

## Correlation between Stress and Meaning in Life in Early Career Doctors in Pakistan

Samiya Iqbal<sup>1</sup>

### Abstract

**Objective:** To assess the correlation between stress and meaning in life in early career doctors in Pakistan

**Method:** It was a cross-sectional study carried out using non-probability convenience sampling from March to May 2021 with early career doctors in Pakistan. The data was collected using a form distributed online that included demographic variables, Purpose in Life (PIL) test and Perceived Stress Scale (PSS). SPSS 26.0 was used for data entry and analysis.

**Results:** The average score on PIL test was  $67.64 \pm 15.20$  and PSS was  $20.20 \pm 5.88$ . Female doctors reported higher perceived stress ( $18.82 \pm 6.11$ ) than male doctors ( $20.75 \pm 5.07$ ). There was a significant negative correlation between the PIL and PSS,  $r(215) = -.610$ ,  $p < 0.01$ .  $r = -0.610$  represents a large effect size.

**Conclusion:** Higher meaning in life is associated with lower perceived stress in doctors. Interventions that focus on meaning in life may help improve the well-being of doctors.

**Keywords:** Stress, Psychological Distress, Meaning in Life, Purpose in Life, Doctors.

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### Introduction

Doctors experience significant stress in their everyday occupational activities. Firth-Cozens<sup>1</sup> reported that compared to 18% of the working population as a whole, approximately 28% of doctors exhibit above-threshold levels of stress. The prevalence of stress among doctors ranges from roughly 24-64%, according to recent studies from India<sup>2</sup>, Iran<sup>3</sup>, Malaysia<sup>4</sup>, and Egypt<sup>5</sup>. This is supported by the available statistics from Pakistan.<sup>6,7</sup> There are several reasons for this. The nature of work involves confrontation with disease and death under the threat of experiencing violence and the possibility of strict scrutiny and litigation while working long work hours with irregular sleep and meal schedules, pressure to complete tasks in a timely manner and little work life balance. Moreover, doctors tend to put high demands on themselves, can be perfectionistic and may have interpersonal relationship difficulties with peers and

seniors. In addition, unavailability of adequate resources and personnel, insufficient compensation for the service and hostile work environment play a role.<sup>8,9</sup> Because the COVID-19 pandemic added to the burden on the healthcare system and doctors were faced with uncertainties about the disease and personal safety, stress levels increased. This stress can have detrimental personal and professional consequences for the doctor with increased rates of physical illnesses and mental health issues, problems in marital and social life as well as dissatisfaction with career, compromised quality of patient care and medical errors.<sup>8,9</sup> Neurobiological research suggests chronic, uncontrollable stress impairs the functioning of the prefrontal cortex leading to decreased motivation and difficulty in making decisions.<sup>10</sup> Despite this, most practitioners experience a career in medicine as meaningful.

Southwick et al<sup>11</sup> proposed that meaning in life affects on the stress response, resilience, ability to endure adverse circumstances and post-traumatic growth. They draw on Viktor Frankl's Logotherapy, which posits that life is potentially meaningful under all conditions. Even under the most miserable situations, meaning can be discovered by exercising the freedom to choose one's attitude to inescapable suffering and self-transcendence.

1. PGR, Department of Psychiatry, KRL Hospital, Islamabad.

### Correspondence:

Dr. Samiya Iqbal, Postgraduate Resident, Department of Psychiatry, KRL Hospital, Islamabad, Pakistan E-mail. [samiya2008@gmail.com](mailto:samiya2008@gmail.com)

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This allows one to have optimism, altruism, spiritual grounding, social relationships and active coping, which are well known to mitigate stress. From the perspective of health, a greater sense of purpose in life is associated with better cardiovascular indicators, endocrine profiles, cognitive aging and restorative sleep as well as reduced mortality in both young and older adults.<sup>12</sup> Moreover, stress exposure was associated with depression when the presence of meaning in life was low but with high meaning, the association does not hold.<sup>13</sup> The sense of meaning decreases negative appraisals of the situations<sup>14</sup> and repetitive negative thinking after an unpleasant event, leading to healthier coping strategies.<sup>15</sup> It enhances positive affect<sup>16</sup>, subjective well-being and life satisfaction.<sup>17</sup>

Apart from the indirect effects on the response to stress, empirical evidence suggests a direct effect meaning has on subjective distress experienced by the individuals. A study conducted on palliative care professionals demonstrated that meaning of work and perceived stress were negatively correlated.<sup>17</sup> Similarly, presence of meaning was related to less mental distress in hospice nurses.<sup>16</sup> Moreover, several recent studies confirmed that meaning in life and meaning-centered coping alleviated the coronavirus pandemic stress.<sup>18,19</sup>

However, there were no available studies that investigated the effect of meaning in life on stress experienced by Pakistani doctors. This study was planned to pave the way for further empirical research in this area and if the findings are consistent with the literature presented above, meaning-centered interventions can eventually be designed to improve the well-being of doctors, especially in the aftermath of the global pandemic.

## Material and Methods

This study used a cross-sectional survey research design. The sample size was calculated using Sample Size Calculators for designing clinical research with the following parameters: level of significance = 5%, confidence interval=95%, and correlation coefficient  $r = -0.52$  from a previous study.<sup>20</sup> Data were collected from early-career doctors working in Pakistan between March and May 2021 recruited using convenience sampling. The inclusion criteria were that participants (i) were early career doctors (i.e. those working for 10 years or less) and (ii) were working for a minimum of past 6 months. Those who were currently under treatment for a psychiatric disorder were excluded. After

obtaining ethical approval from the hospital ethical review committee, all participants were asked to complete an online survey, which was created with Google Forms and distributed through social media networking sites. It began with information about the study's objectives. Participants were assured of confidentiality, anonymity, and that any information they provided would be used solely for research purposes. All participants provided informed consent to participate in this study. The survey included information about the participants' sociodemographic characteristics, including information about age, gender, marital status, education, designation at job, total duration of work and whether they worked in COVID units or not. Psychological variables collected included the Purpose in Life (PIL test and the Perceived Stress Scale (PSS).

PIL test was developed by Crumbaugh & Maholick in 1964. This is a 20 item self-rated psychometric scale designed to assess level of meaning in life. Each question has a range from 1-5; the higher the score on the test, the higher the level of meaning in life.

Perceived Stress Scale (PSS) is a measure of the degree to which the situations in one's life are regarded as stressful. It is a 10-item scale with a range of responses from 0-4. PSS scores are obtained by reversing responses to the four positively stated items (items 4, 5, 7, & 8) and then summing across all scale items. Higher scores indicate a greater level of perceived stress.

Statistical analyses were performed using SPSS version 26.0. Categorical variables were described using frequencies and percentages. Quantitative variables were described with mean (M), standard deviation (SD). The internal consistency of each subscale was assessed using Cronbach's alpha and a value higher than .7 was considered acceptable. Analysis of variance and t test were run to assess the impact of demographic characteristics on perceived stress and meaning in life. Pearson's correlation test was applied and Pearson product-moment correlation coefficient was calculated along with p value <0.05 taken as significant.

## Results

Average age of the participants was  $27.45 \pm 2.82$  years and the average duration they had worked as a doctor was  $3.88 \pm 2.62$  years.

Table 1 reveals that more women doctors ( $n=155, 71.4\%$ ) participated in the study compared to men ( $n=62, 28.6\%$ ). A greater proportion of doctors ( $n=129, 59.4\%$ ) were

**Table 1: Sociodemographic Characteristics of the Participants**

| Baseline characteristic              | Frequency | Percentage |
|--------------------------------------|-----------|------------|
| <b>Gender</b>                        |           |            |
| Female                               | 155       | 71.4       |
| Male                                 | 62        | 28.6       |
| <b>Marital status</b>                |           |            |
| Single                               | 129       | 59.4       |
| Married                              | 82        | 37.8       |
| Separated                            | 1         | 0.5        |
| Divorced                             | 4         | 1.8        |
| Widowed                              | 1         | 0.5        |
| <b>Highest educational level</b>     |           |            |
| MBBS                                 | 197       | 90.8       |
| BDS                                  | 4         | 1.8        |
| Postgraduate qualification           | 16        | 7.4        |
| <b>Job designation</b>               |           |            |
| House Officer                        | 69        | 31.8       |
| Medical Officer                      | 29        | 13.4       |
| Postgraduate Trainee                 | 101       | 46.5       |
| Consultant/Specialist                | 12        | 5.5        |
| Lecturer/Demonstrator                | 5         | 2.3        |
| Public Health Specialist             | 1         | 0.5        |
| <b>Specialty</b>                     |           |            |
| Medicine & Allied                    | 124       | 57.1       |
| Surgery & Allied                     | 68        | 31.3       |
| Non-clinical specialties             | 7         | 3.2        |
| General Practice                     | 13        | 6.0        |
| Dental specialties                   | 5         | 2.3        |
| <b>Worked/working in COVID Units</b> |           |            |
| Yes (Frontline Workers)              | 125       | 57.6       |
| No                                   | 92        | 42.4       |

single than married (n=82, 37.8%). Majority of the doctors had MBBS as their highest qualification (n= 197, 90.8%) and were working as postgraduate trainees (n=101, 46.5%). Over half of the doctors had worked in or were working in COVID units (n=125, 57.6%) while the rest had not (n=92, 42.4%).

The Cronbach's  $\alpha$  value for Perceived Stress Scale (PSS) and Purpose in Life (PIL) test were .85 (>.80) and .93 (>.90), which indicated good reliability of the scales administered.

The mean score on PIL test was  $67.64 \pm 15.20$  and PSS was  $20.20 \pm 5.88$ .

To compare the mean PIL scores of male and female participants, as well as those of frontline workers and others, independent sample t-tests were used. In either comparison, there were no significant differences in

PIL scores between the groups. Independent sample t-tests were also used to compare the mean PSS scores between genders and frontline workers versus others. PSS scores differed significantly between males (M = 18.82, SD = 5.07) and females (M = 20.75, SD = 6.11);  $t(215) = -2.198$ ,  $p = 0.03$ . There were no significant differences in PSS scores between those who worked in COVID units and those who did not.

The effect of marital status, highest educational level, job designation, and specialty on PIL and PSS scores was compared using one-way ANOVA tests. There were no statistically significant differences in either score between the groups.

Pearson correlation coefficient was calculated to assess the linear relationship between purpose in life (PIL) and perceived stress (PSS) scores of the participants. There was a significant negative correlation between the PIL and PSS,  $r(215) = -.610$ ,  $p < 0.01$ .  $r = -.610$  repre-

**Table 2: Correlations**

| Variables | Age | Duration | PIL    | PSS     |
|-----------|-----|----------|--------|---------|
| Age       | 1   | .844**   | .202** | -.115   |
| Duration  | -   | 1        | .175** | -.050   |
| PIL       | -   | -        | 1      | -.610** |
| PSS       | -   | -        | -      | 1       |

\*\*Correlation is significant at the 0.01 level (2-tailed).

sents a large effect size. Age and the duration of work as a doctor showed a significant positive correlation with PIL scores, although the effect size was small.

## Discussion

The primary aim of the study was to assess the effect of meaning in life on stress experienced by early career doctors working in Pakistan. A statistically significant negative correlation was found between stress and meaning in life in the population researched in the current study.

This study supports the findings of the existing international literature. Ostafin et al<sup>15</sup> showed that meaning was inversely with distress,  $r(88) = -.53$ ,  $p < .001$ . Similarly, Park and Baumeister<sup>23</sup> demonstrated those having a greater sense of meaning in life described lesser current stress,  $r(153) = -0.28$ ,  $p = 0.001$ . Hill et al<sup>13</sup> indicated that sense of purpose is not only associated with lower levels of perceived stress but also with decreased secretion of cortisol, even though the amount of daily stres-

sors experienced does not decrease. This may mean that meaning fosters an optimistic attitude and active coping. The research conducted on specifically on medical professionals points in the same direction. Moreno-Milan et al<sup>17</sup> also reported that palliative care workers who found greater meaning in their work scored lower on the measure of perceived stress, which increased their satisfaction with life. Another study conducted on hospice nurses frequently dealing with mortality revealed the presence of meaning in life was associated with less stress, burnout and negative emotional states, as well as with more positive emotional states.<sup>16</sup>

The only other published study done on Pakistani doctors reported a significant negative correlation between perceived stress and psychological well-being among doctors. Even though this used the Ryff psychological well-being scale, it did not report the correlation between the purpose in life subscale and stress.<sup>21</sup> Another local study looked at the same variables as the current study but the population investigated was that of medical students. The reported correlation coefficient was found to -0.52,  $p < 0.05$ .<sup>20</sup>

Even though it was not the primary goal of the study to report on the level of stress in doctors and its relationship with the demographic variables, an important finding was that female doctors reported being more stressed than male doctors did but there was no statistically significant difference between the two genders with respect to meaning in life. Moreover, older doctors with longer duration of medical career experienced greater meaning in life. Interestingly, marital status, highest educational attainment, job designation, specialty and frontline work in COVID-19 pandemic were found to have no significant difference effect on perceived stress or meaning in life.

A study done in Pakistan found out a higher overall mean PSS score was  $26.09 \pm 8.141$  than the current study. Also, age and the number of years at work were negatively correlated with stress in contrast to what this study found. However, they also reported that the females had significantly higher perceived stress scores compared to the males and that the effects of marital status and specialty on stress were not significant.<sup>22</sup> Another study from Faisalabad, Pakistan also confirms the higher degree of stress in female doctors but also suggested that being married was associated with greater stress.<sup>7</sup> Arif et al<sup>24</sup> showed that stress index from top to bottom

was observed in house officers, medical officers/ post-graduate trainees and consultants/ specialists but this was not consistent with the current study. The differences with the present study may be explicable by the personality factors and sociodemographic variables that were not accounted for in this as well as the previous studies.

Let us now consider the strengths and limitations of the study presented above. It has been especially useful as it opens a new avenue for research on the mental well-being of our target population in Pakistan, since there were no other studies on the topic available. The sample included both men and women with a wide distribution of doctors across job designations and specialties. However, correlational studies cannot conclusively prove the relationship between variables and self-reported measures can introduce bias. We hope that future research would rectify these shortcomings. The current time has been significantly stressful for doctors, making such research the need of the hour, so that we have more interventions in our arsenal that enable better stress management.

## Conclusion

Experiencing higher meaning in life leads to lower perceived stress in early career Pakistani doctors.

**Conflict of Interest**

*None*

**Funding Source**

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### Authors Contribution

**SI:** Conceptualization of Project

**SI:** Data Collection

**SI:** Literature Search

**SI:** Statistical Analysis

**SI:** Drafting, Revision

**SI:** Writing of Manuscript