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Research

Burnout among Indian Maternity Care Providers during COVID-19 Pandemic

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ABSTRACT

Background: Occupational burnout among healthcare providers has been a matter of focus since many years. Burnout can involve emotional and physical exhaustion and cause reduced acknowledgement of personal accomplishment. Burnout can be accentuated in times of increased stress on healthcare system, like during the current episode of COVID-19 pandemic. Maternity care providers (MCP) face unique challenge in the given context owing to longer duty hours, high exposure to emergency situations and high expectation of deliverance.
Subjects and Method: An online, nationwide, invited survey was conducted involving 198 MCP (28 interns, 52 residents, 82 consultant/faculty, 36 staff nurses) who were assessed for burnout and professional fulfillment using Professional fulfillment index (PFI), for self-preparedness regarding COVID-19 using Knowledge attitude and practice (KAP) questionnaire and for family support using another questionnaire.
Results: The prevalence of burnout in MCP was 36.36%. It was significantly high among interns posted in maternity services (64.28%) and least amongst obstetrics residents (26.92%). MCP with burnout tended to have higher number of night-shifts and employment in government set-ups. Subjects with burnout also scored lower on KAP questionnaire and, professional fulfillment and worse family support.
Conclusion: The prevalence of burnout in MCP was quite high, but our study could not find any significant rise during the COVID-19 pandemic. Cross-sectional design and possible selection bias were the major limitations of our study. Our study provides important clues required in the micro-planning that can help lessen the burden of burnout in MCP.

Keywords: burnout, maternity care provider, obstetrics, professional fulfillment, COVID-19.

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BACKGROUND

Burnout among health care providers is an issue of growing concern. Professional burnout, commonly defined as loss of enthu-

siasm in work, cynicism, depersonalization and a sense of poor personal accomplishment, has been reported by as many as 46% of obstetrician in a recent survey (Medscape National Physician Burnout and Suicide Report 2020: The Generational Divide, n.d.). Many of them were depressed and a third had suicidal thoughts.

In general the factors associated with burnout can be many; like, unnecessary bureaucratic works, excessive working hours, lack of adequate respect and autonomy, necessity of being technology savvy, inadequate compensation and reimbursement, Government regulations etc (Medscape National Physician Burnout and Suicide Report 2020: The Generational Divide, n.d.). Ongoing COVID-19 pandemic is arguably the largest public health emergency the world has seen in the last 100 years. As a result, the health systems world-wide has been stretched to the limit. The number of doctors, nurses and other healthcare providers suddenly seems inadequate in the wake of increased influx of patients in all departments. To add to that, limitations in terms of unpreparedness, lack of infection control measures, adequate safety precautions, forced separation from the family, perceived fatality and reports of targeted violence against healthcare providers alleging them of spreading the infection in the community, have added to the mental health burden of the care providers all over the world.

But it will be foolish to assume that the effect of this virus on mankind has been direct only. The indirect effects of the virus on various aspects of the mankind have been equally devastating. The virus has led to widespread lockdown with changes in the family and workplace dynamics, overall falling economy of the country and financial loss to the individuals. All these changes together ought to aggravate the professional burnout among health care workers and same has been found during past outbreaks of Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) and H1N1 influenza (Shah et al., 2020).

In addition, maternity care is burdened with the high expectation of 'normalcy' and any deviation or adverse outcome is being considered as failure of the maternity care providers (MCP). Often the obstetrician's efforts in the form of spending long hours in the labor suit and arranging prompt surgical interventions against all the odds, go unrecognized due to the common perception of pregnancy and child birth as "mere physiological process and needs no additional supervision". A study found high serum levels of adrenaline and reduced heart rate variability after labor room shifts which was associated to subjective and objective mental stress (Martinez De Tejada et al., 2013). The scenario is worse among the obstetric trainees, where prevalence of burnout has been reported as high as 51% to 75% in different studies (Robson and Cukierman, 2019). The same attributes that help them securing position in medical colleges i.e. high ambition, dedication to work, high self-esteem and perfectionism also make them vulnerable to burnout. Amongst nursing staffs, it was found that almost 49% of nurses posted in labor-delivery ward are also burnt out (Atallah et al., 2016). Thus, it becomes imperative that burn out can affect all strata of MCPs. Left untreated, burn out in its severe form may lead to depression, substance abuse, hampered patient care, marital disharmony, premature retirement and even early death (SMITH, 2019).

Unfortunately the investigations into health care providers' burnout and measures to deal with those, seems inadequate during past outbreaks (Shah et al., 2020).

Because of the insidious nature of onset and lack of awareness, the signs and symptoms of burnout are often overlooked. Unless the diagnosis is made, we will not be able to function in accordance to the newest affirmation to the Geneva's declaration 2017 – "I will attend to my own health, well-being, and abilities in order to provide care of the highest standard." So we planed this study to a) to identify the prevalence of professional burnout among MCPs during COVID 19 pandemic b) To study association of various clinical factors including family support and self-preparedness (in terms of knowledge, attitude and practice of COVID-19) and occurrence of professional burnout (Maslach et al., 2015) in MCPs.

SUBJECTS AND METHOD

1. Study Design

The current study employed a cross-sectional design and was conducted via a portal for online survey. Since the study was conducted nationwide, the requests to respond to the study were sent either by personalized communication via email or online messaging platform.

2. Population and Sample

The subjects willing for voluntary participation after informed consent were included in the study if they fulfilled all of the following criteria: a) they were doctors (consultants, faculty, residents or interns) or nurses providing obstetric care during COVID-19 pandemic; b) they were practicing in India; c) they were comfortable in reading and responding to questionnaire in English. The subjects were excluded if there was history of any severe mental illness. The sample size was calculated as 195, using a response distribution of 50% based on prevalence estimates from past literature (Atallah *et al.*, 2016); 7% margin of error, 95% confidence level and an infinite population size. Our study strictly followed the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) (Eysenbach, 2004) (Supplementary Table 1).

3. Study Variable

The dependent variable was burnout. The independent variables were knowledge, attitude, practice, and family support.

4. Definition of Operational Variable

The online form consisted of the following tools. a) Socio-demographic proforma: The proforma included details like age, gender, marital status, nature of job, details of any major medical illness, addiction etc; b) Knowledge attitude and practice (KAP) questionnaire: The survey contained 20 items on a five-point likert scale to assess respondent's KAP concerning the pandemic. KAP questions were adapted from World Health Organization (WHO) guidelines ("Q&A on coronaviruses (COVID-19)," n.d.), American College of Obstetricians and Gynecologists (ACOG) guideline ("Novel Coronavirus 2019 (COVID-19) | ACOG," n.d.), Federation of Obstetric and Gynecological Societies of India (FOGSI) guidelines on Novel coronavirus disease and pregnancy (The Federation of Obstetric and Gynaecological Societies of India, n.d.) and a recent study of KAP of health care workers in China (Zhou et al., 2020). There were 10 questions used to ascertain knowledge, 5 questions for attitude and 5 questions for practice domain. The scale was validated by the authors after testing on a pilot population. The scores of the scale ranged from 20 to 100, with higher scores denoting better performance in the domains assessed. c) Professional fulfillment index (PFI): PFI is a validated and established scale to assess professional burnout among health care workers. It contained 16 items divided into 3 sub-parts which assessed the degree of intrinsic positive reward from work (6 items), work exhaustion (4 items) and interpersonal disengagement (6

items) (Trockel et al., 2018). The sum of work exhaustion and interpersonal disengagement provided the overall measure of burnout (10 items), while professional fulfillment was analyzed separately. Dichotomous burnout categories were determined from the average item score (range 0 to 4, with higher scores representing higher burnout) of all 10 burnout items, using a cut-point of 1.33 (Trockel et al., 2018); d). Questionnaire to assess family support- This questionnaire contained six questions on a five point likert scale that assessed various aspects of the support provided by the partner/spouse or other members of the family. This questionnaire was adopted from study done on anesthetists (De Oliveira et al., 2011). The scores of the scale ranged from 6 to 30 with lower scores representing better family support.

5. Study Instrument

The measurement of each variable uses a questionnaire in the form of a Google Form which has been tested for validity and reliability with strong and very strong reliability criteria. Subjects also gave informed consent on the first page before filling out the questionnaire.

6. Data Analysis

The analysis was conducted using Statistical Package for the Social Sciences (SPSS) version 21. The descriptive statistics of the recruited subjects was analyzed. The scores of KAP questionnaire were compared across the various groups of subjects using one-way analysis of variance (ANOVA) with post-hoc analysis conducted using Tukey's test. The clinical and socio-demographic variables of the subjects with and without burnout was compared by using chi-square tests for categorical variables; or independent sample t-test (for parametric data) or Mann-Whitney U test (for non- Parametric data) in case of continuous variables. The variables that differed significantly were used to create a model of binary logistic regression and likelihood ratios of factors that could predict burnout were obtained.

7. Study Ethic

The study was reviewed and cleared by the Institute Ethics Committee of Swami Rama Himalayan University of Dehradun, India. The study subjects were recruited after obtaining informed consent linked to the online form. Participation in this study was voluntary and participants had the option to withdraw consent at any point of time till the final submission. All the data obtained were kept confidential.

RESULTS

Request to participate in the online survey were sent to 400 prospective subjects by requests sent by email or web-based messages. Overall, 202 subjects took to the survey but 4 declined to provide informed consent. Overall, 198 subjects were recruited for our study, which included 28 intern doctors posted in obstetrics, 52 resident doctors of obstetrics, 82 consultants or faculty of obstetrics and 36 nursing personnel posted in maternity care wards. The table 1 depicts the descriptive statistics of socio-demographic and clinical variables of all the 4 groups.

Table 1. Descriptive statistics of socio-demographic and clinical variable of the recruited subjects

		Intern (N =28)	Resident (N=52)	Consultant/ Faculty (N=82)	Staff Nurse (N=36)	Total (N=198)
		Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)	Mean (SD) or Frequency (%)
Gender	Female	14(50%)	49(94.2%)	69(84.1%)	36(100%)	168(84.8%)
	Male	14(50%)	03(5.8%)	13(15.9%)	00	30(15.2%)
Age (in years)		22.75 (1.041)	30.17 (4.387)	34.61 (6.661)	28.61 (4.741)	30.68 (6.602)
Experience in years		1.21 (0.833)	4.31 (3.649)	6.26 (6.188)	4.94 (4.215)	4.79 (5.022)
Marital Status	Married	00	25(48%)	70(85.4%)	18(50%)	113(57%)
	Unmarried	28(100%)	25(48%)	11(13.4%)	18(50%)	82(41.4%)
	Others	00	02(4%)	01(1.2%)	00	03(1.6%)
Nature of Attachment	Government Employee	24(85.7%)	17(32.7%)	29(35.4%)	06(16.7%)	76(38.4%)
	Private employee	04(14.3%)	35(67.3%)	37(45.1%)	30(83.3%)	104(52.5%)
	Freelancer	00	00	11(13.4%)	00	12(6.1%)
	Government employee with freelancing	00	00	05(6.1%)	00	06(3%)
Level of Attachment	Primary health care facility	00	02(3.9%)	00	00	02(1%)
	Secondary health care facility	00	02(3.9%)	19(23.2%)	06(16.7%)	27(13.6%)
	Tertiary health care facility	28(100%)	48(92.2%)	63(76.8%)	30(83.3%)	169(85.4%)
Area of work	Labor ward	08(28.6%)	06(11.5%)	08(9.8%)	16(44.5%)	38(19.2%)
	Obstetric general ward	01(3.6%)	00	01(1.2%)	12(33.3%)	14(7%)
	Obstetric OPD	00	01(2%)	09(11%)	00	10(5.1%)
	All in rotation	19(67.8%)	45(86.5%)	64(78%)	08(22.2%)	136(68.7%)
Work deals with COVID19 positive or potentially suspected cases	Yes	27(96.4%)	47(90.4%)	70(85.4%)	22(61.1%)	166(83.8%)
	No	01(3.6%)	05(9.6%)	12(14.6%)	14(38.9%)	32(16.2%)
Total working hours per week		66.89 (33.098)	56.71 (28.928)	46.02 (27.723)	51.24 (29.958)	51.24 (29.958)
Number of night shifts per month		14.71 (6.820)	9.27 (7.165)	4.87 (4.274)	7.86 (4.975)	7.96 (6.519)
Average sleeping time per day in hours		6.21 (1.771)	6.56 (1.434)	6.80 (1.309)	6.89 (1.326)	6.67 (1.424)
Percentage of financial loss suffered during COVID19 pandemic		15.32 (21.455)	19.90 (28.483)	28.67 (23.412)	18.97 (16.517)	22.72 (23.967)

Table 2: The performance of our study on the Checklist for Reporting Results of Internet E-Surveys (CHERRIES)

Item Category	Checklist Item	Explanation
Design	Survey design	Cross-sectional survey targeted towards maternity care providers, using a purposive sampling
Institutional review board	Approval	Approved by Institutional review board
Informed consent	Informed consent	Informed consent obtained at the start of the survey. Contact information of the surveyors provided at the end of the survey
	Data protection	Only surveyors could access the data by personalized login ID
Development & pretesting	Testing	Survey was pre-tested on a smaller group in a pilot phase. The data from pilot phase no included in the final study
Recruitment	Survey type	Open (any subject fulfilling inclusion criteria could join)
	Contact mode	Personalized request sent by mail or messages
	Advertising	Not done
Survey administration	Mode	Email
	Mandatory/ voluntary	Voluntary
	Incentives	Nil
	Randomization	Not done
	Adaptive questioning	Done to reduce the number of questions
	No. of items per page	Ranged from 10-15
	No. of screen	11
	Completeness check	Done
	Review	Not possible after final submission
Response rates	Unique visitor	Ascertained by collecting email receipts
	Rates of participation & completion	Calculated
Preventing duplication of entry	Email receipts	Done manually
Analysis	Incomplete questionnaires	Not possible by design
	Statistical correction	Not required

The scores on the KAP questionnaire were compared across the four groups in table 2. It showed that there were no significant differences between the groups in the total score or in its sub-domains except scores on attitude sub-scale which was significantly lower among the consultants.

Table 3: The results of one-way ANOVA of measures of KAP questionnaire across the four groups of subjects

	Intern doctor (I)	Resident doctor (II)	Consultant/ Faculty (III)	Staff Nurse (IV)	ANOVA; dF; P value	Post hoc Tukey' s test
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)		
KAP-Knowledge	33.64 (8.08)	33.85 (6.49)	34.91 (5.78)	34.17 (6.78)	0.426; 3; 0.734	
KAP-Attitude	18.46 (3.33)	18.85 (3.00)	17.35 (3.02)	18.08(3.21)	2.691; 3; 0.048*	III<I, II, IV
KAP-Practice	21.39 (3.88)	21.81 (2.78)	20.84 (3.30)	22.39 (3.62)	2.074; 3; 0.105	
KAP- Total	73.50 (11.79)	74.50 (8.61)	73.11 (7.48)	74.64 (9.15)	0.398; 3; 0.754	

The prevalence of burnout was ascertained by obtaining number of subjects having mean item score of more than 1.33 in the PFI-burnout subscale. Figure 1 shows the prevalence of burnout across the groups. Overall, the prevalence of burnout in MCPs in our sample was 36.36%. The prevalence was highest among the interns (64.28%), followed by nurses, consultants and residents respectively.

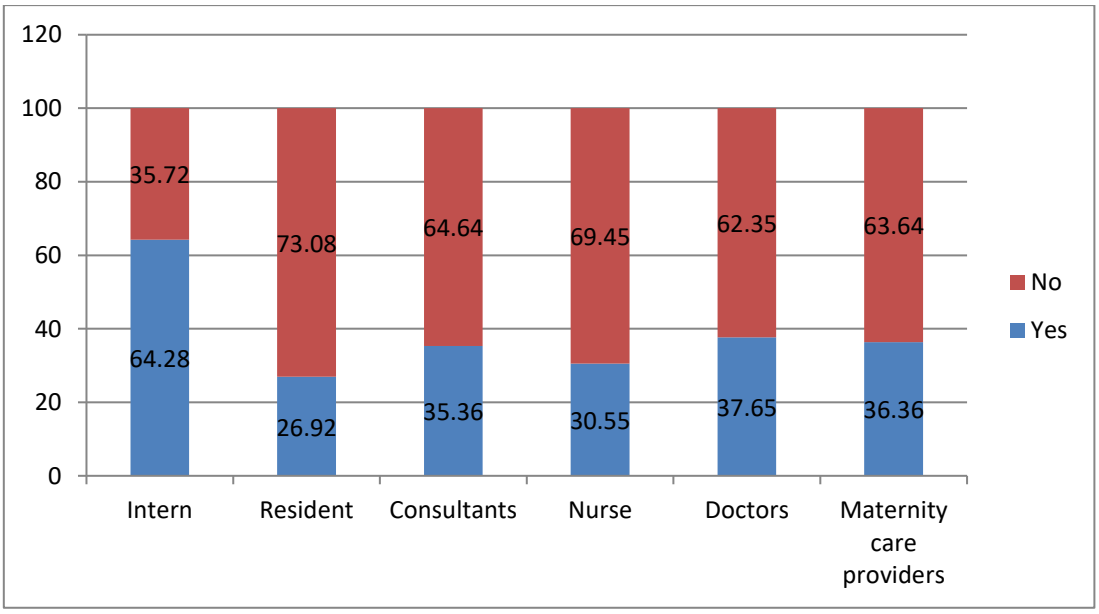

Figure 1: Figure depicting the percentage prevalence of burnout across various groups

Table 3 and 4 compared the various clinical and socio-demographic variables among subjects with and without burnout. It was found that there was significantly higher burnout amongst subjects working in a government setup and having higher amount of night-shifts per week. Subjects with burnout also scored lower on KAP questionnaire and, professional fulfillment and higher on questionnaire to assess family support (indicating poorer family support).

The likelihood ratio (LR) of factors that can have relation with burnout was chosen based on the results of the correla-

tion analysis and a model of binary logistic regression was created (Table 5). Among the various factors included, scores on measures of family support (LR- 1.141); number of night-shifts (LR-1.057) and professional fulfillment (LR- 0.907) were significantly predictive of measures of burnout, but scores of KAP were not significantly predictive.

Table 4. Comparison of various categorical clinical variables in between subjects with and without burnout using chi-square tests

Independent variables		Burnout		Chi-Square; dF; p
		Yes	No	
		N (%)	N (%)	
Gender	Male	10(33.3)	20(66.7)	0.14; 1; 0.838
	Female	62(36.9)	106(63.1)	
Marital Status	Married	35(31)	78(69)	6.33;4;0.176
	Unmarried	36(43.9)	46(56.1)	
	Others	01(33.3)	02(66.7)	
Level of Attachment	Primary health facilities	00	02(100)	1.84;2;0.399
	Secondary health facilities	08(29.6)	19(70.4)	
	Tertiary health facilities	64(37.9)	105(62.1)	
Nature of Attachment	Government institutions	38(50)	38(50)	13.20;3;0.004*
	Private institutions	30(28.8)	74(71.2)	
	Freelancing	01(8.3)	11(91.7)	
	Government employee with freelancing	03(50)	03(50)	
Area of work	Labor ward	20(52.6)	18(47.7)	6.25;3;0.100
	Obstetric general ward	03(21.4)	11(78.6)	
	Obstetric OPD	03(30)	07(70)	
	All in rotation	46(33.8)	90(66.2)	
Work deals with COVID positive or suspected cases	Yes	66(39.8)	100(60.2)	5.13;2;0.077
	No	06(18.8)	26(81.2)	
Financial loss during COVID19 pandemic	Yes	39(37.5)	65(62.5)	0.12;1;0.769
	No	33(35.1)	61(64.9)	
Professional qualification	Intern doctor	18(64.3)	10(35.7)	11.9;3;0.007
	Resident doctor	14(26.9)	38(73.1)	
	Consultant/Faculty doctor	29(35.4)	53(64.6)	
	Staff Nurse	11(30.6)	25(69.4)	

Table 5. Comparison of various continuous clinical variables in between subjects with and without burnout

	Burnout		t-test; dF; p
	Yes	No	
	Mean (SD)	Mean (SD)	
Age	29.58 (6.66)	31.30 (6.51)	1.77; 196; 0.078
Experience	4.25 (4.26)	5.10 (5.40)	1.15; 196; 0.251
Total hours of work per week	56.68 (28.46)	48.13 (30.46)	-1.95;196; 0.053
Total number of night shifts per week	9.40 (7.12)	7.13 (6.03)	-2.38; 196; 0.018
KAP score	71.65 (9.75)	75.04 (7.91)	2.66; 196; 0.008
Professional fulfillment	11.13 (4.87)	15.37 (6.08)	5.06; 196; <0.001
Family support	16.88 (3.52)	14.40 (3.72)	-4.60; 196; <0.001

Table 6. The results of binary logistic regression analysis of the factors having a role in burnout

Burnout	b	OR	95% Confidence Interval		p
			Lower limit	Upper limit	
Family Support	0.13	1.14	1.03	1.25	0.010
Professional Fulfillment	-0.10	0.90	0.85	0.96	0.001
Number of night-shifts	0.06	1.06	1.01	1.11	0.030
KAP score	-0.01	0.99	0.95	1.03	0.630
N observation= 198 -2 log likelihood= 218.24 Nagelkerke R^2 = 26%					

DISCUSSION

As COVID-19 pandemic has taxed the health care system worldwide with increasing toll of deaths every day, the burden over the health care providers has become enormous. During the time of this study India has been going through its peak COVID-19 affected status in the form of total infection and death rates in spite of numerous steps taken by the Government of India. National directive has been to cut short the number of elective surgeries and routine outpatient visits and increased adoption of telemedicine services to reduce the transmission of virus ("(No Title)," n.d.). But, MCPs have no way out. The obstetric patients increased both in emergency and outpatient departments as private clinics and smaller centers got closed. While MCPs were fighting the battle valiantly, our study addressed the burnout frequency among them and factors contributing to it during COVID-19 pandemic.

Our study showed that the prevalence of professional burnout among MCPs is 36% with frequency among doctors (intern, resident and faculty combined) and nurses being 38% and 30% respectively. Interestingly the frequency of burnout is lower than the previous studies quoting a prevalence of 40%-75% (Medscape National Physician Burnout and Suicide Report 2020: The Generational Divide, n.d.; Shanafelt et al., 2015) among obstetricians and 49.7% among labor and delivery nurses (Atallah et al., 2016). Among the different sub-groups of doctors, our study found a strikingly high prevalence of burnout – almost 64% among interns. Though there was no mention about interns in the previous studies, it is well documented that the young clinicians and residents are particularly at high risk of developing burnout.

Among obstetric resi-dents burnout rates may be as high as 58% (Atallah et al.,

2016), whereas in our study they had the lowest prevalence (27%). In developing and overpopulated countries like India, health care services in the medical colleges are highly dependent on the ground force of interns. Immediately after graduation, with almost no practical experience and over-zealous enthusiasm they often carry the burden of desk works with little autonomy and recognition. So, it is not unusual for them to suffer the worst, more in the face of emerging COVID-19 pandemic and needs to be addressed further. On the contrary the burnout among residents is much lower which may be explained by the greater sense of engagement and importance in the current scenario and increasing recognition of the services provided by the health care workers by the Government and media. The same factors along with the feeling of greater personal worthiness and achievement, probably have contributed to lesser prevalence of burnout among all the MCP. Similar reduction in burnout frequency among the frontline health care workers has been found in a recent study from China (Wu et al., 2020).

While comparing the association of burnout to different clinical and work related factors we found that there was no significant difference in age, experience, marital status, levels of health care facilities, area of work and presence or absence of financial loss. Contrary to the many previous studies showing a gender differrence of occupational burnout, our study failed to detect any such difference which was similar to a study from China (Ye et al., 2019). Increased workload with loss of work-life balance has been widely considered to be an important contributor to occupational burnout (Smith, 2017).

Though total working hours in our study were more among the burnout group (mean 57 hours per week) than those without burnout (48 hours per week), it failed to reach the level clinical significance (p=0.053). Against the general perception that working with the COVID19 positive or potentially suspected cases might increase the burnout, our study failed to show any such difference (p= 0.070). A study from Wuhan, China during COVID19 pandemic even showed lesser burnout among the frontline workers than the usual ward workers (Wu et al., 2020). Altered sleep patterns associated with changing work schedules is an independent risk factor of burnout and often affects the performance after a night shift (Smith, 2017). Similarly our study showed high burnout associated with increase in number of night shifts.

Our study showed significantly high prevalence of burnout among MCP employed in Government institutions (50%) with a very low prevalence of burnout among freelancers (8%). The potential reason may be the restrictions of maternity service provision by private sectors during the ongoing pandemic and thereby further worsening the workload at already overburdened government institutions. The high professional autonomy and control over work schedule enjoyed by the freelancers might have saved them from the burnout.

Clear knowledge, positive attitudes and preventive practices are backbone of the society's strength in the war against COVID-19. As correct knowledge attitude and practice is expected to help an individual to cope with the current pandemic more efficiently, we compared KAP to the professional burnout of MCP. We found that KAP score was significantly low among the professionals having burnout. In the subgroup analysis of KAP we found that positive attitude was significantly low among consultant obstetricians than others three groups i.e interns, residents and staff nurses (p= 0.048). No other scores were significantly

different between the subgroups of MCP. Lower attitude scores from the subgroup of MCP with highest academic achievement and leadership quality is highly unexpected and may be disastrous for the whole clan as well as the community.

Since the beginning, a feeling of frustration and poor work related achievements had been considered as an integral part of burnout syndrome in different literatures (Maslach et al., 2015). Our study also confirmed the significant association of lower professional fulfillment score with burnout syndrome (Trockel et al., 2018). If not addressed timely it may lead to decreased productivity, substandard patient care and early retirement from obstetric practice. Indirectly it might cost economic loss as much as $213.1million as reported in a study from Canada (Dewa et al., 2014).

Our study found that poor family/ spousal support was associated with high burnout frequency. Similar results were found in a study among anesthetists (De Oliveira et al., 2011). It is important to improve awareness of the family members of the MCPs' to help them deal with the demanding situation.

The major strength o-f our study was that it was multi-centric and we believe that our sample was fairly representative of the target population. It abided strongly by the CHERRIES guideline, thus ensuring the quality of reporting of this study. Since our study was online and confidential, it ensured honest responses from the respondents. Since, the whole process of data collection was by using online forms, the chances of errors while managing data was significantly reduced. However, there were some limitations as well. The response rate in our sample was modest, which itself can be due to burnout and can inflict a selection bias in our sample. Being a cross-sectional study, it was not possible to attribute a direction of causality. Also since, many of the responses were retrospective in nature; the possibility of recall bias also remains.

To conclude our study shows that there is significant burnout in MCP during the COVID-19 pandemic and this burnout is related to working in a government set-up, higher number of night shifts, poor professional fulfillment, KAP score and family support. The future endeavors in this direction should focus on building evidence for strategies targeted towards reduction of burnout in MCP. Future studies can be conducted using a prospective design so that we can attribute a direction of causality to the various factors predicting burnout in MCP. It should be reiterated that burnout is a big price MCP has to pay while delivering their services. While this COVID-19 pandemic has stretched our resources in many possible ways, it should also pave a way for promotion of wellness in MCP.

Maternity care providers (MCP) function in an area of high expectation under strenuous work schedule. Any deviation from the normal outcome is looked upon as failure. As a result, burnout in MCP is very high. Such burnout can increase in pandemics, as evidence from the past portrays. The current study shows that the prevalence of burnout in MCP during the COVID-19 pandemic is high. It was highest among interns and least amongst obstetrics residents, contrary to previous studies. Burnout tended to increase with higher number of night-shifts, employment in government set-ups, worse family support and lower professional fulfillment. Targeted intervention depending on the cadre of MCP is required. Cadre with low resources and lesser recognition (e.g. - Interns) require more intensive intervention. Micro-planning regarding work-hours, schedule and nature of posting can be helpful. Monitoring of mental health and appraisal of employees are of paramount

importance.

AUTHORS CONTRIBUTIONS

The study was conceptualized and designed by Sayanti Paul (SP) and Arghya Pal (AP). Mansi Upadhyaya (MU), D. Joycerani (DJ) and Poushali Sanyal (PS) were involved in reviewing and finalizing the protocol. SP, DJ, MU, PS were involved in the collection of data. SP and AP were involved in compilation, analysis of the data, writing the first draft. All the authors subsequently reviewed and suggested modifications. The final draft was made incorporating the opinion of all authors. The final manuscript was approved by all authors.

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CONFLICT OF INTEREST

Nil.

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