

## Association of Empathy and Stress in Medical Professionals

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### Abstract

**Objective:** To find association between perceived stress and empathy in medical professionals.

**Study design:** A descriptive cross sectional study.

**Place and duration of study:** RMU's affiliated hospitals Rawalpindi, 1 year duration from June 2019 to June 2020.

**Methodology:** A total of 178 sample size was calculated by using WHO sample size calculator and non-probability purposive sampling was applied. A validated standardized closed ended questionnaire was used having three parts i.e., part A was related to demographic details of participants, part B was related to evaluation of empathy scores by using the Toronto Empathy Questionnaire and part C related to Cohen's Perceived stress score. Participants were divided into five groups i.e., nurses, house officers, residents, physicians and surgeons Data was entered and analyzed in SPSS 22 and correlation between empathy and perceived stress was calculated by Spearman's correlation formula and a p-value of <0.05 was considered significant.

**Results:** Mean age of respondents was  $34.57 \pm 8.10$  with 60.1% females and 39.9% males. A total of 178 medical professionals; nurses 19(10.7%), house officers 37(20.8%), residents 34(19.1%), physicians 48(27.0%), surgeons 40(22.5%). Following the data calculated, below average empathy was noted in 33.1% respondents, average empathy in 41.6% and above average in 25.3%. As high empathic attitude was noted in physicians and surgeons in comparison to other professionals. The data calculated about perceived stress across all participants, 25.3% reported low stress, 47.2% moderate stress and 27.5% high stress and we can appreciate that low stress scores were calculated in physicians and surgeons in comparison to other professionals. A negative correlation between empathy and perceived stress was calculated.

**Conclusion:** Our study shows a significant proportion of nurses, house officers and residents had a comparatively higher stress scored and hence decreased empathy whereas physicians and surgeons had a comparatively lower stress and therefore showed high empathic attitude, furthermore it indicates a negative correlation between perceived stress and empathy.

**Keywords:** Perceived stress; Empathy; Medical professionals; Health care

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## Introduction

### Synopsis

Clinical outcomes in health care are influenced by mutual understanding and trust between the doctors and patients [1], these specific therapeutic effects of physician empathy and their mutual associations can be detailed with the help of the “effect model of empathic communication in the clinical encounter,” which demonstrates how an empathically communicating physician can achieve improved patient outcomes [2].

One explanation for these clinical outcomes is that patients who trust their physicians are more likely to disclose important information about their condition and their lifestyle. This additional information enables the physician to provide better medical care by looking at the problem with all perspectives. There are several studies that show that patients are more likely to trust physicians who they feel are emotionally attuned to their situation, as they feel the doctor to be a genuine well-wisher to their condition. Empathic doctors are also better able to decrease anxiety and increase coping skills which also leads to better adherence to their respective treatment and ultimately, better outcomes.

Webster dictionary defines empathy as “the action of understanding the feelings, thoughts, and experience of another of either the past or present without having feelings, thoughts and experience fully communicated in an objectively explicit manner” [3]. On the other hand, physician empathy is defined “entering into the patient’s perspective, beliefs, and experiences” [4]. Stress is defined as any uncomfortable or agonizing emotional experience associated with changes in behavior as well as biochemical and physiological changes [5].

Sources of stress in a medical profession can be because of issues related to workload, sleep deprivation, dealing with death and dying, confrontation with physical and emotional sufferings, administrative duties and disruption of social life because of time demanding occupational pressure [6]. According to Bauer's hypothesis, existing empathic ability of medical practitioners can suffer serious damage through extreme experiences of inconsiderateness and distress. Prolonged stress levels can lead to an in sensitization on a doctor’s part and reduce empathy which can seriously affect the doctor-patient relationship. Furthermore, stress can significantly reduce the signal rate of mirror neurons at neurophysiological levels ultimately resulting in decrease in physician empathy [7].

The emotional and physical brutality of medical training, particularly during internship and residency, suppresses empathy, substitutes techniques and procedures for talk, and may even result in derision of patients. These attributes of stress in physician’s life can affect doctor-patient empathy demanding relationship and eventually influencing the clinical outcomes in health care [8].

### Rationale

To improve health care provision by finding an association between stress and empathy in medical professionals.

### Objectives

- To calculate perceived stress and empathy scores in medical professionals.
- To find association between perceived stress and empathy in medical professionals.

### Operational definitions

- Physician empathy: Ability to recognize a patient’s emotions, truly feel those emotions and reflect those emotions back to the patient.
- Perceived stress: Any uncomfortable or agonizing emotional experience over the last month associated with changes in behavior.

## Methodology

### Study design

A Descriptive cross-sectional study.

### Settings

RMU’s affiliated hospitals, BBH, DHQ and Holy family hospitals Rawalpindi.

### Duration of study

1 year, from June 2019 to June 2020.

### Sample size

By using WHO sample size calculator with Confidence interval of 95% was 178.

### Sampling technique

Non-probability purposive sampling.

### Sample selection

- Inclusion criteria: Medical professionals; nurses, house officers, residents, physicians and surgeons of RMU’s affiliated hospitals with normal physical and mental health with no major stressor in life.
- Exclusion criteria: Medical professionals unwilling to give consent or suffering from any mental illness will be excluded from our study.

### Ethical aspect

- Informed voluntary consent was taken and the sample of the consent form is annexed. (Annexure A)
- No risk or harm was anticipated.

- Research was approved by ethical research committee.

Data collection procedure: Trained final year MBBS students after taking informed consent collected the data from the medical professionals of RMU and affiliated hospitals.

### Data collection tool

A validated standardized closed ended questionnaire was used having three parts i.e.,

- Part A was related to demographic details of participants.
- Part B was related to evaluation of empathy scores by using The Toronto Empathy Questionnaire [9], scoring by item responses were scored according to the following scale for positively worded Items 1, 3, 5, 6, 8, 9, 13, 16. Never=0; Rarely=1; Sometimes=2; Often=3; Always=4. The following negatively worded items are reverse scored: 2, 4, 7, 10, 11, 12, 14, 15. Scores are summed to derive total for the Toronto Empathy Questionnaire. Sample of questionnaire is annexed (Annexure B).
- Part C was related to stress evaluation by validated standardized Cohen Perceived Stress questionnaire [10]. Cohen perceived stress questionnaire has 10 questions. Each question was rated on a 5-point scale ranging from never (0) to almost always (4). Positively worded questions were reverse scored, and the ratings

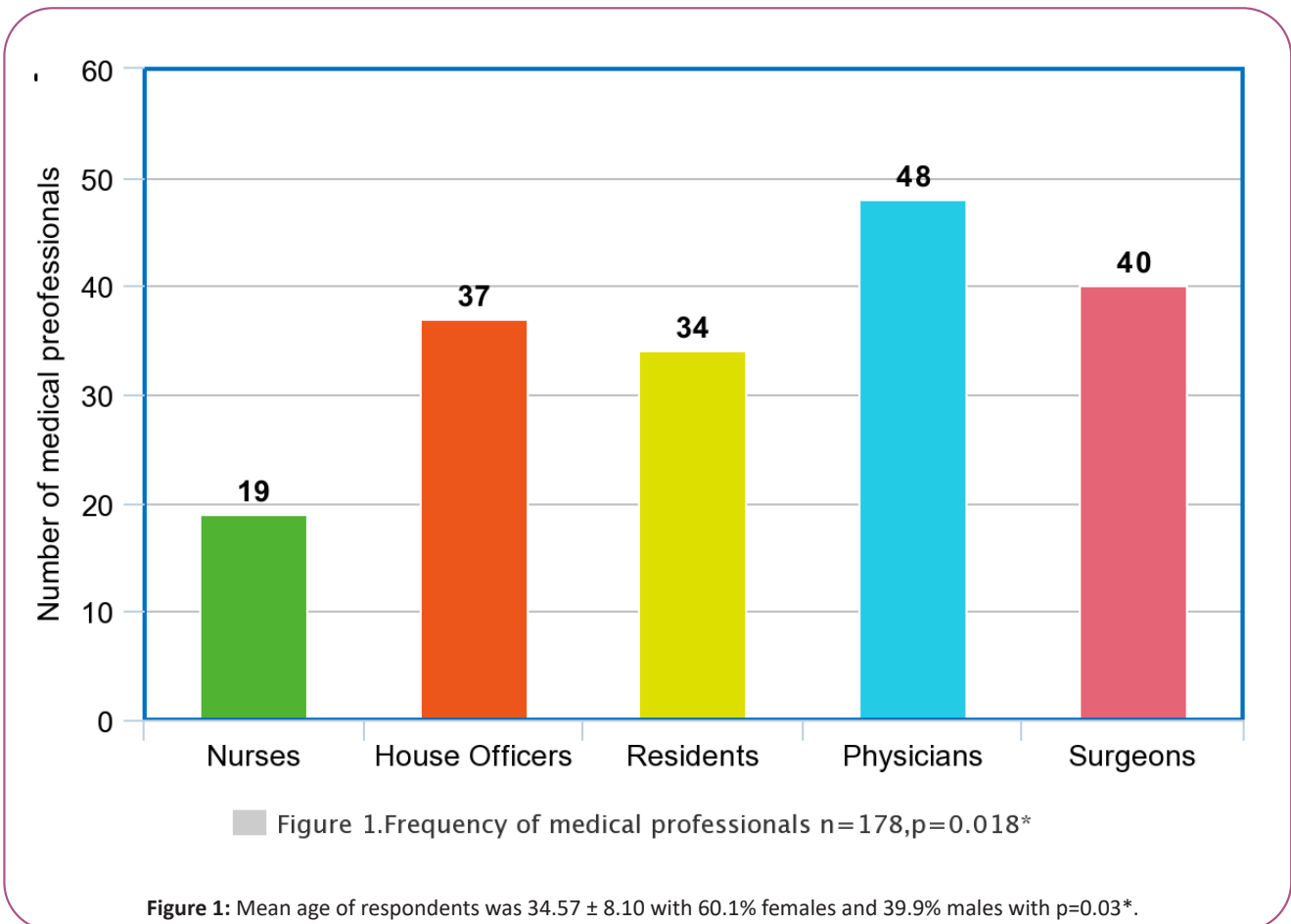
were summed, with higher scores indicating more perceived stress. PSS-10 scores were obtained by reversing the scores on the four positive questions: For example, 0=4, 1=3, 2=2, etc. and then summing across all 10 items. Items 4, 5, 7, and 8 were taken as positively stated items. A score of 13 or less showed average stress, 14-19 moderate stress and a score of 20 or more was considered high stress. Sample of questionnaire is annexed (Annexure C).

### Data analysis

- Data was entered and analyzed in SPSS 22.
- A p-value of <0.05 was considered as statistically significant.
- Quantitative data was presented as mean and standard deviation. Chi square test of significance was applied to find out the association of stress and empathy among medical professionals. Qualitative data was presented as frequencies and percentages and correlation between empathy and perceived stress was calculated by Spearman's correlation formula.

### Results

A total of 178 medical professionals; nurses 19 (10.7%), house officers 37 (20.8%), residents 34 (19.1%), physicians 48 (27.0%), surgeons 40 (22.5%) took part in our study (Figure 1).



Mean age of respondents was  $34.57 \pm 8.10$  with 60.1% females and 39.9% males with  $p=0.03^*$ .

Following the data calculated about empathy, below average empathy was noted in 33.1% respondents, average empathy in 41.6% and above average in 25.3%. There was a significant association for gender with empathy was observed with  $p=0.03$  by applying student's t-test. No significant difference between medical occupation and empathy was observed with  $p=0.085$  by applying Chi square test of association (Table 1).

As we can appreciate with the provided data that high empathic

attitude was noted in physicians and surgeons in comparison to other professionals (Figure 2).

Following the data calculated about perceived stress across all participants, 25.3% reported low stress, 47.2% moderate stress and 27.5% high stress. Statistically significant difference between medical occupation and perceived stress was observed with  $p=0.001$  by applying Chi square test of association (Table 2). As we can appreciate that low stress scores were calculated in physicians and surgeons in comparison to other professionals (Figure 3).

		Empathy			Total
		Below average	Average	Above average	
Medical occupation	Nurses	9	6	4	19
	House officers	8	20	9	37
	Residents	15	12	7	34
	Physicians	17	19	12	48
Total	Surgeons	10	17	13	40
		59	74	45	178

Table 1: Medical occupation and empathy cross tabulation  $n=178$ ,  $p=0.085$ .

		Low stress score	Moderate stress score	High stress score	Total
Medical occupation	Nurses		4	3	19
	House officers	3	29	5	37
	Residents	1	16	17	34
	Physicians	13	19	16	48
	Surgeons	24	8	8	40
Total		45	84	49	178

Table 2: Medical occupation and perceived stress cross tabulation  $n=178$ ,  $p=0.001$ .

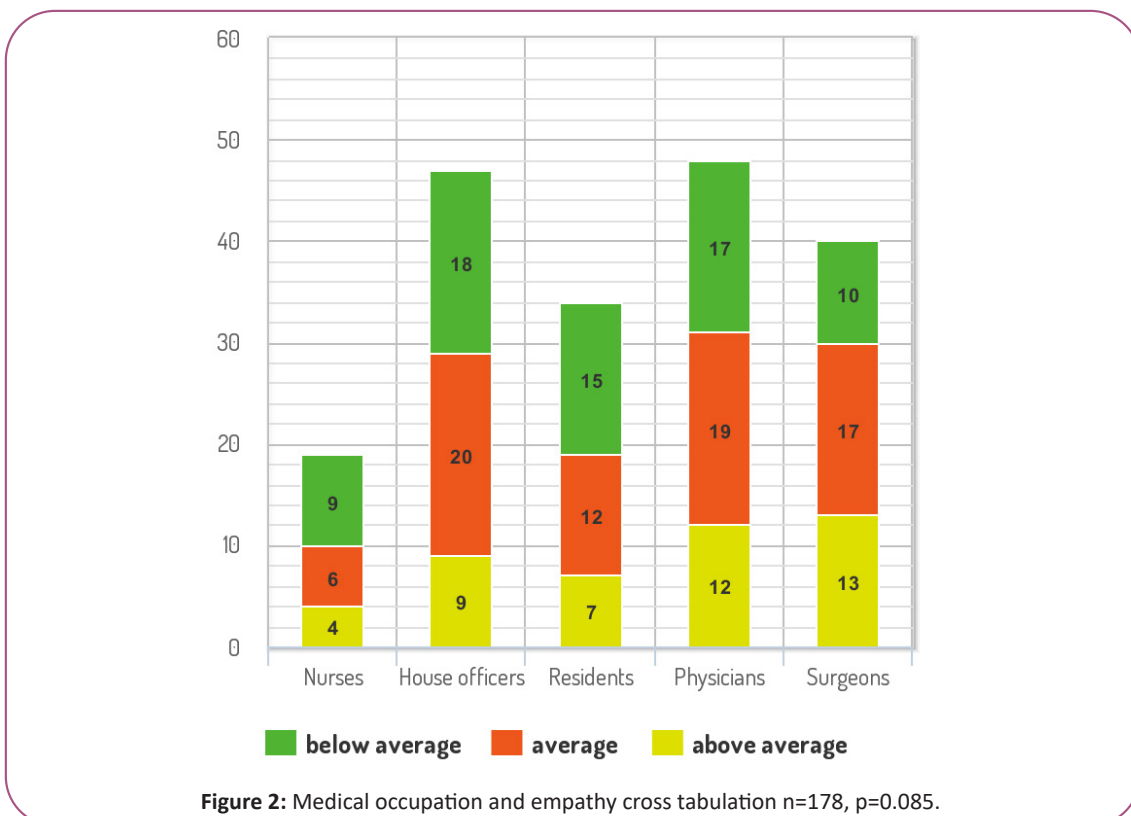
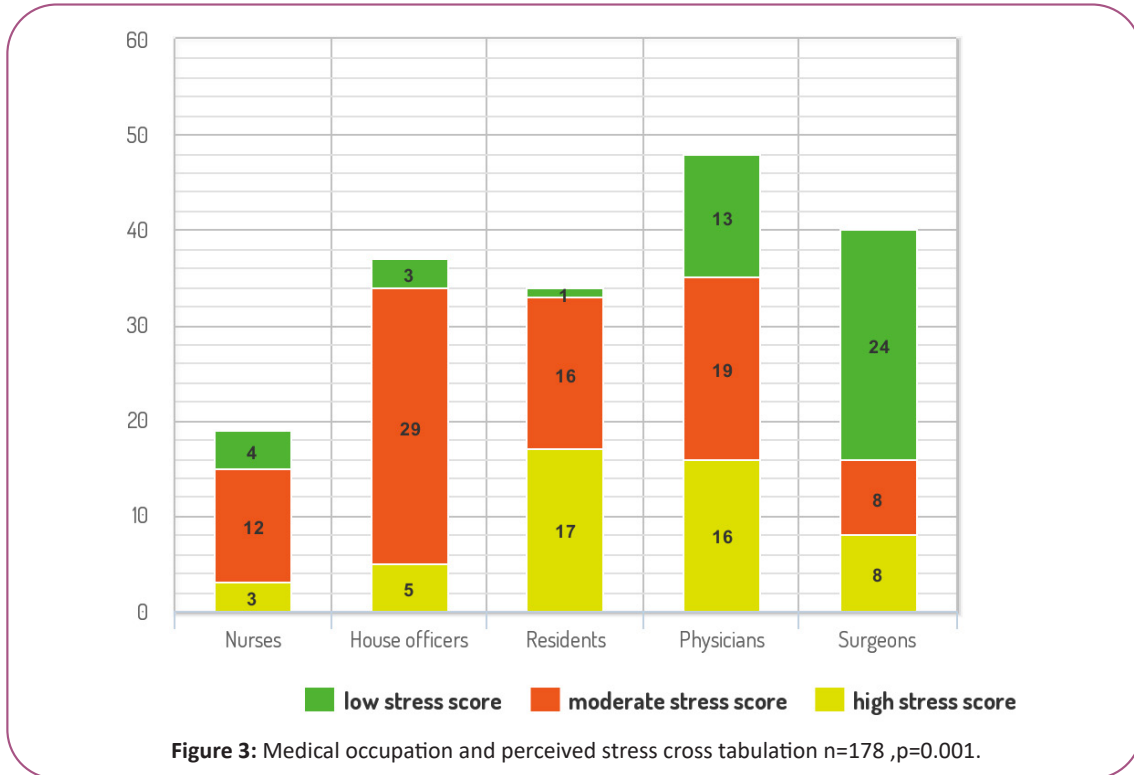


Figure 2: Medical occupation and empathy cross tabulation  $n=178$ ,  $p=0.085$ .

			Perceived stress	Empathy
Spearman's rho	Perceived stress	Correlation coefficient	1	-.491**
	Empathy	Correlation coefficient	-.491**	1

**Table 3:** Correlation between empathy and perceived stress calculated by spearman's correlation formula n=178, p=0.000.



**Figure 3:** Medical occupation and perceived stress cross tabulation n=178, p=0.001.

Following the calculated data, a negative correlation between empathy and perceived stress was calculated showing they impact each other negatively while p-value is suggestive to be highly significant i.e., p=0.000 With Spearman's rho correlation formula (Table 3).

## Discussion

A recent study in Multan, Pakistan stated out of 150 doctors, 51.3% were male and 48.7% females. Most of the respondents were not satisfied with their duty. They were dissatisfied with pay and promotion chance (25.3%), work load (34.7%), working hours (37.3%), insufficient staff (42.7%), doctor patient relationship e.g. patient's demands (47.3%) and patients' behavior (24%), rules and regulations (24%) [11].

As already mentioned stressors in a medical professionals life can lead to decreased physicians empathy and overall compromised quality of performance [12].

Literature often describes greater empathy in female physicians and males as a significant association between gender and empathic attitude was discovered in this study [13]. There are a few studies that deal with physicians' empathy, yet research into this topic is on the rise [14]. It is difficult to compare scores for empathic attitude, as different instruments and study populations were in use [15].

A study from rural British Columbia reported that 80%of physicians

suffered from moderate to severe emotional exhaustion and stress, 61% suffered from moderate to severe depersonalisation, and 44% had moderate to low feelings of personal accomplishment as a contributing stressor in professional life results were relatable to the stress levels perceived in this study [16]. A more recent study of US physicians found 46% of the respondents had at least one symptom of burnout and stress in medical professionals. In the United Kingdom, approximately one-third of the physicians had features of burnout and stress, which are comparable to studies from Arab countries like Yemen, Qatar, and Saudi Arabia.

In a study conducted in Tehran, Iran results of Pearson's correlation coefficient demonstrated a negative correlation between job stress and subjective well-being in medical professionals similar to our study.

## Limitations

Following reasons limits our study generalization of results to all Pakistani population.

- The study was undertaken in only RMU affiliated hospitals which limit its generalization.
- Purposive sampling technique was used for this study; our results don't depict a true representation of the population.

## Conclusion

Our study shows that among the participants, a significant

proportion of nurses, house officers and residents had a comparatively higher stress scored and hence decreased empathy whereas physicians and surgeons had a comparatively lower stress and therefore showed high empathic attitude, furthermore it indicates a negative correlation between perceived stress and empathy.

## Recommendation

Majority of junior doctors and nurses working at these hospitals of Rawalpindi had decreased empathic scoring related to higher levels of perceived stress. This suggests that immediate steps should be taken for stress control and management. This study invites further research to explore, implement and evaluate intervention strategies for prevention of stress and steps to enhance empathic attitude in clinical practice to overall improve the outcome of clinical care.

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