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Original article

The prevalence, determinants and the role of empathy and religious or spiritual beliefs on job stress, job satisfaction, coping, burnout, and mental health in medical and surgical faculty of a teaching hospital: A cross-sectional survey

La prévalence, les déterminants et le rôle de l'empathie et des croyances religieuses ou spirituelles sur le stress au travail, la satisfaction au travail, l'adaptation, l'épuisement professionnel et la santé mentale dans la faculté de médecine et de chirurgie d'un hôpital d'enseignement : une enquête transversale

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ABSTRACT

Objective. – Systematically ascertained data on job stress and burnout and their antecedents and mediators in health professionals from low- and middle-income countries are scant.

Methods. – This cross sectional survey, conducted from July 2007 to August 2008, of consenting medical and surgical faculty of a large, charitable, teaching hospital aimed to evaluate: 1) the prevalence and sources of job stress and job satisfaction, and the ways used to cope with stress; 2) the prevalence of burnout and mental distress; and 3) the influence of age, gender, empathy and religious or spiritual beliefs on job stress, satisfaction, mental health and burnout.

Results. – Of 345 respondents, high job stress on the Physician Stress and Satisfaction questionnaire were reported by 23%. However, 98% of faculty reported high levels of job satisfaction with deriving intellectual stimulation from teaching and a high level of responsibility identified as important contributory sources. Significantly more respondents aged < 45 years compared to older faculty achieved moderate or high scores on Emotional Exhaustion and Depersonalization. General Health Questionnaire-12 scores suggested psychiatric morbidity in 21%, particularly in younger faculty. High job stress was associated with high scores for Emotional Exhaustion and Depersonalization. High scores on the Jefferson Scale of Physician Empathy correlated with high scores of Emotional Exhaustion. Religious or spiritual beliefs strongly influencing attitudes to work were significantly associated with high levels of Personal Accomplishment.

Conclusions. – This study provides data that will inform the design and implementation of interventions to reduce job stress and burnout and improve retention of faculty.

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RÉSUMÉ

Mots clés :

Épuisement émotionnel
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Dépersonnalisation

Objectif. – Les données sur le stress au travail et l'épuisement professionnel chez les professionnels de la santé des pays à revenu faible ou moyen sont rares.

Méthodes. – Cette enquête transversale, menée de juillet 2007 à août 2008, auprès de membres de la faculté de médecine et de chirurgie d'un grand hôpital d'enseignement caritatif, visait à évaluer : 1) la prévalence et les sources du stress au travail et de la satisfaction au travail, et les moyens utilisés pour

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les gérer ; 2) la prévalence de l'épuisement professionnel et de la souffrance psychologique ; 3) l'influence de l'âge, du sexe, de l'empathie et des croyances religieuses ou spirituelles sur le stress, la satisfaction, la santé mentale et l'épuisement au travail.

Résultats. – Sur 345 répondants, 23 % ont signalé un niveau élevé de stress au travail dans le questionnaire sur le stress et la satisfaction des médecins. Mais 98 % des membres du corps professoral se sont dits très satisfaits de leur travail, en raison de la stimulation intellectuelle découlant de l'enseignement et d'un niveau élevé de responsabilité. Comparativement aux participants les plus âgés, beaucoup plus de répondants âgés de moins de 45 ans avaient des scores d'épuisement émotionnel et de dépersonnalisation modérés ou élevés. Les résultats du « General Health Questionnaire-12 » suggéraient une morbidité psychiatrique chez 21 % des répondants, en particulier chez les jeunes enseignants. Un stress professionnel élevé était associé à des scores élevés pour l'épuisement émotionnel et la dépersonnalisation. Un score élevé sur l'échelle Jefferson Scale of Physician Empathy était corrélé à un score élevé d'épuisement émotionnel. Les croyances religieuses ou spirituelles influençant fortement les attitudes à l'égard du travail étaient associées de façon significative à des niveaux élevés d'accomplissement personnel.

Conclusions. – Cette étude fournit des données qui éclaireront la conception et la mise en œuvre d'interventions visant à réduire le stress au travail et l'épuisement professionnel et à améliorer le maintien en poste du personnel enseignant.

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1. Background

There are many attributes expected of doctors from their patients as well as from their colleagues, and superiors, particularly in academic medical centres with busy patient loads and under-graduate and post-graduate courses. Professionalism, compassion, skill, experience, and patience are oft-quoted preferences of patients [1,2], while superiors and employers expect a full teaching load, research publications, rising patient numbers and profits. While in some doctors these expectations lead to increased productivity, in others this leads to dissatisfaction and distress and desires to leave the profession [3].

Physician stress is attributed largely to organizational structures and practices, demanding work, long hours, personality types, and interpersonal problems [4–6]. Work stress leading to an exaggerated sense of responsibility often results in emotional exhaustion, depersonalization, and a low sense of personal accomplishment (a constellation of features called burnout), psychiatric disorders and absenteeism [7–9]. While rates of depression are reported to be higher among physicians than in the general population [10], physician alcoholism and drug dependency are also a problem though rates are not substantially higher than in age-matched peers [11]. Physician suicide rates are substantially higher compared with the general population, yet physicians are slow to seek help, owing to fear of judgment, stigma and punitive actions [11–13].

Apart from the effects of job stress on physician's mental health, concerns over physician errors, particularly in those who are burnt-out or depressed [14], have curtailed working hours in many developed countries, though not with universal success in their intended goals [15].

Studies on job stress and burnout provide useful information on their putative antecedents or associated risks but need to be supplemented by systematic enquiry on the possible protective effects of job satisfaction, as well as the sources of job satisfaction that could protect against burnout [16]. Certain attributes considered desirable of physicians, such as empathy, could also predispose clinicians to greater rates of burnout [5,17].

In this cross-sectional survey of medical and surgical faculty of this large teaching hospital in India, we aimed to evaluate:

- the prevalence and sources of job stress and job satisfaction and the ways used to cope with stress;
- the prevalence of burnout and mental health problems;

- the influence of age, gender, empathy and religious beliefs on job stress, satisfaction and burnout.

2. Methods

2.1. Setting

The Christian Medical College at Vellore (home.cmcvellore.ac.in) in the southern state of Tamil Nadu, India is a 2800 bed, multi-specialty, private, charitable institution that evolved as a single-bed dispensary from the year 1900.

2.2. Design

A cross-sectional survey was undertaken from July 2007 to August 2008 using a protocol approved by the institution's research and ethics committees (institutional review board).

2.3. Participants

A list was drawn of 432 medical and surgical faculty holding designations from tutors to professors, who were not on study or sabbatical leave, from 47 teaching and service departments of the institution. Eligible faculty that refused consent, as well as those who did not return completed forms were excluded.

2.4. Instruments (details in supplement)

Each participant was given the following instruments to fill in and return with the assurance that the results of the completed, anonymous questionnaires would respect confidentiality.

- Socio-demographic details: age, sex, marital status, number of children, post-graduate qualification, department and years after completing postgraduation.
- General Health Questionnaire-12 (GHQ 12).
- Burnout: The Human Behaviour Survey (Maslach burnout inventory; MBI) [18].
- Job stress and Job Satisfaction Questionnaire [16].
- Empathy: The Jefferson Scale of Physician Empathy (JSPE).
- Religious or spiritual beliefs: a single question, “my religious or spiritual beliefs strongly influence my approach to my work and patients” was added.

Table 1

Socio-demographic details of participants.

	Respondents by specialty				
	Medical	Surgical	Chronic care	Non-clinical	Public health
n	91	126	34	70	24
Mean age in years (SD)	41.02 (9.29)	40.02 (7.73)	39.88 (9.50)	40.86 (8.78)	40.88 (9.16)
Range	29–60	29–59	26–59	27–59	27–58
Mean number of children (SD)	1.3 (0.8)	1.5 (0.8)	1.2 (0.9)	1.3 (0.9)	1.6 (1.0)
Range	0–3	0–3	0–3	0–3	0–4
Mean number of years after post-graduation (SD)	11.1 (8.7)	9.6 (7.8)	10.4 (9.4)	11.3 (8.8)	10.8 (8.7)
Range	0–32	0.2–33	0–31	0.5–34	0–27
Respondents by gender					
Male	Female	Total			
211	134	345			

2.5. Administration

The questionnaires explained the nature of the study, ensured anonymity and assured confidentiality.

2.6. Data handling and statistical analysis

Double data entry was done using SPSS version 11.0 (SPSS, inc) by the first author and a person not associated with the study to ensure accuracy. Categorical variables were dichotomized, if possible, and analysed with Chi² or Fischer's exact tests. Odds ratios and 95% Confidence Intervals (CIs) were computed, where possible. Continuous variables were analysed using independent sample t tests, or Wilcoxon's test if data were skewed. Analysis of variance (ANOVA) was used if more than one group's characteristics were being analysed, with post-hoc Bonferroni test for group-wise comparisons, if variances were equal, or Dunnett's test when equal variances were not assumed. Logistic Regression was used to ascertain important sources of stress and satisfaction, as well to evaluate contributors to the components of burnout. Since multiple comparisons were used for the questions on the sources of stress and satisfaction questionnaires, two-tailed P values were set at <0.001 to be considered significant in univariate analyses. For other comparisons, a two-tailed P value of <0.05 was used to assess significance.

3. Results

Of 432 sets of questionnaires that were distributed, 345 (80%) were returned. Of these, 15 Maslach Burnout Inventories, three GHQ-12 questionnaires, and 63 JSPE scales were incomplete. All incomplete scales were excluded from analysis.

The 47 departments and units were classified into five specialties; acute medical, surgical, chronic and palliative care, non-clinical and supportive services, and public health. No significant differences were noted among the 345 respondents across specialties or gender in age, number of children and years since post-graduate qualification (Table 1).

3.1. Prevalence and sources of job stress and job satisfaction and ways of coping with stress

3.1.1. Job stress and satisfaction

The ratings on the Job Stress and Satisfaction questionnaire were dichotomized and compared across specialties, genders, and those aged 45 years or less and above 45 years (Table 2). Overall stress levels were reported as 'quite a bit' or 'extreme' by 82/345 respondents (23%); yet 338/345 respondents (98%) reported that they found work 'quite a bit', 'a lot' or 'extremely satisfying'.

3.1.2. Sources of job related stress

The responses on 25 sources of job related stress, categorized under convenient heads, are provided in Table 3. Logistic regression identified the following sources of job stress that differentiated those with high and low stress.

- Having too great an overall volume of work—adjusted OR 3.3 (95% CI 1.5–7.2).
- Disruption of home life as a result of being on call—adjusted OR 3.0 (95% CI 1.5 to 6.2).
- Having inadequate staff to do your job properly—adjusted OR 2.7 (95% CI 1.3 to 4.5).
- Feeling you are poorly paid for the job you do—adjusted OR 2.2 (95% CI 1.1 to 4.5).
- Encountering difficulties in relationship with colleagues—adjusted OR 0.3 (95% CI 0.1 to 0.6).

Though overall stress levels did not differ among those <45 years versus those >45 years, certain aspects of work were more stressful for those below 45 years:

- disruption of home life through spending long hours at work: OR 1.9 (95% CI 1.2 to 3.1);
- being poorly paid: OR 1.8 (95% CI 1.1 to 2.9);
- disruption of home life as a result of taking paperwork home: OR 2.2 (95% CI 1.2 to 4.1);
- disruption of home life as a result of being on call: OR 2.5 (95% CI 1.3 to 4.7);
- uncertainty over future job prospects: OR 4.4 (1.9 to 10.1);

Similarly, though men and women did not differ in proportions reporting significant stress overall, more women reported stress than men on keeping up-to-date with current literature, pressure to meet deadlines and being responsible for quality of work. The only area where more men than women reported as a source of job stress was in stress due to feeling poorly paid (OR 1.9; 95% CI 1.2 to 3.0).

3.1.3. Sources of job satisfaction

Table 4 details the sources of satisfaction in surveyed faculty. The factors that emerged significant as contributing to high levels of job satisfaction when the 17 potential sources were entered into logistic regression were:

- deriving intellectual stimulation from teaching: adjusted OR 51.8 (95% CI 1.8 to 1489.5);
- having a high level of responsibility: adjusted OR 51.3 (95% CI 2.1 to 1303.5);

Table 2

Levels of job stress in participants by specialty, age and gender.

Category	Overall job stress levels		P value
	Nil or a little, n (%)	Quite a bit or extreme, n (%)	
Specialty			
Medical (n = 91)	67 (73.6)	24 (26.4)	0.34
Surgical (n = 133)	93 (73.8)	33 (26.2)	
Chronic care (n = 34)	25 (73.5)	9 (26.5)	
Non-clinical (n = 68)	56 (82.4)	12 (17.6)	
Public health (n = 24)	22 (91.7)	2 (8.3)	
Age			
Younger than 45 years (n = 235)	174 (74.0)	61 (26.0)	0.89
45 years or older (n = 108)	89 (82.4)	19 (17.6)	
Gender			
Male (n = 210)	165 (78.6)	45 (21.4)	0.84
Female (n = 133)	98 (73.7)	35 (26.3)	
Total (n = 343)	263 (76.7)	80 (23.3)	

n: number of respondents; %: percentage.

Table 3

Sources of job stress among male and female faculty and among those above and below 45 years [number (%) endorsing moderate to high stress].

	Overall, n = 343	< 45 yrs (n = 235)	> 45 yrs (n = 108)	Male (n = 210)	Female (n = 134)
Feeling overloaded and its effect on home life					
Disruption of your home life through spending long hours at work	151 (44)	115 (49) ^a	36 (33)	92 (44)	59 (44)
Disruption of your home life as a result of taking paperwork home	77 (22)	62 (27) ^a	15 (14)	45 (21)	32 (24)
Disruption of your home life as a result of being on call	78 (23)	64 (27) ^a	14 (13)	51 (24)	27 (20)
Keeping up-to-date with current clinical and research practices	149 (43)	102 (43)	47 (44)	80 (38)	69 (52) ^a
Feeling under pressure to meet deadlines	141 (41)	97 (41)	44 (41)	72 (35)	69 (52) ^a
Having too great an overall volume of work	154 (45)	101 (43)	53 (49)	92 (44)	62 (47)
Feeling poorly managed and resourced					
Feeling you have insufficient input in to the management of your unit or institution	79 (23)	52 (22)	27 (25)	49 (23)	30 (23)
Having inadequate facilities (e.g. equipment, space) to do your job properly	105 (30)	72 (31)	33 (31)	66 (31)	39 (29)
Feeling you are poorly paid for the job you do	122 (35)	93 (40) ^a	29 (27)	86 (41) ^a	36 (27)
Having inadequate staff to do your job properly	117 (34)	75 (42)	32 (39)	74 (35)	43 (32)
Dealing with the threat of being sued for malpractice	16 (5)	10 (6)	4 (6)	10 (5)	6 (5)
Feeling that your accumulated skills and expertise are not being put to their best use	86 (25)	64 (27)	22 (20)	55 (26)	31 (23)
Uncertainty over the future job prospects	62 (18)	55 (22) ^b	7 (7)	36 (17)	26 (20)
Multiple responsibilities and role conflicts					
Having to take more financial responsibilities than you can or would like to handle	61 (18)	43 (18)	18 (17)	40 (19)	21 (16)
Being responsible for the quality of the work of other staff	141 (41)	97 (41)	44 (41)	72 (34)	35 (52) ^a
Having conflicting demands on your time, e.g. patient care/management/research/college	174 (50)	119 (51)	55 (51)	103 (49)	71 (53)
Having a conflict of responsibilities (e.g. clinical vs. managerial; clinical vs. research)	118 (34)	84 (36)	34 (32)	73 (35)	45 (34)
Being responsible for the welfare of other staff	76 (22)	51 (21)	25 (22)	41 (20)	35 (27)
Dealing with patients and relatives					
Being involved with the physical suffering of patients	91 (26)	60 (25)	31 (29)	55 (26)	36 (27)
Having to deal with distressed, angry or blaming relatives	63 (19)	48 (20)	16 (15)	42 (20)	22 (17)
Being involved with the emotional distress of patients	66 (19)	40 (17)	26 (24)	33 (16)	33 (25)
Interpersonal conflicts					
Encountering difficulties in relationship with senior medical staff	91 (26)	59 (25)	32 (30)	52 (25)	39 (29)
Encountering difficulties in relationship with colleagues					
Encountering difficulties in relationships with administrative staff	73 (21)	46 (20)	27 (25)	38 (18)	25 (26)
Encountering difficulties in relationships with paramedical staff	53 (15)	39 (17)	14 (13)	34 (16)	19 (14)
Overall how stressful do you find your job?	80 (23)	61 (26)	19 (18)	45 (21)	35 (26)

^a P < 0.01^b P < 0.001

Table 4

Sources of satisfaction among men and women and those under and above 40 years of age [number and % endorsing moderate to high job satisfaction].

	Overall, (n = 343)	< 45 yrs (n = 235)	> 45 yrs (n = 108)	Male (n = 210)	Female (n = 134)
Feeling well managed and resourced					
Feeling you have a high level of job security	242 (70)	149 (63)	93 (87) ^b	147 (70)	95 (70)
Feeling your clinical experience is used to the full in the job you do	233 (68)	161 (68)	72 (67)	147 (70)	86 (64)
Feeling you have adequate financial resources to do a good job	201 (58)	133 (56)	68 (63)	117 (56)	84 (63)
Having a high level of autonomy	236 (68)	147 (62)	89 (82) ^b	145 (61)	91 (68)
Feeling you have the staff necessary to do a good job	191 (55)	133 (56)	58 (54)	115 (55)	76 (57)
Feeling you have adequate facilities to do a good job	251 (73)	171 (72)	80 (74)	153 (73)	98 (73)
				<i>Having good relationships with patients, relatives and staff</i>	
Having good relationships with patients	257 (75)	175 (74)	82 (76)	166 (79)	91 (69)
Feeling you deal well with patients' relatives	226 (66)	153 (65)	73 (67)	147 (70)	79 (60)
Having good relationships with other staff members	297 (86)	197 (83)	100 (93) ^a	178 (84)	119 (89)
				<i>Getting professional satisfaction, status and esteem</i>	
Deriving intellectual stimulation from research	177 (51)	115 (49)	62 (58)	118 (56)	59 (44)
Having variety in your job	280 (81)	188 (79)	92 (85)	177 (84)	103 (77)
Having opportunities for personal learning (developing clinical/research/management skills)	246 (71)	171 (73)	75 (69)	157 (74)	89 (76)
Being involved in activities, which contribute to the development of your profession	244 (71)	157 (66)	87 (81) ^a	154 (73)	90 (67)
Deriving intellectual stimulation from teaching	271 (79)	167 (71)	89 (83) ^a	172 (82)	99 (74)
Having high level of responsibility	256 (74)	175 (74)	96 (89) ^a	157 (75)	99 (73)
Being perceived to do the job well by your colleagues	256 (75)	170 (72)	87 (81)	163 (77)	94 (70)
Being able to bring about positive change in your unit/institution	213 (62)	139 (59)	74 (69)	137 (65)	76 (57)
Overall how satisfying do you find your job?	338 (98)	231 (98)	107 (99)	207 (98)	131 (98)

^a P < 0.01.

^b P < 0.001.

- the high level of job satisfaction overall was seen in all age groups and both genders. However, significantly more people older than 45 years rated the following as contributing to their job satisfaction than did people aged 45 years or younger:
 - having a high level of job security: OR 3.7 (95% CI 2 to 6.7),
 - deriving intellectual stimulation from teaching: OR 2.8 (95% CI 1.5 to 5.5),
 - having a high level of autonomy: OR 2.9 (95% CI 1.6 to 5.0),
 - having good relationships with other staff members: OR 2.5 (95% CI 1.2 to 5.6),
 - being involved in activities, which contribute to the development of their profession: OR 2.1 (95% CI 1.2 to 3.7),
 - having high level of responsibility: OR 2.0 (95% CI 1.1 to 3.5),
 - the only source of job satisfaction that significantly differed between genders was that more women endorsed having good relationships with patients as a source of satisfaction than did men (OR 1.7; 95% CI 1.1 to 2.8).

3.1.4. Coping with stress

Table 5 details the frequencies of various ways of coping with stress reported by faculty categorized as controlled, potentially hazardous, and supported coping. Talking to one's spouse and friends and other informal ways of coping were more commonly used than formal support. However, some reported that working longer hours was the way of coping with the stress.

3.2. Prevalence of burnout and mental health problems

3.2.1. Burnout

Only 330 people returned completed Maslach Burnout Inventory forms. **Table 6** provides the mean scores and categorised scores on the Emotional Exhaustion (EE), Depersonalization (DP) and Personal Accomplishment (PA) scales for the sample of faculty with complete data on each dimension. The table reveals that 23% of faculty evidenced high levels of Emotional Exhaustion, 16% evidenced high levels of depersonalization in their interactions, and 22% exhibited low levels of personal accomplishment. However,

Table 5

Ways of coping with job stress reported by 342 participants.

Ways of coping	n (%)
Potentially constructive	
Taking exercise/playing sport	131 (38)
Talking to colleagues formally, i.e. in a regular support group	100 (29)
Re-organizing your work to reduce stress	138 (40)
Pursuing hobbies/leisure activities, e.g.: gardening/listening to music	133 (39)
Learning techniques for relaxation, e.g.: physical relaxation/meditation	131 (38)
Talking to colleagues informally	100 (29)
Talking to your spouse/family/friends	138 (40)
Taking annual leave	133 (39)
Potentially harmful	
Smoking cigarettes	20 (6)
Working longer hours	123 (36)
Not eating as healthily as you would wish	95 (28)
Drinking alcohol	7 (2)
Taking other drugs	0
Supported coping	
Taking prescription drugs	4 (1)
Obtaining formal psychological support	12 (4)

none in the sample evidenced all three attributes of high levels of burnout.

Table 7 (supplement) displays the levels of burnout across different groups of specialties, in people over or under 45 years, in those married or single and in men and women.

On logistic regression, the sources of job stress that emerged significantly associated with indicators of burnout were: having too great an overall volume of work and Emotional Exhaustion (adjusted OR 2.0; 95% CI 1.1 to 3.8; P = 0.2); encountering difficulties with administrative staff and Depersonalization (adjusted OR 2.9; 95% CI 1.3 to 6.3; P = 0.009); and feel poorly paid and low Personal Accomplishment (adjusted OR 2.2; 95% CI 1.0 to 4.5; P = 0.4).

We also compared the mean scores of the MBI component across specialties, older and younger age, gender and marital status (**Table 8, supplement**).

Table 6

Scores on the Human Behavior Survey (Maslach Burnout Inventory).

	Emotional Exhaustion (EE) (n=333)	Depersonalization (DP), (n=330)	Personal Accomplishment (PA), (n=331)
Mean (SD)	18.8 (10.8)	6.9 (5.3)	30.5 (9.7)
High: n (%)	77 (23)	53 (16)	157 (47)
Moderate: n (%)	100 (30)	88 (27)	101 (31)
Low: n (%)	157 (47)	189 (57)	73 (22)

SD: standard deviation; n: number of respondents; % percentage.

3.2.2. Mental health

Overall 74/342 (21.4%) who returned completed questionnaires had GHQ-12 scores of 4 or more, suggestive of psychiatric morbidity. GHQ-12 scores did not differ between those married or single, or in men (44/209; 21%) compared to women (30/133; 23%).

Significantly fewer people above 45 years (8/106 [7.5%]) scored 4 or more on the GHQ-12 compared to those 45 years of age or younger (66/236; 28%; OR 0.2; 95% CI 0.1 to 0.5; P=0.000).

Table 9 (supplement) provides the GHQ-12 mean scores for men and women and older and younger people. These scores did not reveal significant differences between genders (P=0.86). However, in keeping with the results of dichotomized GHQ-12 scores, the mean scores were significantly lower for older faculty compared to younger (P=0.000) and did not significantly differ across specialties.

3.3. Effects of empathy, religious beliefs and mental health on job stress, satisfaction and burnout

3.3.1. Empathy

Over 70% of faculty of the 282 faculty that returned complete questionnaires endorsed views that indicated moderate to high empathy on the 20 items on the Jefferson Scale of Physician Empathy (JSPE). The mean score on the JSPE was 80.5 (SD 8.1; range 16 to 106). JSPE scores did not differ significantly between men and women and in those above and below 45 years (**Table 10, supplement**).

JSPE scores did not differ significantly in the other domains of burnout (**Table 11, supplement**).

3.3.2. Religious beliefs

In response to the question, "My religious or spiritual beliefs strongly influence my approach to my work and patients" 204/306 respondents (59%) answered 'yes'; 76/306 (22%) answered 'no', and 26/306 (8%) were neutral in their response. No responses were recorded by 39 people. Mean GHQ-12 scores did not differ significantly between these categories of responses (ANOVA P=0.4). Endorsing religious or spiritual views as influencing one's work did not significantly affect perceptions of job stress (P=0.6) or job satisfaction (P=0.2). However, while scores on the Emotional Exhaustion and Depersonalization domains of the MBI did not differ significantly according to religious or spiritual beliefs, scores on Personal Accomplishment were significantly higher in those who reported that their work was influenced by their religious or spiritual beliefs (P=0.002).

Table 12 (supplement) presents scores on the MBI components that reveal that religious or spiritual beliefs influencing one's attitudes to work affect some aspects of burnout.

3.3.3. Mental health and burnout

While indices of poor mental health may be influenced by feeling of burnout and the reporting of mental distress might be influenced by feelings of being burnt out, there are similarities between the two states. In this survey, people with a GHQ score more than 4 had increased odds of between 70 to 90% of reporting moderate or

high scores on the MBI EE domain compared to those with GHQ scores less than 4 (**Table 13, supplement**).

4. Discussion

This cross-sectional survey evaluated the prevalence and determinants of job stress, job satisfaction, sources of stress and job satisfaction, ways of coping with stress, mental distress/disorder and burnout and attempted to evaluate the influence of age, gender, type of work, empathy among faculty and their religious or spiritual views on these among the faculty of one of the largest private, teaching medical institutions in India. The response rate of 80% ensures that these findings are representative of the views of the medical and surgical faculty of this institution at the time of the survey. Interestingly in our cohort, there was no difference in male versus female responders when compared amongst medical and surgical specialties. This is discordant to the western literature where lesser number of female physicians are seen in the surgical specialties [19,20]. This discrepancy compared to the other practices can be attributed to the institutional drive to provide equal opportunity for the individuals to choose the career of choice despite differences in culture, gender and age.

The relevance of this study, considering that it comes from a private medical college in India, is that with a population of over one billion people, the public health system is unable to meet the healthcare needs of the entire population and only 20% of healthcare expenditure in India is met through government spending [21,22]. Most users of healthcare pay from their own pocket and, even in rural areas, prefer private services to government ones [22]. These out of pocket expenses exacerbate poverty and constitute a prime reason for penury in the economically disadvantaged in India [23,24]. However, India also has a profitable private healthcare system consisting of state of the art 'corporate hospitals' and private clinics, though the expense involved puts such care out of the reach of many economically disadvantaged people. Charitable, non-governmental institutions, such as the one studied in this report, that provide education, without charging exorbitant students fees, and affordable healthcare to economically disadvantaged people from urban and rural areas are less common and staff recruitment and retention in such institutions are an ongoing challenge.

4.1. Job stress

Among the salient findings that emerged from this study is that indicators of high job stress are evident in a fourth of faculty in this institution. The levels of stress non-significantly varied according to the nature of work with those in public health reporting lowest stress scores. Surgical disciplines did not differ from medical disciplines significantly and this differs from the findings of a previous survey among post-graduate residents done in this institution where 71% of surgical residents reported high stress versus 58% in non-surgical and 33% in non-clinical departments [25]. However, the overall stress levels are similar to those reported among consultants in the UK (27%) in a study using the same questionnaire [16] and the lack of differences in stress levels among surgical and

non-surgical consultants is in agreement with the results of this survey.

The important sources of stress that emerged from logistic regression were in order of impact: having too great an overall volume of work, disruption of home life as a result of being on call, inadequate staffing, feeling poorly paid and encountering difficulties in relationship with colleagues. These are sources of stress in other surveys as well [4,6,8,26,27] and were also reported by postgraduate residents in the earlier study [25].

However, though the rates of reporting stress were similar across age groups, sources of stress differed in younger faculty compared older faculty. Similarly, the frequency of reporting high job stress was similar between men and women but the sources of stress differed between men and women. These reflect differences in life stages and role expectations and suggest that human resource initiatives to address job stress would need to be tailored according to age and gender-related concerns of the faculty.

Talking to one's spouse and friends and other informal ways of coping were more commonly used than formal support. However, some reported that working longer hours was the way of coping with the stress, presumably of excessive workloads. The reporting of the use of alcohol or other pharmacological ways of coping with stress was low in this sample and probably underreported due to fear of censure, even though anonymity was assured.

4.2. Mental health

High levels of job stress did seem to take their toll on the mental health of faculty [28]. GHQ-12 scores indicative of psychiatric morbidity were seen in 21%. GHQ-12 scores did not differ between those married or single or between men and women. In a UK study [16], 27% of consultants scored more than 4 on the GHQ-12 and in another study of NHS consultants in the UK [28], the mean GHQ-12 score was 12.1 (SD 4.7) and considerably higher than the mean GHQ-12 score of 2.1 (SD 3.0) in consultants in this study, indicating that potential mental health problems are not worryingly high in the faculty surveyed. However, between 33 to 47% of postgraduate residents in the previous survey done in this institution [25] achieved scores on the GHQ-12 indicative of psychiatric distress; this contrasts with findings from the UK [28], where restriction of working hours for junior house officers without a similar restriction in the responsibilities of NHS consultants were posited to explain the significantly higher GHQ-12 mean scores for consultants compared to junior house officers. These high rates of possible mental health problems need to be confirmed by formal psychiatric evaluation, as the GHQ is only a screening instrument. However, high GHQ scores seem part of the price people pay to work in medicine and are a source of worry as there is a greater likelihood that those with mental health problems could commit errors in their work and therefore need professional help [14,15].

The findings on the ways people cope with job stress in this institution and the results of the mental health surveys suggest that human resource initiatives should aim to increase informal, community-based support for this predominantly residential workforce whereby faculty could de-stress, keeping in mind the perceived stigma associated with seeking professional support provided by in-house counseling or psychiatric services. This could be supplemented by providing formal psychological support, perhaps even via agencies external to the institution.

4.3. Burnout

Indicators of burnout among faculty were evident with 23% of the sample evidencing high levels of Emotional Exhaustion, 16% reporting high levels of depersonalization in their interactions, and 22% exhibiting low levels of personal accomplishment. However,

none in the sample evidenced all three attributes of high levels of burnout (High EE and DP and low PA). When moderate and high scores were combined, 53% scored high on EE and 43% scored high on DP but 78% reported moderate to high levels of personal achievement. Job stress significantly contributed to burnout and different sources of stress impacted the individual components of burnout differentially. Burnout was also more common in younger people than older people, though they also reported higher levels of personal achievement. People in public health reported the lowest scores on personal achievement. Gender was not a contributory factor, nor did marital status (in the limited sample) affect burnout indices.

In a study of consultants in the UK [16], although the frequency of high emotional exhaustion and depersonalization was similar across the specialist groups studied, low personal accomplishment subscale scorers were more common among radiologists compared to gastroenterologists, surgeons and oncologists. Further comparing the western hemisphere, more than a quarter of cardiologists reported burnout by a recent study [29]. Internal medicine group of French physicians found a high rate of career satisfaction, but the training residents were reported to have a higher workload with less personal time. Trainees in this group also reported finding their work less meaningful [30]. In a study using the MBI at the Mayo Clinic [31], 34% of 556 faculty sampled met the criteria for burnout, while one in five of 267 hospital consultants in New Zealand were assessed as showing high levels of burnout [32]. What is clear is that in the present study, while many report high EE and DP, the majority also report moderate to high levels of personal accomplishment. The extent to which the latter serves as a protective influence against the effects of high job stress is unclear.

4.4. Job satisfaction

The other salient finding from this survey is that in spite of a fourth of faculty reporting high levels of job stress, over 98% reported high levels of job satisfaction. The high level of job satisfaction overall was seen in all age groups and in both genders. The most important sources of job satisfaction on logistic regression were: deriving intellectual stimulation from teaching, and having a high level of responsibility. More women than men derived satisfaction from having good relationships with patients. More men than women valued deriving intellectual stimulation from research and feeling they dealt well with patients' relatives as sources of job satisfaction though these just felt short of statistical significance.

Job satisfaction mitigates the effects of work stress and could protect against burnout in hospital consultants [31–33]. Senior faculty appears to be more resilient against the effects of job stress in this and other surveys [34]. Using senior faculty to inculcate similar values with the team and share experiences with more junior faculty by informal and formal methods appears a potentially useful strategy to build resilience in the latter and also ensure that the ethos of the institutional culture is preserved amidst the challenges and vagaries of medicine as is practiced in India today [35].

4.5. Mediating and modifying influences on job stress and burnout

4.5.1. Empathy

The majority of the faculty surveyed in this sample reported high levels of empathy and this did not vary according to specialties or gender or age. This is in contrast to the published literature on empathy where women scored higher than men and certain disciplines scored higher than others [36,37]. Empathy did not affect levels of job satisfaction or stress but contributed to high levels of Emotional Exhaustion. The association between empathy and burnout has been documented earlier [5,17] and emphasizes

the need to help physicians draw a healthy balance between their desire to help and ever increasing spiral of work leading to emotional exhaustion.

4.5.2. The effect of religious or spiritual views

In this study, 59% of those who returned completed forms reported that their religious beliefs influenced their attitudes to work and their patients. This endorsement did not affect job stress and satisfaction or increase scores on indicators of poor mental health but it contributed significantly to a sense of personal accomplishment. The protective influence of a spiritual disposition has been recognized elsewhere in building resilience in medical practitioners [38] and this data suggest that a large number of faculties in this institution use this fruitfully.

4.5.3. Mental health and burnout

Those who reported high levels of psychiatric distress also reported high levels of emotional exhaustion and depersonalization and this also impacted on perceptions of personal accomplishment. The two measures are highly correlated.

5. Limitations

This study was cross-sectional, involved only medical faculty, used self-reports, did not assess clinical functioning or assess the views of patients (on empathy), peers (on performance) or spouses or families of faculty (on the effects of stress and long working hours or ways of coping,) and assessed only a limited range of factors influencing job stress and burnout.

6. Conclusions

This cross-sectional survey of the prevalence and determinants of job stress and satisfaction, ways of coping, mental health problems and burnout and the effects of empathy and spiritual or religious beliefs influencing ones attitude to work provides data that will be critical in designing strategies to reduce stress and burnout in faculty in this institution, and increase recruitment and retention of faculty.

Authors' contributions

AL contributed to the design of the study, collected and entered all data, helped interpret the results and contributed to drafting the manuscript. AT contributed to the design of the study, helped interpret the results and draft the manuscript. PT conceived, designed and coordinated the study, checked the integrity of and analyzed data, interpreted results and wrote the manuscript. All authors approved the final version of the manuscript.

Authors' information

AL was a medical student and received the undergraduate research award for this study in 2008. AL is now a Critical Care Medicine trainee at Mayo Clinic Rochester MN, USA. AT and PT are Professors of Psychiatry at Christian Medical College, Vellore, India.

Disclosure of interest

The authors declare that they have no competing financial interests. PT is the Associate Director (Human Resources) of the Christian Medical College, Vellore.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at.

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