and/ or analysed during current study are not publically available and avail on reasonable request.

Funding

The study received funding from Addis Ababa regional health bureau.

Ethical Considerations

Ethical approval was obtained from the Institutional Review Board of the Addis Ababa Regional Health Bureau. Permission paper was obtained from health care facilities that were included. Verbal informed consent was obtained from each study participant. Participants are free to withdraw at any time, without reason, and without any effect on their professional responsibilities. Participants indirectly benefited from the data collected as this lead to better understanding of

the burnout and, therefore, improved service. The study was conducted in compliance with this protocol, the Declaration of Helsinki, good clinical practice, and the applicable regulatory requirements.

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References

- [1] Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annual review of psychology*. 2001; 52 (1): 397-422.
- [2] Freudenberger HJ. The staff burn-out syndrome in alternative institutions. *Psychotherapy: Theory, Research & Practice*. 1975; 12 (1): 73.
- [3] Barnett CW, Hopkins WA, Jr Jackson RA. Burnout experienced by recent pharmacy graduates of Mercer University. *American Journal of Hospital Pharmacy*. 1986; 43 (11): 2780-4.
- [4] Corrado B, Ciardi G, Fortunato L, Servodio Iammarrone C. Burnout syndrome among Italian physiotherapists: a cross-sectional study. *European Journal of Physiotherapy*. 2019; 21 (4): 240-5.
- [5] De Hert S. Burnout in Healthcare Workers: Prevalence, Impact and Preventative Strategies. *Local Reg Anesth*. 2020; 13: 171-83.
- [6] Bekele F, Mechessa DF, Sefera B. Prevalence and associated factors of the psychological impact of COVID-19 among communities, health care workers and patients in Ethiopia: A systematic review. *Annals of Medicine and Surgery*. 2021; 66: 102403.
- [7] Chekole YA, Yimer Minaye S, Mekonnen Abate S, Mekuriaw B. Perceived stress and its associated factors during COVID-19 among healthcare providers in Ethiopia: a Cross-Sectional Study. *Advances in Public Health*. 2020; 2020.
- [8] Xiang Y-T, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, et al. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The lancet psychiatry*. 2020; 7 (3): 228-9.
- [9] Wu P, Fang Y, Guan Z, Fan B, Kong J, Yao Z, et al. The psychological impact of the SARS epidemic on hospital employees in China: exposure, risk perception, and altruistic acceptance of risk. *The Canadian Journal of Psychiatry*. 2009; 54 (5): 302-11.
- [10] Elhadi M, Msherghi A, Elgzairi M, Alhashimi A, Bouhuwaish A, Biala M, et al. Psychological status of healthcare workers during the civil war and COVID-19 pandemic: A cross-sectional study. *J Psychosom Res*. 2020; 137: 110221.
- [11] Zahid N, Syed M, Hersi S, Danish SH, F A. Assessment of Burnout in Healthcare Professionals of Pakistan Amid COVID-19 – A Cross-Sectional Study. *IJTDH* 2021.
- [12] Si MY, Su XY, Jiang Y, Wang WJ, Gu XF, Ma L, et al. Psychological impact of COVID-19 on medical care workers in China. *Infect Dis Poverty*. 2020; 9 (1): 113.
- [13] Khasne RW, Dhakulkar BS, Mahajan HC, Kulkarni AP. Burnout among Healthcare Workers during COVID-19 Pandemic in India: Results of a Questionnaire-based Survey. *Indian J Crit Care Med*. 2020; 24 (8): 664-71.
- [14] Teshome A, Glagn M, Shegaze M, Tekabe B, Getie A, Assefa G, et al. Generalized Anxiety Disorder and Its Associated Factors Among Health Care Workers Fighting COVID-19 in Southern Ethiopia. *Psychol Res Behav Manag. Psychol Res Behav Manag* 2020; 13: 907-17.
- [15] Muller AE, Hafstad EV, Himmels JPW, Smedslund G, Flottorp S, Stensland S, et al. The mental health impact of the COVID-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review. *Psychiatry Res*. 2020; 293: 113441.
- [16] Asnakew S, Amha H, Kasew T. Mental Health Adverse Effects of COVID-19 Pandemic on Health Care Workers in North West Ethiopia: A Multicenter Cross-Sectional Study. *Neuropsychiatr Dis Treat*. 2021; 17: 1375-84.
- [17] Ayalew M, Deribe B, Abraham Y, Reta Y, Tadesse F, Defar S, et al. Prevalence and determinant factors of mental health problems among healthcare professionals during COVID-19 pandemic in southern Ethiopia: multicentre cross-sectional study. *BMJ Open*. 2021; 11 (12): e057708.
- [18] WHO. Burn-out an "occupational phenomenon": International Classification of Diseases. 2019.
- [19] Elghazally SA, Alkarn AF, Elkhayat H, Ibrahim AK, Elkhayat MR. Burnout Impact of COVID-19 Pandemic on Health-Care Professionals at Assiut University Hospitals, 2020. *International Journal of Environmental Research and Public Health*. 2021; 18 (10): 5368.
- [20] Girma B, Nigussie J, Molla A, Mareg M. Occupational stress and associated factors among health care professionals in Ethiopia: a systematic review and meta-analysis. *BMC Public Health*. 2021; 21 (1): 539.
- [21] Zarei E, Ahmadi F, Sial MS, Hwang J, Thu PA, Usman SM. Prevalence of Burnout among Primary Health Care Staff and Its Predictors: A Study in Iran. *Int J Environ Res Public Health*. 2019; 16 (12).
- [22] Umutoni E, Nankundwa E, Sego R, Bhengu B. Burnout among nurses working in critical care settings: a case of a selected tertiary hospital in Rwanda. *International Journal of Research in Medical Sciences*. 2017; 5: 5121.
- [23] Pharasi S, Patra S. Burnout in medical students of a tertiary care Indian medical center: How much protection does resilience confer? *Indian J Psychiatry*. 2020; 62 (4): 407-12.
- [24] Biksegn A, Kenfe T, Matiwos S, Eshetu G. Burnout Status at Work among Health Care Professionals in a Tertiary Hospital. *Ethiop J Health Sci*. 2016; 26 (2): 101-8.
- [25] Bhagavathula AS, Abegaz TM, Belachew SA, Gebreyohannes EA, Gebresillassie BM, Chattu VK. Prevalence of burnout syndrome among health-care professionals working at Gondar University Hospital, Ethiopia. *J Educ Health Promot*. 2018; 7: 145.
- [26] Abdo SA, El-Sallamy RM, El-Sherbiny AA, Kabbash IA. Burnout among physicians and nursing staff working in the emergency hospital of Tanta University, Egypt. *East Mediterr Health J*. 2016; 21 (12): 906-15.

- [27] Simuyemba MC, Mathole T. A Study of Burnout Amongst Doctors at the University Teaching Hospital in Lusaka, Zambia. *Medical Journal of Zambia*, 2019; 46.
- [28] Latif MH, mad M, Qasim M, Mushtaq M, Ferdoos A, Naeem H. Impact of employee's job satisfaction on organizational performance. *European Journal of Business and Management*. 2013; 5: 166-71.
- [29] Ebling M, Carlotto M. Burnout syndrome and associated factors among health professionals of a public hospital. *Trends in Psychiatry and Psychotherapy*. 2011; 34: 93-100.
- [30] Kabir MJ, Heidari A, Etemad K, Gashti AB, Jafari N, Honarvar MR, et al. Job Burnout, Job Satisfaction, and Related Factors among Health Care Workers in Golestan Province, Iran. *Electron Physician*. 2016; 8 (9): 2924-30.
- [31] Ali S, Noreen S, Farooq I, Bugshan A, Vohra F. Risk Assessment of Healthcare Workers at the Frontline against COVID-19. *Pak J Med Sci*. 2020; 36 (COVID-19-s4): S99-s103.
- [32] Gordon CTA. Use of personal protective equipment during the COVID-19 pandemic. *British Journal of Nursing*. 2020; 29 (13).