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Occupational Stress, Resilience and Quality of Life Among Defence Personnel and Doctors in India

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Abstract

The aim of this study is to understand the relationship between occupational stress, resilience, and quality of life among defence personnel and doctors in India. Defence personnel often face intense combat and emergency response situations, contending with elevated stress levels regularly. Similarly, doctors, navigating the complexities of patient care, critical decision-making, and long working hours, also grapple with persistent stressors inherent in their profession. The constant exposure to stressors, coupled with the emotional toll it carries, can have significant impacts on their quality of life and can affect their physical and mental resilience, thus bidirectionally influencing their overall well-being and work performance. Recognising these challenges is imperative for identifying effective solutions to support the well-being of defence personnel and doctors. A sample group of 100 doctors and 100 defence personnel aged 22 and above from India was taken for the study, using convenience sampling. 'The Workplace Stress Scale' developed by the Marlin Company and the American Institute of Stress, the 'Resilience Scale' developed by Wagnild and Young, and the 'Quality of Life' scale developed by B. Frisch were used to assess occupational stress, resilience, and quality of life among defence personnel and doctors, respectively. Pearson correlation and t test was employed for hypothesis testing. The study aims to provide insights into the influence of defence and medical fields of work on stress, resilience and quality of life, and addresses a significant gap in literature regarding the correlation of the three variables with respect to the specific work conditions.

Keywords: occupational stress, resilience, quality of life, defence personnel, doctors.

Introduction

According to the American Psychological Association, *occupational stress* refers to the physiological and psychological toll caused by workplace conditions on an individual's health and well-being. The nature of this stress is particularly pertinent in high-stakes professions, such as defence personnel and doctors, who confront some of the most challenging and stressful situations on a daily basis.

Resilience is the ability to adapt and bounce back from adversity, demonstrating emotional strength in the face of challenging circumstances (Connor & Davidson, 2003). For defence personnel and doctors, resilience is not merely a desirable trait but an essential coping mechanism to navigate the inherent stressors of their professions.

Quality of life is the holistic measure of individuals' well-being and contentment across different facets of existence. It encapsulates physical health, mental and emotional welfare, social connections, and the

surrounding environment. This comprehensive concept mirrors individuals' perceptions of the extent to which their lives are satisfying, meaningful, and enjoyable. Alex C. Michalos, a leading figure in quality of life research, defined it as "an overall assessment of the extent to which individuals feel that their lives are desirable" (Michalos, 2017).

Military-specific stressors are well recognised. These stressors typically take the form of combat stressors, i.e; the necessity to take actions that may result in killing another or sacrificing one's own life. Moreover, the physical and psychological toll of living in extreme weather conditions or "distress areas," away from family and loved ones for prolonged periods of time, exposure to life threatening situations, injuries and death of others, can have a potentially impact one's psychological health, resilience levels, well-being and negatively impact their satisfaction with and quality of life. However, stress is not limited to battle zones alone. India has not been to war in over two decades now, though counter-insurgency operations have been active by the Indian Armed Forces. Yet, recent studies on the Indian Armed Forces have found stress to be consistently high among this population (Singh & Yadav, 2023). In this context, Pfanz & Ogle (2006) pointed out that the chronic pressures encountered by military personnel even at home bases or "peace postings" tend to be intolerable. Their study indicated that occupational stress resulting from even regular work environments negatively impact a military personnel's mental health.

Further, resilience is the ability to recover quickly from difficulties. This can take two forms - physical resilience and mental resilience. Fitness is an integral part of physical resilience and particularly for combatants, combat fitness is essential. The higher their levels of fitness, the greater is their resilience and combat capacity. To keep this in check, the Indian Armed Forces conducts various levels of physical fitness checks. For example, a newly commissioned officer is required to pass a physical training test at his regiment centre before reporting to his unit. Every year, all officers undergo health checkups that intend to keep their physical fitness in line with their job requirements, along with persisting an overall healthy lifestyle. However, mental resilience is not given due recognition yet. While psychological methods are employed during selection and training of a serviceman, there is a lack of checks down the line for the same. While regular physical training, regimes and assessments are essentials components of physical fitness in the life of a combatant, it is more challenging to incorporate, instruct and evaluate mental resilience as an independent exercise. Therefore, it is not entirely radical to expect a combatant to inherently build mental resilience through the the course of his military life. However, in highly volatile situations, mental resilience can be that line of difference between victory and defeat.

In contrast, within health organisations, occupational stress is a pervasive challenge, particularly in high-pressure environments like emergency care units, where doctors contend with diverse patient conditions, necessitating swift diagnoses and efficient interventions. They face unique challenges such as long working hours, sleep deprivation, and the intricate dynamics of the doctor–patient relationship. The amalgamation of these demanding tasks contributes significantly to stress levels among healthcare professionals. Occupational stress often manifests as burnout in the medical profession. Burnout, characterised by emotional exhaustion, depersonalization, and diminished feelings of accomplishment, is prevalent among healthcare professionals (Hert, 2020). Occupational stress leads to an increased risk of minor and major medical errors and suboptimal patient interactions. Beyond patient care, burnout leads to lower job satisfaction, increased absenteeism, premature exits from the profession, and strained interpersonal relationships among doctors. Additionally, the demanding and intricate nature of the medical field exposes doctors to heightened levels of stress, creating a distinct vulnerability to anxiety,

depression, substance abuse, and even suicide. These stressors affect both female and male physicians (Victoria, 2021). Globally, healthcare professionals, particularly doctors, are experiencing high levels of stress and burnout, prompting concerns about their mental health and its potential impact on the quality of healthcare delivery (Natalia et al., 2023). Resilience plays a pivotal role in helping individuals cope with the emotional, physical, and workload demands associated with medical practice. Despite the inherent challenges, medical doctors and students exhibit a remarkable degree of resilience that aids them in navigating the complexities of their roles (Greenhill et al, 2015). The temperament traits of high persistence, combined with high self-directedness and low harm avoidance, are recognized as valuable assets in successfully adapting to the rigorous and stressful conditions inherent in the medical field (Jun Won et al., 2013).

Quality of life serves as a comprehensive measure of individuals' overall well-being and satisfaction, encompassing various dimensions of existence such as physical health, mental and emotional welfare, social connections, and environmental surroundings. Alex C. Michalos, a prominent figure in quality of life research, defines it as "an overall assessment of the extent to which individuals feel that their lives are desirable" (Michalos, 2017), emphasizing its subjective nature and multidimensional aspects. This framework acknowledges that individuals' perceptions of their well-being are shaped by both objective circumstances and subjective experiences, reflecting the complex interplay between external factors and personal evaluations. In professions like the military, individuals often encounter extreme working conditions, prolonged separations from loved ones, and exposure to potentially traumatic experiences, all of which can significantly impact their mental health and overall well-being. Studies have indicated that military personnel are at higher risk of developing post-traumatic stress disorder (PTSD), depression, and anxiety due to operational stress and deployment-related trauma (Hoge et al., 2004). Similarly, doctors face significant challenges, including long working hours, high job demands, and emotional stressors related to patient care. Burnout rates among physicians are alarmingly high, with research reporting rates ranging from 40% to 60% across various medical specialties (Shanafelt et al., 2015), highlighting the detrimental effects on both their well-being and patient care. Despite these challenges, interventions aimed at improving quality of life among defence personnel and doctors have shown promising outcomes. Resilience training programs implemented within military settings have helped personnel develop coping skills and enhance psychological well-being (Reivich et al., 2011). Likewise, initiatives focused on promoting work-life balance, fostering supportive work environments, and providing access to mental health resources have been effective in mitigating burnout and improving overall quality of life among physicians (Dyrbye et al., 2019). Recognizing the importance of addressing these challenges and supporting the well-being of individuals in these professions is crucial for ensuring their ability to effectively serve and care for others.

Review of Literature

A study on Satisfaction with Life and Mental Health of Indian Armed Forces hypothesised that mental health is positively related to life satisfaction at pre retirement stage. The hypothesis was validated by the findings indicating significant and positive corelation. However, the strength of association was found to be weak. The study also identified factors that seem to be contributing to better mental health causing increased life satisfaction. For instance, the study suggested that individuals with high life satisfaction levels typically have supportive and close friends and family, while those who do not have supportive circles tend to be dissatisfied. Another essential factor stressed upon was experiences of

anxiety, depressive symptoms, loss of behavioural/emotional control in stressful situations. Individuals who had such experiences frequently reported high on psychological distress (Varma & Kumar., 2020).

Additionally, a study on Occupational Stressors in Military Service provides a comprehensive analysis by highlighting key stressors encountered by military personnel such as work overload, unpredictability, role stressors, performance evaluation, exposure to potentially traumatizing events, austere living conditions, and family separation. The importance of understanding mission-specific stressors is emphasised and the authors propose a framework to comprehend the dynamic nature of military service and its impact on personnel. The paper underscores the necessity of refining stressor measures across various military environments and advocates for a multidimensional holistic approach to address occupational stress effectively. Furthermore, the authors suggest that systematic, longitudinal investigations are crucial for advancing research on military stressors and stress protection techniques, urging the army to prioritize such research efforts to minimize soldier stress across different deployment phases (Campbell & Nobel, 2009).

Another study on Psychosocial Predictors of Resilience in a Military Sample examined 302 US Army Active Duty military personnel and Veterans to determine the predictors of resilience, including optimism, social support, coping self-efficacy, and physical exercise. Optimism and self-efficacy were shown to be significant predictors of resilience and explained 57.7 percent of the variation in resilience. Female participants reported significantly lower scores on resilience than male participants; age was not a significant predictor while education had a slightly significant relationship with resilience. The study also provides strong support for resilience training efforts and identifies resilience as a factor that can be developed as it revealed that participants who reported completing resilience training scored higher than those who reported not completing resilience training (Jaeschke, 2016).

A national survey on Stress levels of critical care doctors in India sought to understand the factors influencing stress in this high-demand profession. Workload assessments revealed an average weekly working time of 62.4 hours, with male doctors working longer hours and spending more time in the ICU than their female counterparts. Stress prevalence, measured by the GHQ scale, indicated 40% experiencing moderate to severe stress, with variations by gender, speciality, and professional status. Top stressors included excessive responsibility, managing VIP patients, and being overstretched. The study emphasised on the significance of interventions, suggesting improvements in inter-professional relationships, work environment modifications, and streamlining decision-making processes, including end-of-life care discussions (Amte et al., 2015).

Additionally, a qualitative study on stress, coping, and psychological resilience among physicians in Ireland highlighted the complex interplay between stress and resilience among physicians. The findings revealed physicians' perception of resilience, primarily defined as the ability to endure hardships in healthcare settings. Workplace stressors, encapsulated in the 'Challenges of the Profession' theme, encompassed factors like long shifts and resource shortages. Job-related gratification, derived from medical efficacy, emerged as a crucial supportive factor for resilience (O'Dowd et al., 2018).

A study of clinical doctors in Delhi aimed to investigate how different aspects of the working environment affect the job satisfaction of clinical doctors, given the increasing stress inherent in their multiple roles. Through stepwise multiple regression analysis, they found that factors such as the quality of supervisory relationships, economic benefits, and self-respect and dignity strongly predicted intrinsic, extrinsic, and general job satisfaction. These findings shed light on the key dimensions of Quality of Working Life (QWL) that significantly impact the overall job satisfaction

of clinical doctors, offering insights into potential avenues for improving their work environment and well-being (Hasan et al., 2013). **Methodology**

Problem: to understand the relationship between occupational stress, resilience, and quality of life among defence personnel and doctors in India.

Hypotheses:

1. H_0 - no significant difference between mean scores of doctors and defence personnel on occupational stress.
2. H_0 - no significant difference between mean scores of doctors and defence personnel on resilience.
3. H_0 - no significant difference between mean scores of doctors and defence personnel on quality of life.
4. A null correlation between occupational stress and resilience among defence personnel (n=100), doctors (n=100), and both groups (n=200).
5. A null correlation between occupational stress and quality of life among defence personnel (n=100), doctors (n=100), and both groups (n=200).
6. A null correlation between resilience and quality of life among defence personnel (n=100), doctors (n=100), and both groups (n=200).

Operational definitions:

1. ***Occupational stress*:** the physiological and psychological toll caused by workplace conditions on an individual's health and well-being.
2. ***Resilience*:** the ability to adapt and bounce back from adversity, demonstrating emotional strength in the face of challenging circumstances.
3. ***Quality of life*:** an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.

Variables -

***Independent Variable*:** work characteristics and environment

Dependent Variable: degree of occupational stress, level of resilience and consequent quality of life.

Sample - Convenience sampling was used for sampling. The samples of the study were 100 defence personnel and 100 doctors aged 22 and above from India.

Inclusion criteria: Participants with more than 1 year of experience.

Exclusion criteria: Participants who are interns/trainees in the respective fields.

Materials - (1) The Workplace Stress Scale (11 items) developed by the Marlin Company and the American Institute of Stress (2) Resilience Scale (25 items) developed by Wagnild and Young (3) Quality of life scale (32 items) developed by B. Frisch (4) Workplace Stress Scale Scoring Key and Norms (5) Resilience Scale Scoring Key and Norms (6) Quality of Life Scoring Key and Norms

Procedure - The respondents were sent an online Google Form with three sections, each consisting of one scale. Before beginning with the questionnaires, certain demographic details of the subjects were asked - name, age, gender and profession. The subjects then answered each of the questionnaires in the order of resilience scale, quality of life scale and workplace stress scale. For each scale, they were asked to indicate the responses that resonated with them the most.

Analysis - Participants responses are scored according to the scoring key and interpreted using the

norms. For statistical analysis, descriptive statistics such as mean, frequency, and standard deviation were employed to analyse and explain some attributes of the variables. Pearson's correlation statistics and T test was conducted for hypothesis testing. Correlations between the variables were analysed using IBM SPSS 24.

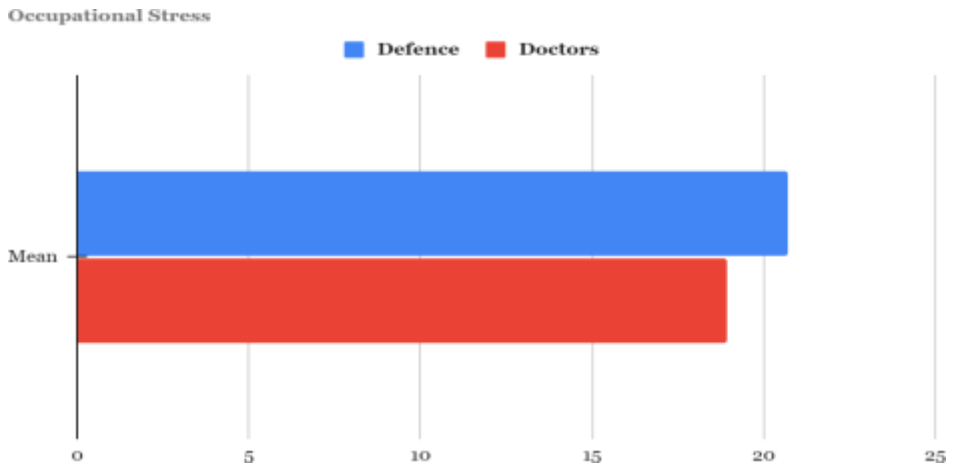
Results

Table 1: Occupational stress scores of Defence personnel and Doctors

Parameter	Sample 1 Defence personnel	Sample 2 Doctors
N	100	100
Mean	20.70	18.94
Range	26	26
SD	4.40	6.12
Coefficient of variation	0.215	0.323

Table 1 shows the mean, range, and standard deviation scores of participants on the Workplace Stress Scale. In Sample 1, representing defence personnel, the mean score is 20.70, indicating *moderate levels of workplace stress*. Sample 2, representing doctors, has a mean score of 18.94, also interpreted as *moderate levels of workplace stress*. This suggests that defence personnel experience slightly higher levels of workplace stress compared to doctors. The coefficient of variation was used to interpret the standard deviation scores of both groups. It was observed that both groups had low standard deviations, implying that group scores were clustered around the mean. However, the scores of doctors exhibited more dispersion than those of defence personnel, indicating greater variability within the former group. Both groups have a range of 26, indicating equal levels of individual differences.

In the defence group, 78% of respondents reported moderate stress levels, while 13% reported severe stress levels, 7% indicate being chilled out, 1% report fairly low stress levels, and 1% report dangerous stress levels. In comparison, the doctors group had 49% reporting moderate stress levels, 33% indicating being chilled out, 13% report severe stress levels, and 5% report dangerous stress levels. Overall, the data indicates that defence personnel exhibit higher mean scores and a higher proportion reporting moderate to severe stress levels compared to doctors, suggesting that defence personnel generally experience higher levels of workplace stress than doctors.

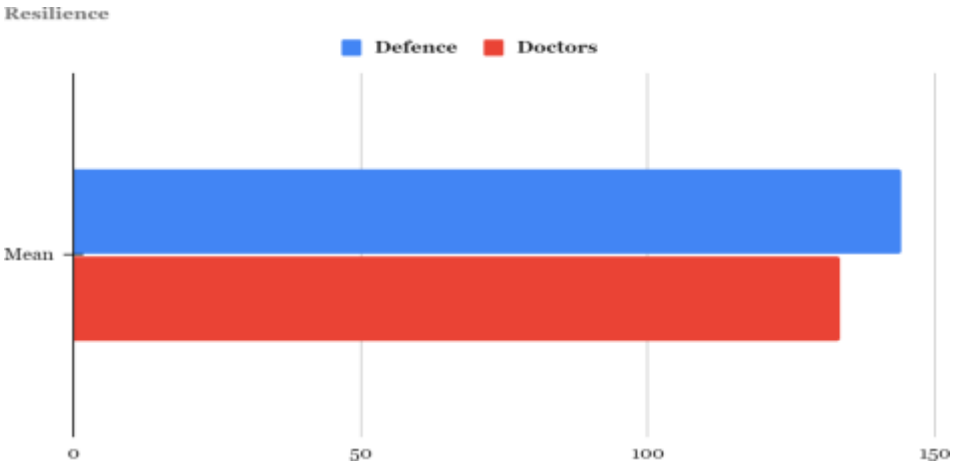


Mean scores of Defence personnel and Doctors on the Workplace stress scale

Table 2: Resilience scores of Defence personnel and Doctors

Parameter	Sample 1 Defence personnel	Sample 2 Doctors
N	100	100
Mean	144.11	133.54
Range	89	75
SD	15.44	16.21
Coefficient of variation	0.107	0.121

Table 2 shows the mean, range and standard deviation scores of the participants on the Resilience scale. Sample 1 has a mean score of 144.11, which is interpreted as *moderate levels of resiliency*. Sample 2 has a mean score of 133.54, interpreted as *moderate levels of resiliency*. Defence personnel show slightly greater mean than the doctors group suggesting that the former have comparatively greater resiliency than the latter. Further, the standard deviation scores of both groups are interpreted using the coefficient of variation, which indicates a low standard deviation for both the groups, that is, the group scores, on an average, are clustered around the mean. In comparison though, the scores of doctors are more dispersed than defence personnel. The range indicates the presence of individual differences within the groups; defence personnel have greater individual differences within the group than the doctors. 54% respondents from the defence group report high resiliency levels, 40% moderate and only 6% low, while 24% doctors report high levels of resiliency levels, 54%
with moderate levels and 22% with low levels of resiliency. Overall, the scores suggest that defence personnel are more resilient than doctors.



Mean scores of Defence personnel and Doctors on the resilience scale

Table 3: Quality of life scores of Defence personnel and Doctors

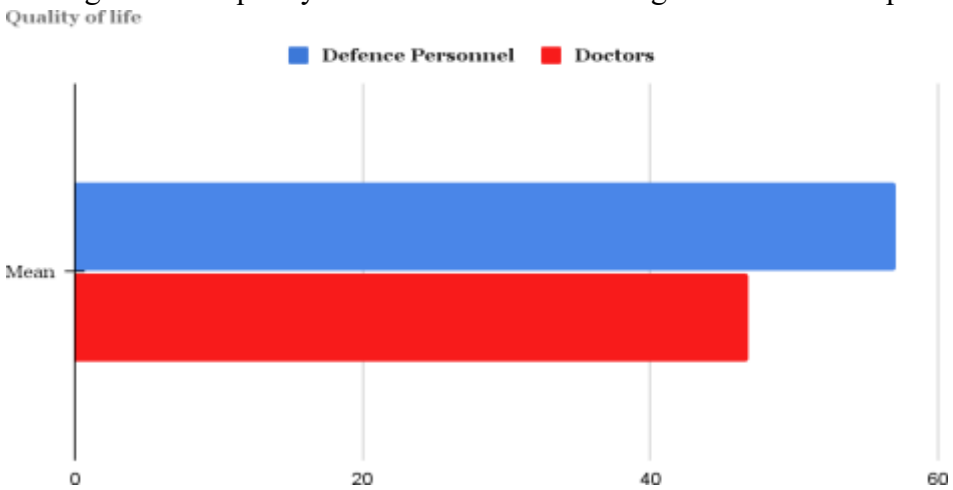
Parameter	Sample 1 Defence personnel	Sample 2 Doctors
N	100	100
Mean	3.2	2.2

Range	81	108
SD	14.89	21.96
Coefficient of variation	29.379	61.056

Table 3 indicates the mean scores, range and standard deviation scores of the participants on the Quality of Life scale. The scale measures 16 individual factors to estimate the overall quality of life - health, self-esteem, goals and values, money, work, play, learning, creativity, helping, love, friends, children, relatives, home, neighbourhood, and community.

Sample 1 has obtained an overall mean score of 3.2, which is interpreted as a*n Average level of quality of life*. Sample 2 has obtained an overall mean score of 2.2, interpreted as an *average level of quality of life.* Concerning individual factors, defence personnel (Sample 1) have obtained a high scores on health, self-esteem, goals and values, work, love, friends, and children, and average scores on money, play, learning, helping, relatives, neighbourhood, and community and low scores in the creativity factor.

Doctors (Sample 2) on the other hand, has an average scores on individual factors of health, self-esteem, goals and values, money, work, play, learning, helping, love, friends, children, relatives, home, neighbourhood, and community and, has got low scores on creativity factor. The standard deviation scores of both groups are interpreted using the coefficient of variation, A coefficient of variation of 29.379 in defence group indicates a moderate degree of variability relative to the mean. Coefficient of variation of 61.05 in doctors group indicates a high degree of variability relative to the mean. This suggests that the data points are widely spread out from the mean value. The range indicates the presence of individual differences within the groups; doctors have greater individual differences within the group than the defence personnel. Overall, the scores suggest that both defence personnel and doctors have an average level of quality of life with few factors high in defence compared to doctors.

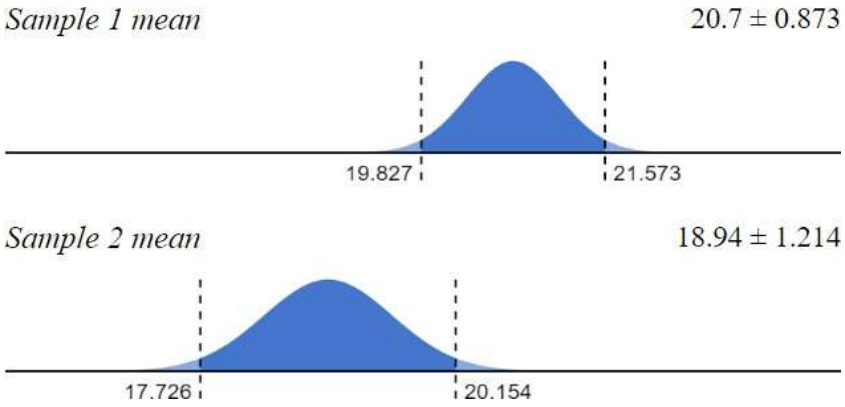


Mean scores of Defence personnel and Doctors on Quality of life scale

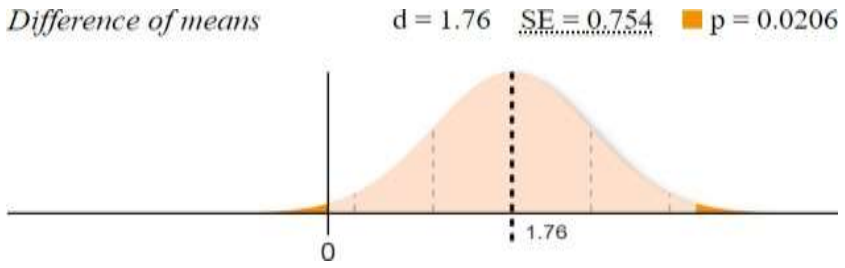
Table 4: t test scores of defence personnel and doctors on workplace stress scale

Parameter	Values
DF	198
t value	2.3337
p value	0.020615

An independent, one-tailed t-test was conducted to compare the mean scores of defence personnel and doctors on the workplace stress scale, revealing a statistically significant difference. The obtained t-value of 2.3337 was deemed *statistically significant* at 0.05 level of confidence but not significant at 0.01 level of confidence. Therefore, the null hypothesis of no significant difference between workplace stress scores of defence personnel and doctors is *rejected*. Specifically, defence personnel were found to have statistically significant higher workplace stress scores than doctors.



Normal Probability Curve of distribution of mean scores of Sample 1 (Defence personnel) and Sample 2 (Doctors) on the Workplace Stress Scale



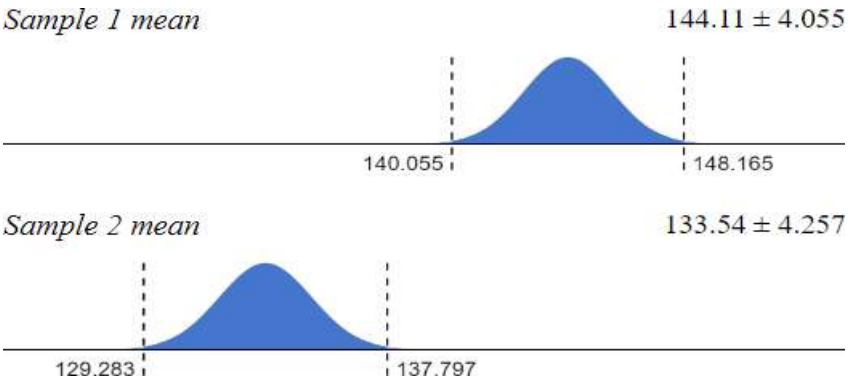
Difference of means on Workplace stress of Defence personnel and Doctors

Table 5: t test scores of defence personnel and doctors on the resilience scale

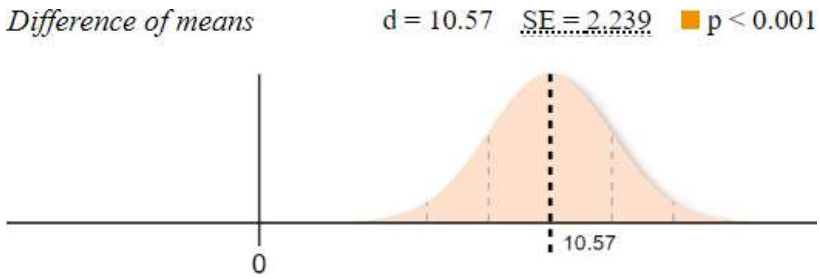
Parameter	Values
DF	198
t value	4.7229
p value	<0.001

Calculated p value = 0.00000440

An independent, one tailed t test was adopted to determine whether the difference in mean scores of the defence personnel and doctors on the resilience scale were significant or not. The obtained t value of 4.7229 is interpreted as *extremely statistically significant* at 0.05 and level of confidence. Thus, we *reject the null hypothesis* of no difference between resilience scores of defence personnel and doctors. Defence personnel have statistically significant higher scores on resilience than doctors.



Normal Probability Curve of distribution of mean scores of Sample 1 (Defence personnel) and Sample 2 (Doctors)

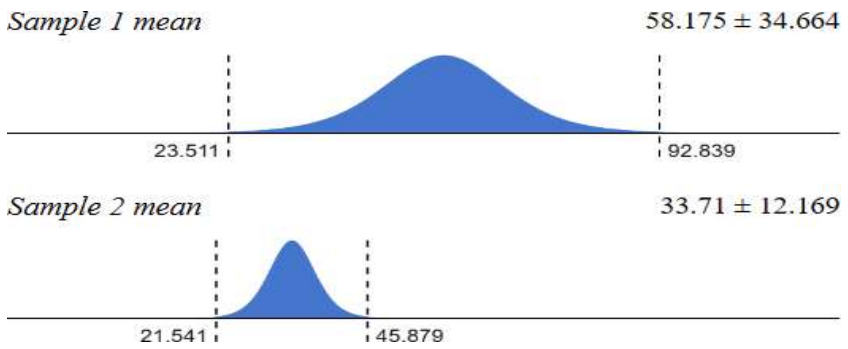


Difference of means on resilience of Defence personnel and Doctors

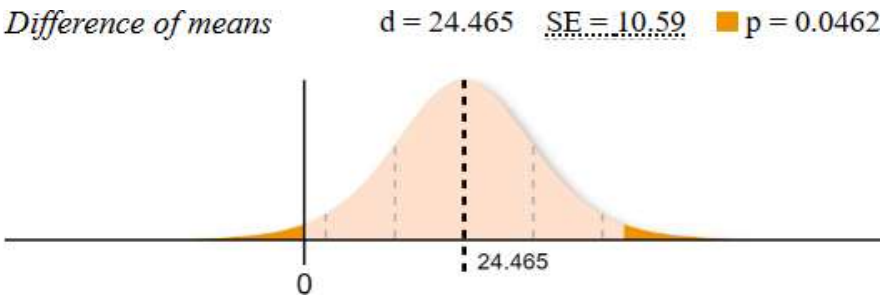
Table 6: t test scores of defence personnel and doctors on Quality of Life scale

Parameter	Values
DF	198
t value	5.54
p value	0.0462

An independent, one-tailed t-test was used to ascertain the significance of the difference in mean scores between defence personnel and doctors on the Quality of Life scale. The calculated t-value of 5.54 is interpreted as *highly statistically significant* at both the 0.05 and
0.01 levels of confidence. Hence, the null hypothesis asserting 'no difference between the quality of life scores of defence personnel and doctors' is *rejected*. Notably, defence personnel exhibit markedly higher scores on the Quality of Life scale compared to doctors.



Normal Probability Curve of distribution of mean scores of Sample 1 (Defence personnel) and Sample 2 (Doctors)



Difference of means on Quality of Life of Defence personnel and Doctors

Table 7: Relationship between occupational stress and resilience.

Groups	Among Defence Personnel	Among Doctors	Among Defence personnel and Doctors
Pearson correlation coefficient (r)	-0.321	-0.048	-0.164
P value	0.001	0.633	0.020
Covariance	-21.856	-4.811	-14,745
Sample Size (n)	100	100	200

Among the defence personnel, the correlation coefficient of -0.321 indicates a *weak negative* correlation between resilience and occupational stress. This suggests that as occupational stress increases, resilience decreases or vice versa. This *contradicts the null hypothesis* of no correlation between occupational stress and resilience among defence personnel.

In the doctors' group, the correlation coefficient of -0.048 indicates a *very weak negative* correlation between occupational stress and resilience. This suggests that as occupational stress levels increase, resilience tends to decrease or vice versa, albeit not significantly at the conventional 0.05 level. While the correlation is not statistically significant at the 0.05 threshold, it still indicates a trend towards a negative relationship between these variables. These results *contradict the null hypothesis* of no correlation between occupational stress and resilience among doctors.

The defence personnel and doctors as a whole, have obtained a correlation coefficient of -0.164 indicating a *weak negative* correlation between occupational stress and resilience. Suggesting that as occupational stress levels increase, resilience tends to decrease, albeit modestly. The strength of this correlation is characterized as weak, implying that the relationship between the variables is not strongly influenced by one another. These results *contradict the null hypothesis* of no correlation between occupational stress and resilience among defence personnel and doctors as a whole.

Table 8: Relationship between occupational stress and quality of life.

Groups	Among Defence Personnel	Among Doctors	Among Defence personnel and Doctors
Pearson correlation coefficient (r)	-0.493	-0.287	-0.264
P value	<0.001	0.004	<0.001
Covariance	-32.309	-38.669	-28.726

Sample Size (n)	100	100	200

Of those in defence, the correlation coefficient value of -0.493 indicates a *moderate negative* correlation between occupational stress and quality of life. That is, as occupational stress increases, quality of life decreases. This *contradicts the null hypothesis* of no correlation between occupational stress and quality of life among defence personnel.

Among doctors, a correlation coefficient of -0.287 reveals a *weak negative* correlation between occupational stress and quality of life at 0.01 level of significance. This suggests that as occupational stress levels increase, quality of life tends to decrease, albeit not significantly.

Thus, these results *contradict the null hypothesis* of no correlation between occupational stress and quality of life among doctors.

Among defence personnel and doctors as a whole, the correlation coefficient of -0.264 reveals a *weak negative* correlation between occupational stress and quality of life at the 0.01 level of significance. Suggesting that as occupational stress levels increase, quality of life tends to decrease, albeit modestly. The strength of this correlation is characterised as weak, implying that the relationship between the variables is not strongly influenced by one another. Thus, resulting in a *contradicting null hypothesis* of no correlation between occupational stress and quality of life among defence personnel and doctors as a whole.

Table 9: Relationship between resilience and quality of life.

Groups	**Among Defence Personnel**	**Among Doctors**	**Among Defence personnel and Doctors**
Pearson correlation coefficient (r)	0.437	0.181	0.566
P value	<0.001	0.071	<0.001
Covariance	100.409	64.736	190.112
Sample Size (n)	100	100	200

In the defence group, the correlation coefficient of 0.437 indicates a *moderate positive* correlation between resilience and quality of life at the 0.01 level of confidence. That is, as resilience increases, quality of life also increases. This c*ontradicts the null hypothesis* of no correlation between resilience and quality of life among defence personnel.

Similarly, among doctors, the correlation coefficient value of 0.181 indicates a *weak positive* correlation between resilience and quality of life at the 0.01 level of significance. This suggests that as resilience levels increase, quality of life also tends to increase, albeit not significantly at the conventional 0.05 level. While the correlation is not statistically significant at the 0.05 threshold, it still indicates a trend towards a positive relationship between these variables. These results *contradict the null hypothesis* of no correlation between resilience and quality of life among doctors.

The coefficient correlation among defence personnel and doctors as a whole is 0.566, which indicates a *strong positive* correlation between resilience and quality of life at at 0.01 level of significance. This suggests that as resilience levels increase, quality of life also increases.

This value suggests that there is a tendency for the variables to move together in the same direction. Therefore, results contradict *the null hypothesis* of no correlation between resilience and quality of life

among defence personnel and doctors as a whole.

While correlation is not equal to causation, it is important to note the relationship between the two variables. On one hand, this may indicate that increased stress at work may lead to burnout and exhaustion, decreasing one's resilience. On the other hand, with greater resilience, one may be less prone to experiencing and succumbing to occupational stress. Resilience is a strong indicator of greater coping capacity, including the ability to bounce back from adversity, reduced susceptibility to physical and mental ailments, and improved emotional control among other benefits. This can serve as a mediating factor between occupational stress and quality of life, improving the latter.

The sample characteristics are specific to the occupations in question, and thus cannot be generalised to other populations. Moreover, factors such as age, gender, socioeconomic status, social support systems may influence the correlation between occupational stress, resilience and quality of life. It is also important to note that correlation is not equivalent to causation; a strong correlation between the two variables does not suggest that one causes the other. At the same time, it is possible for a third variable to be causing increased or decreased occupational stress and resilience. Hence, it would be premature to assume a causal relationship between any two variables.

Discussion

The study's findings shed light on occupational stress levels, resilience levels and overall quality of life of defence personnel and doctors corresponding to their respective work.

Occupational stress contributes to the development of psychological, behavioural, and medical disorders and diseases (Quick & Henderson, 2016). Defence personnel and doctors face unique stressors in their respective workplaces. Defence personnel, in particular, face intense stressors, including high-pressure and potentially dangerous situations, urgency in critical, life threatening decision making, long work hours, lack of control over fierce work conditions such as climate and lack of accessibility, and continuous exposure to unpleasant or unsafe environments. These stressors can lead to elevated levels of occupational stress, which can negatively impact their mental and physical health, work performance, and employee retention (Rus et al., 2022). Doctors, on the other hand, also face workplace stress, but the sources of stress may differ in type and intensity. Medical personnel often encounter stressors such as high workloads, demanding patients, critical decision-making, and the pressure to perform at a high level in their medical practice. While these stressors can also impact their well-being and job performance, they may not be as intense, urgent and continuous as those faced by defence personnel. The usual demands of working in the military may cause unusual levels of stress that have shown to have an enormous negative impact on the physical and mental health conditions, along with low morale, higher degree of pessimism and helplessness and more mental health problems (Sharma, A., 2023).

On analysing the Workplace Stress Scale scores, while both groups reported moderate levels of workplace stress, defence personnel exhibited a higher mean than doctors, as also confirmed by the t-test. Occupational stress is a significant issue in the military, with numerous studies examining the relationship between military-induced stress and physical and mental health. Defence personnel are exposed to a wide range of stressors, including combat stress, deployment stressors and post-traumatic stress disorder (PTSD), which can have significant impacts on their well-being and job performance. The profession is known to be high-risk and stressful, with studies indicating that personnel are more likely to report suffering from job stress compared to civilian workers (Wu et al., 2023). This study identifies potential factors contributing to this disparity, with defence personnel citing conditions at

work being unpleasant or unsafe, excessive workload, and job pressures interfering with personal life as key stressors. In contrast, although the sample of doctors also emphasised on workload challenges and job pressures affecting personal life, many reported that they receive appropriate recognition or rewards for good performance, which may alleviate the impact of reported stressors. The reported differences in occupational stress levels can be attributed to different roles and environments at work, particularly the intensity and frequency of exposure to potential stressors owing to the inherent occupational difference. These findings underscore the importance of tailored interventions to address specific stressors faced by defence personnel and doctors, aiming to improve their well-being and job satisfaction in their respective demanding professions.

Resilience is not a trait that people either have or don't have; it involves acts, ideas, and behaviours that anyone can pick up and grow into. Both groups show moderate levels of resiliency on an average. However, defence personnel are found to be more resilient than doctors. This statistically significant difference can be attributed to differences in work environment and the overlapping of workplace ethics and principles into personal lives of servicemen. Defence is not a mere job, but a lifestyle that has a bearing on all aspects of a serviceman's life. Right from training, principles of discipline, structure, integrity, honour, commitment, sacrifice and duty are indoctrinated into the professional lives of soldiers, and inevitably overlap into their personal lives as well. Such values are considered imperative for a successful career and thrive in an organisation with purposeful missions, protocol, clear lines of authority and accountability. A soldier is exposed to strenuous living conditions, sometimes for months on end, and is trained to survive and fight despite hardships. Resilience then becomes an essential component of defence planning. To be resilient means to have adaptability. It involves pushing our strengths to heights we did not know were possible. Resilience building comprises an important part of training where cadets are put under a carnage of physical and mental exercises and are continuously pushed beyond their limits, in an attempt to equip their physical and mental strengths for the real world challenges. This is in line with literature mentioned earlier (Jaeschke, 2016) which concluded that those who completed resilience training scored higher than those who reported not completed resilience training. Moreover, periodical deployments or postings to new, unfamiliar places, often away from modern civilisation and in extreme living and weather conditions increase one's capacity to adapt to novelty and/or the discomforting realities of daily living, and indirectly also heighten one's survival instincts, and provide more opportunities for socialisation. These also open up the opportunity to learn new skills and meet a diverse set of cultures and people that can serve as valuable experiences for personal growth and development. In contrast to the military lifestyle, doctors' work ethic may not translate as deeply into their personal lives. One can argue that a doctor's job is more or less equally urgent, involving highly stressful work conditions in the case of emergency medicine specialists such as critical care surgeons, and require a certain degree of resilience to perform their duties effectively. However, a vital difference in the two professions is the receiver of adversity. A doctor does not face adversities or medical crises personally, but is trained to treat those of others dispassionately and professionally. A soldier, on the other hand, albeit fights for the "other" or the country at large, faces challenges first hand that have an affect on them personally and also have the potential for consequences for their families and loved ones. At this conjuncture, there arises a difference in the overlay of professional and personal lives in the two types of professionals, which may account for higher resiliency in defence personnel who extend their professional training into their individuality and personal lives.

For instance, 87.7% of defence personnel believe in themselves to find their way out of difficult situations while only 75.5% have the same confidence in themselves. In reference to this, 85% of defence personnel also believe that their experiences through difficult times has made them more capable of facing and conquering challenges in the future, in comparison to 75% of doctors. This difference can arise out of differences in the intensity of work conditions and their consequent impact on the individual. Further, 57.2% of doctors take things one day at a time, in comparison to only 50.1% of defence personnel. Said disparity may be a result of the structured life a serviceman incorporates into his or her own personal life, taking charge of things in their control in the face of excessive unpredictabilities of the world and more specifically of those faced at their workplace.

In all likelihood, the defence sector appears to provide more opportunities to an individual to develop resilience, both deliberately and indeliberately as a result of experiences, than the medical field by a simple virtue of the differences in the function, goals and expectations of the organisation as a whole and the kind of traits needed in individuals to achieve said goals.

Quality of Life (QOL) encompasses an individual's subjective well-being across various life domains such as physical health, mental and emotional wellness, social connections, personal fulfilment, and meaningful goals (World Health Organisation, 1995). This analysis delves into the quality of life experienced by physicians and military personnel, emphasising on their levels of work-related stress and resilience, and their implications seen on reported quality of life. Coping mechanisms, resilience, interpersonal relationships, social support networks, adherence to healthy habits, satisfaction with physical and mental well-being, and a sense of belongingness are significant contributors to well-being (Schwarzer & Knoll, 2007). Research conducted in India highlight that defence personnel generally exhibit better overall quality of life (Bansal, et al, 2020) and compared to doctors, there are noticeable disparities particularly in work stress and resilience, which are closely linked to overall well-being (Fatima et al., 2023).

Findings from Quality of life scale show that while both groups reported overall average levels of quality of life, defence personnel exhibited a higher mean than doctors, as also confirmed by the t-test. This discovery is in line with studies that suggest that individuals in military roles often express high levels of satisfaction in various aspects of their lives. This study examines sixteen factors contributing to quality of life namely health, self-esteem, goals and values, money, work, play, learning, creativity, helping, love, friends, children, relatives, home, neighbourhood and community. Each factor adds to the overall well-being of an individual be it in the form of physical and psychological health, sense of purpose or fulfilment through knowledge gaining or work, financial stability particularly in today's modern lifestyle, sense of belongingness through love, friends, children or family, or simply engaging in pleasurable activities allowing for creativity and learning as a hobby. On comparing defence personnel to doctors across these various aspects of life, it becomes evident that defence personnel exhibit notably higher scores in several factors, leading to a higher overall quality of life than doctors who report average scores on all sixteen areas.

On the individual factors examined through the QOL scale, differentiating factors for the two groups appear in the factors of health, self esteem, goals and values, work, love, friends, and children where defence personnel report high scores in comparison to doctors' average scores. Starting with health, as explained earlier, military training and lifestyle may be a discriminating factor in differences seen in the groups' satisfaction. In keeping with their training habits, defence personnel are more likely than doctors to maintain their fitness, assuming that is the ideal expectation. Additionally, the military incorporates

regular physical training activities, inter-unit sports events, and formal health checkups every year, keeping them more in line if they stray than doctors who are not externally regulated for maintenance of health and fitness. Second, defence personnel also score higher on average than doctors on satisfaction with work. This is an interesting finding, as based on occupational stress scores, defence personnel also experience more stress than doctors. The role of resilience is implicated here again, and results on QOL scale may be an evidence of its meditating role. Other contributing factors to increased satisfaction with work for defence personnel include job security, financial stability, perks of subsidised shopping, personalised health care, self sustaining residential and work campuses and to an extent, increased exposure to different cultures. Also implied is the role of support systems or social networks where defence personnel score high in comparison to doctors who report average satisfaction. Camaraderie with coursemates and other officers, and a consequent strengthened bond of friendships within the organisation allows for a strong support system at the workplace. Additionally, the supporting role of a spouse and children who albeit not personally but indirectly are also subject to the military lifestyle is only gainful. Naturally, the fruits of high satisfaction with health, work, love, friends and children would be reflected in self esteem and goals and values. Moreover, the structured environment of military lifestyle, well-defined hierarchies, and the immeasurable opportunity to contribute to national service play a role in fostering higher levels of fulfilment and contentment. Defence personnel also tend to excel in balancing work and leisure activities, finding time for hobbies and recreational pursuits despite their demanding schedules. This ability to maintain a healthy work-life balance contributes positively to their overall well-being.

Doctors, in comparison, face uncertainties regarding job stability, financial pressures, and the demands of managing healthcare systems and administrative burdens can cause stress. While they derive satisfaction from helping others and making a difference in patients' lives, such job roles can take a toll on their quality of life. Issues such as burnout, difficulties balancing professional and personal life, and emotional exhaustion are common in the medical field. Studies have consistently shown high levels of burnout among medical professionals, with factors like long work hours, high responsibility, and exposure to emotionally taxing situations contributing to their stress levels. For instance, a study by Shanafelt et al. (2012) found that over 50% of physicians experience symptoms of burnout, significantly impacting their quality of life. Furthermore, the pressure to provide excellent care while managing administrative duties and dealing with limited resources can contribute to a decrease in their work satisfaction affecting their overall quality of life.

Stressors are common for both professions, the lack of pacifying factors for doctors plays a discriminating role in the reported quality of life scores by the two groups; doctors are not simultaneously exposed or primed to factors that are distinctive in securing better quality of life for defence personnel. In essence, defence personnel demonstrate higher scores on key factors such as health, self-esteem, goals and values, work satisfaction, work-life balance, and interpersonal engagement compared to doctors. These differences underscore the unique challenges and rewards associated with each profession, highlighting the importance of understanding and supporting the well-being of individuals in both fields.

Findings also report the nature of correlation between occupational stress, resilience and quality of life, which is studied under three groups -

1. ***Defence personnel***

The study indicates a weak negative relationship between occupational stress and resilience for defence

personnel, that is, as occupational stress increases, resilience decreases or vice versa. Results reinforce the detrimental effects of stress on physical and mental capacities of individuals to overcome and cope with adversities. This is corroborated in Selye's model of stress (General Adaptation Syndrome) wherein prolonged exposure to stress beyond the resistance stage leads to exhaustion where the individual's ability to fight off the stressor significantly diminishes and consequently make him more susceptible to physical (or mental) ailments. Conversely, it can also be considered that as resilience increases, occupational stress reduces. The more resilient an individual is, the more capable he/she is to fight ongoing or future stressors. The application of this idea may be seen in the course of training in the military where cadets are continuously pushed to challenge their comfort zones and limits in an attempt to build themselves physically and mentally stronger. This serves as an essential part of the training period, which despite yet through its emphasis on routines and structures, ultimately aims to prepare one for the unpredictabilities of defence lifestyle. However, findings report a weak impact of factors on each other.

Second, results indicate a moderate negative correlation between occupational stress and quality of life for defence personnel, that is, as occupational stress increases, quality of life decreases and vice versa. Occupational stress has been found to reduce the overall quality and satisfaction in all professions and particularly among defence personnel as well. Specifically, this can be attributed to severe working conditions in terms of place, climate, and accessibility, inherently exigent job roles, staying away from family/loved ones for prolonged periods of time, and traumatic experiences. Generally, as seen in any other profession, long, strenuous working hours, lack of incentives - promotion, recognition, or bonuses, office politics, and even boredom or stagnation can cause stress. Conversely, reduced quality of life due to extraneous factors such as marital problems, illnesses or injuries, bereavement, traumatic personal experiences, breakups or divorce among others may also heighten one's vulnerability to stressors at work.

Third, a moderate positive correlation is found between resilience and quality of life for defence personnel, that is, as resilience increases, quality of life also increases. The more physically and mentally resilient one is, the better are their chances of effectively coping with adversities, including occupational stress, reducing the negative impact of perceived stressors on their overall quality of life. This is corroborated by a study which identified a positive correlation between psychological resilience and quality of life, further indicating a mediating role of psychological resilience on the effect of occupational stress on quality of life. As reported by t test results in this study as well, resilience may account for simultaneous higher occupational stress and quality of life scores.

2. *Doctors*

Results indicate a very weak negative correlation between occupational stress and resilience for doctors, suggesting that as occupational stress increases, resilience tends to decrease or vice versa, albeit not significantly. For doctors, the demanding nature of their work, including long hours, high patient volumes, and the emotional strain of caring for critically ill patients can erode their resilience over time, leading to burnout and mental health issues. Conversely, the findings may also suggest that as resilience increases, occupational stress decreases. High level of resilience plays a crucial role in reducing occupational stress by equipping individuals with the ability to effectively cope with and adapt to challenging situations in the workplace. Resilience acts as a protective factor, enabling individuals to bounce back from setbacks, maintain a positive outlook, and manage stressors effectively, ultimately helping them navigate high-stress environments with a sense of control and well-being. Doctors

exhibit inherent resilience through their adaptability, commitment, compassion, and coping strategies in the face of the challenges inherent in the medical profession. Their ability to navigate through demanding situations, maintain empathy, and cope with stress factors continuously showcases the resilience that is integral to their roles as healthcare professionals (McKinley et al., 2020).

Next, findings indicate a weak negative relationship between occupational stress and quality of life for doctors, implying that as occupational stress levels increase, the overall quality of life tends to decrease or the other way round. Similar to the defence group, for doctors, high occupational stress levels can significantly impair their quality of life, leading to burnout, mental health issues, and a reduced sense of well-being. Quality of life is a multifaceted concept that encompasses physical, emotional, and social well-being. High occupational stress levels can negatively impact all of these dimensions, leading to physical symptoms such as headaches, fatigue, and sleep disturbances, as well as emotional symptoms such as anxiety, depression, and irritability. Additionally, high occupational stress levels can impact social relationships, leading to social isolation, strained relationships, and a reduced sense of connection with others. Conversely, the decrease in quality of life can trigger a chain reaction that leads to an increase in workplace stress. This decline in quality of life may stem from various factors such as personal challenges, health issues, work-life imbalance, or job dissatisfaction. As the quality of life diminishes, individuals may find it harder to cope with the demands of their work, leading to heightened stress levels (Vamvakas et al., 2022).

The study also found a weak positive correlation between resilience and quality of life for doctors. This suggests that as resilience levels increase, quality of life also tends to increase, albeit not significantly. For doctors, increased resilience can lead to an improvement in quality of life as it enables them to cope with adversity, leading to improved patient outcomes, increased job satisfaction, a more positive work environment and overall well-being (Ordaz Lopez et al., 2023).

3. *Defence and Doctors*

Occupational stress and resilience among defence personnel and doctors suggests a weak negative correlation, that is, as occupational stress increases, resilience tends to decrease. The demanding roles of defence personnel and doctors, facing high-pressure situations and life-and-death scenarios, can impact their resilience over time. Conversely though, higher resilience levels often result in lower occupational stress, showcasing how resilience acts as a protective shield against stress by aiding individuals in navigating tough situations and handling stress effectively. The adaptability, dedication, and coping skills displayed by defence personnel and doctors play a significant role in their natural resilience, enabling them to excel in challenging environments. Their impressive adaptability, commitment to their work, and reliance on effective coping strategies like seeking support and practising self-care further contribute to their ability to thrive in stressful circumstances. Overall, the weak negative correlation between occupational stress and resilience in these professions is influenced by their duties, the protective role of resilience, adaptability, commitment, and effective coping strategies, emphasising the importance of understanding these elements for enhancing the well-being and performance of individuals in high-stress professions.

Next, the group as a whole reports a weak negative correlation between occupational stress and quality of life, suggesting that as levels of occupational stress rise, quality of life tends to decline. These results underscore the detrimental impact of occupational stress on individuals' overall satisfaction and well-being. Contributing to this decline are factors such as extended and demanding work hours, intense working environments, and a dearth of incentives such as promotions, acknowledgment, and workplace

politics, which are prevalent in both professions. Moreover, experiences of trauma, feelings of ennui or stagnation, and external factors further exacerbate the decrease in quality of life. Conversely, a decrease in quality of life due to external factors can increase susceptibility to workplace stressors, perpetuating a challenging cycle to break.

Finally, the study also uncovered a strong positive correlation between resilience and quality of life in both defence personnel and doctors collectively. This suggests that as levels of resilience increase, there is a strong improvement in quality of life. Enhanced resilience enables individuals to effectively handle adversity, leading to an overall enhancement in well-being. Factors such as adaptability, commitment, and effective coping strategies play a crucial role in fostering resilience, which in turn contributes to an improved quality of life for both defence personnel and doctors alike. This discovery emphasises the significance of nurturing resilience in military and healthcare settings to elevate the well-being of both defence personnel and doctors.

However, it is important to note that correlation is not equal to causation and it is still possible that a third variable causes increased or decreased occupational stress, resilience and quality of life under any of the group conditions. For instance, a personal tragedy or illness may reduce one's immediate resiliency but may make them more resilient towards future adversities. At the same time, it can make them more prone to stress at work; strong social support system may contribute to higher levels of resilience as well as quality of life.

Conclusion

1. Defence personnel report significantly higher levels of workplace stress than doctors. Hence, the first hypothesis that no significant difference between mean scores of doctors and defence personnel on occupational stress is rejected.
2. Defence personnel are found to have significantly higher levels of resilience than doctors. Hence, the second hypothesis that there is no significant difference between mean scores of doctors and defence personnel on resilience is rejected.
3. Defence personnel report significantly better quality of life than doctors. Hence, the third hypothesis that there is no significant difference between mean scores of doctors and defence personnel on quality of life is rejected.
4. There is a correlation between occupational stress and resilience among defence personnel, doctors and their combined scores. Hence, the fourth hypothesis is rejected.
5. There is a correlation between resilience and quality of life among defence personnel, doctors and their combined scores. Hence, the fifth hypothesis is rejected.
6. There is a correlation between occupational stress and quality of life among defence personnel, doctors and their combined scores. Hence, the sixth hypothesis is rejected.

Work of a defence personnel, although a source of major stress, also improves their resilience and contributes positively to their overall quality of life as a result of realising it into their personality and personal lives. In contrast, the incorporation of professional ethics and principles into personal lives of doctors is comparatively marginal accounting for differences in the factors under study. Particularly, the study identifies strong systems of brotherhood, camaraderie and belongingness between personnel of all ranks, and the strong ties and care of families of defence personnel as pivotal factors in facilitating adaptation and coping acting as a buffer against adverse effects of military service. The impact of workplace on occupational stress and quality of life has been well documented by previous studies,

however, this study also identifies the role of specific work conditions in building resilience of an individual and its consequences on factors such as occupational stress and quality of life, particularly the mediating role it may play in the effect of occupational stress on one's quality of life.

The study holds significant implications. Theoretically, the study provides further evidence of impact of workplace stress on quality of life. The study also provides evidence for the mediating role of resilience in alleviating the impact of occupational stress on quality of life. Interestingly though, work appears to be a source of occupational stress and resilience simultaneously suggesting a bidirectional process in play. Particularly, the relationship between resilience and occupational stress gans insights from this study. Practically, the findings of the study add to the awareness of the importance of work in the one's life. Instances of suicides or self inflicted injuries have been reported to be in hundreds every year, particularly among defence personnel. Clinical practice may benefit from findings owing to a richer understanding of the nature of job, the complexity of factors at play and its impact on an individual. Policies, such as mandated counselling after deployments in distress areas for defence personnel, could be informed by the study and become precedents for implementation of effective interventions.

Limitations and suggestions

Relevant variables such as personality traits, gender, age, years of service may influence stress, resilience and quality of life scores. The study also does not differentiate between Army, Air Force or Navy in the defence sector, and includes doctors without differentiating between critical care surgeons and other types. Therefore, for both sectors, there is a possibility of respondents working in non-emergency units or in retirement, affecting results. Moreover, the study examines correlation at a single point in time, which may be a result of cohorts, overlooking changes over time. Owing to these limitations, the generalisability of the study may be restricted. Additionally, participant engagement may have been influenced during the completion of an extensive Google form, impacting responses due to potential fatigue or loss of interest. The study also uses convenience sampling which, as a sampling tool, may be inherently flawed.

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