



RESEARCH PAPER

The Neglected Frontline: Impact of Policy Lacunas on Security Personnel's Health in Pakistan's Energy Sector

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ABSTRACT

The policies play crucial role in determining the organizational directions and methods to achieve the goals. In larger entities spreading across different cultural, environmental and geographical settings the centralized policies are less effective if applied homogeneously across all the entities being governed. This study explored the impacts of centralized policies on the mental and physical health of security cadre employees in one of the power sectors companies of the Pakistan. Study was grounded in Effort-Reward Imbalance (ERI) model and policy implementation theory. The data collected from primary sources was analyzed using student-t test and by organizing it in graphical representations in addition to survey from supervisors of setups located at 82 different geographical locations. The results of the study are fruitful for the policy makers and stakeholders of the organizations for developing the mechanism and procedures for increasing the operational efficacy of the organizations through mentally and physically fit employees.

KEYWORDS Energy Security, Policy Frameworks, Mental & Physical health, Operational efficacy

Introduction

The workplace policies significantly impact employee stress levels along with health implications and increase the risk of poor health outcomes and mortality (Goh et al., 2015). Research constantly shows that employee health and well-being significantly impact job performance and organizational success. Physical and psychological health factors, including mental well-being, depression, anxiety, and life satisfaction, have reasonable to strong associations with work performance (Ford et al., 2011). In research carried out at India it was found that the effects of policies on employee health in the power sector discloses several key findings. Job stress in power sector employees is primarily caused by workload, working environment, concentration demands, and future uncertainty, leading to increased doctor visits and health issues (Sidhu et al., 2020). Job stress has been consistently linked to negative mental and physical health outcomes.

Research indicates that workplace stressors increase the risk of poor health, physician-diagnosed illnesses, and even mortality (Goh et al., 2015). As employees' health risks increase, their productivity decreases (Burton et al., 1999). Organizations have a responsibility to foster employee resilience and well-being, as healthy employees are crucial for increased productivity and competitiveness (Hussain, 2015). The centralized policy impacts are also evident on the frontline security workers, as the Physical security

is a crucial aspect of organizational security management, encompassing the protection of people, infrastructure, and assets (Belan, 2023).

Literature Review

Nielsen et al. (2017) conducted a methodical review and meta-analysis, revealing that workplace resources are significantly related to both employee well-being and performance. This suggests that organizational policies that allocate resources effectively can enhance employees' internal and physical health, leading to bettered overall performance. Baranowski et al. (2016) further substantiated the connection between organizational health and business success, demonstrating that a healthy organization correlates with increased profitability. Organizational policies significantly impact employee health and well-being, which in turn affects job satisfaction, exhaustion, and organizational performance. A strong focus on health policies in organizations has been shown to enhance job satisfaction, reduce fatigue, and decline sickness absence (Ybema et al., 2011).

Comprehensive soundness programs, internal health support, and stress administration strategies contribute to positive work surroundings and refined employee well-being (Hartanto, 2024). Supervisor support and family-friendly policies play pivotal interceding roles in enhancing workers' health and organizational commitment (Ramadoss & Lape, 2014). Factors similar as job characteristics, social support networks, and leadership styles also impact employee health and happiness (Hartanto, 2024). To maximize organizational effectiveness, companies should borrow evidence-grounded policies that support work-life balance, employee development, and performance recognition (Hartanto, 2024; Hussain, 2015). Low-quality work organization is associated with cerebral diseases and musculoskeletal problems, with women passing worse internal health issues and further frequent absences (Magnavita, 2024).

In the crockery industry, lower companies displayed worse overall health issues, with advanced frequency of silicosis, tuberculosis, hypertension, anaemia, and glucosuria (Huang et al., 1993). Health risk factors similar as smoking, high BMI, and hypertension were associated with increased illness absence frequency and duration in petrochemical workers (Tsai et al., 2005).

Security labour force face significant health risks and mortality due to their profession. Studies have shown high rates of psychiatric morbidity and stress among security forces, particularly for those in stressful postings and lower ranks (G. Rao et al., 2008). Police officers in Rio de Janeiro experience high rates of morbidity and mortality both on and off duty (Edinilsa Ramos de Souza & Maria Cecília de Souza Minayo, 2005). Security guards in healthcare settings also face health challenges, including fat, abnormal waist-hipsterism rates, and shift-specific health issues similar as anaemia and hypertension (Asmita Patnaik et al., 2022). Research indicates that job-related health issues are current in public sector associations.

Public sector workers also report lower safety climate comprehensions and further work-related ails compared to private sector counterparts (Ward et al., 2008). A foundational aspect of understanding the health consequences faced by security personnel in the energy sector is the recognition of the broader counteraccusations of healthcare policy. For case, the American Heart Association's policy statement vaticinations significant health challenges, including heart failure, which can be aggravated by shy workplace policies (Heidenreich et al., 2013). This finding underscores the significance of robust health policies that prioritize the well-being of workers, particularly in high-stress surroundings where security labour force operates.

In Pakistan, analogous policy interventions could be explored to alleviate health risks among security labour force by promoting healthier workplace practices and surroundings. For instance, low socioeconomic status and job instability have been linked to increased risks of habitual diseases (Teshale et al., 2023). Despite the perception gained from the existing literature, several knowledge gaps persist. Originally, there's a lack of empirical exploration specifically addressing the health impacts of policy lacunas on security labour force in Pakistan's energy sector.

Theoretical Framework

The Effort-Reward Imbalance (ERI) model, developed by Johannes Siegrist in the 1990s, is a key theoretical framework used in understanding the relationship between occupational stress and health outcomes, predominantly in work environments. The ERI model postulates that an imbalance between the efforts employees put into their work and the rewards they receive in return (whether financial, social, or intrinsic) leads to psychological strain and adverse health effects. This model builds upon the understanding of occupational stress as a significant cause of worker well-being, offering an economic and social-psychological viewpoint to analyse labour-related stress dynamics. The ERI model claims that the interaction between the effort exerted by an individual and the rewards they gain in return is a crucial driver of both well-being and mental health. If efforts are met with insufficient rewards, individuals experience stress, leading to burnout, job dissatisfaction, and potential health risks such as cardiovascular disease and mental health disorders.

Another theoretical model which was used as foundation of this study was Policy Implementation Theory, it has its roots in public administration and political science, emerging in the 1970s as scholars pursued to comprehend why many well-designed public policies failed to achieve their intended objectives. Early scholars like Pressman and Wildavsky (1973) recognized that the success of policy implementation often depended less on the content of the policy itself and more on how it was carried out. Their study of a federal jobs program in Oakland, California, emphasized the complexities of multi-level governance, coordination, and the role of local actors in shaping policy outcomes.

Over time, the theory evolved to cover a broader understanding of the organizational and social dynamics that influence policy implementation. Scholars such as Sabatier and Mazmanian (1980) contributed to this evolution by focusing on factors such as policy clarity, resources, and institutional support, which are crucial in defining the success or failure of implementation efforts.

Material and Methods

Design

This study adopts a qualitative and quantitative approach. The data used in quantitative is primary and collected from field work. The data collected for qualitative approach involved literature review and scanning of the records google survey forms. The mix method was used to revalidate the results.

Sampling

The data collected covers a broad geographical spread of 82 installations across 50 cities in Pakistan. The data was grouped into three broader segments North, Centre and South. This ensured a comprehensive sample for representing theft and security incidents

in both urban and rural transmission setups. The study spans three years, ensuring enough data to identify trends and patterns over time.

Data collection

This study used primary data obtained from the record and the semi structured survey from the supervisors in charge of the installation located at different geographical locations of the country. The set of data is based on exhaustive and extensive survey of the location, the geographical locations included were in three groups north, center and south. The installations of the North included the locations of Peshawar, Mardan, Bannu, DaudKhel, Mianwali, Rawat, Burhan, Islamabad, Sangjani, Mansehra and Nowshehra. The installations of the Center included the locations of Summandri, Jaranwala, Sargodha, Sialkot, Lahore, Toba Tek Singh, Faisalabad, Gujrat, Okara, Kassowal, Sheikhpura, Nokhar, Sahiwal, Sarfraz Nagar, Kala Shah Kaku, Ghakkhar Muzaffargarh, Multan, Dera Ghazi Khan, Rahim Yar Khan, Bahawalpur, Vehari, Chishtian and Bahawal Nagar. The installations of the south included the locations of Jamshoro, Dherki, Karachi, Dadu, Shikar Pur, Hala Road, Hyderabad, Rohri, Jhampir, Jamshoro, Kotri, Quetta, Sibbi, Loralai, Khuzdar and Zohb. The cities included were 50 from all the four provinces of Pakistan and the setups studies in those locations were 82, In metropolitan or big cities more than one setup was taken into consideration keeping in view the strength of the staff deployed and importance of the installation.

Total of four policies were shortlisted which were particularly designed for operational and administrative purposes of the security cadre staff of the company, these policies included: Induction Policy, Posting / Transfer Policy, Deployment / Leave / Rest policy and Health Policy. The parameters taken to view the impact of the policies included: Morbidity, Mortality and medically declared unfit due health conditions. The data was gathered for the five years survey taken from 2019 till 2023. This significant period included the global pandemic of COVID-19 however the cases of covid positivity were not included in the study despite being significantly contributable to the nature of the job as the primary focus of the study was to assess the impact of policies.

Analysis Technique

The data was analyzed in terms of graphical representation of bar and pie graphs and the data was not analyzed using complex statistical models like ANOVA due small sample size. However, for the authentication of the efforts the student-t test and correlation were performed on the available limited data set. The results analyzed to prove the significance significant relationship with the policies as they were mainly implemented in year 2021.

Results and Discussion

The first policy which was brought into consideration was induction policy which specified that in security cadre on the retired employees of the armed forces of Pakistan are eligible to apply, this by default sets bar on the certain age limits like maximum age limit of 52 years for security officers and 55 years for security managers, the subordinate staff were capped at 50 years on upper ceiling. Through this policy the aim was to induct certain set of skills for which the company was not ready to pay the training and development costs but as a byproduct it was inducting the less energy and less fit operational time for the staff recruited in the security cadre.

This unseen cost was multiplied in terms of health expenditures and compromises on the operational efficiency. This policy was selected as contributor to the mental and physical health issues experienced by the employees of the security cadre as being on the higher side of the age brackets and impacts of previous rigorous employment in the armed forces the health conditions of the employees are believed to have been affected by the time they end up at the company.

The survey was done using google survey and the input was obtained as per September 2024 from 82 different supervisors of the installations at different geographical locations, out of 81 responses received almost more than half of the employees' showed resentments against the induction policy.

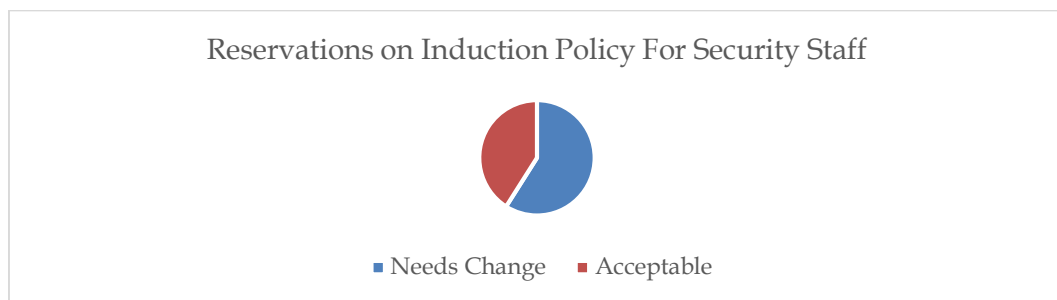


Figure 1. Survey results on induction policy.

The second policy which was selected was leave rest / rotation or deployment policy, this policy had 2 basic components one is the operational and other is the administrative. The operational side included the security staff to be deployed across various positions like watch towers and open gates or piquet's the environmental impacts at those places on the health conditions is high like hot or cold weather, day or night deployments, less access to basic amenities like washrooms or rest rooms causing impact of hygienic issues or the availability of basic facilities like fans, shades etc. due to nature of job certain set of compulsions are bindings like even if it is hot or cold its dangerous or not or its day or night the employee has to spend active time of 8 hours a day at that position.

In this domain the survey was carried out from 82 supervisors of the installations located at different geographical locations of the Pakistan. Results showed that almost 35% of the staff does not have reasonable hygienic living conditions and access to basic amenities like clean water or clean washrooms etc.

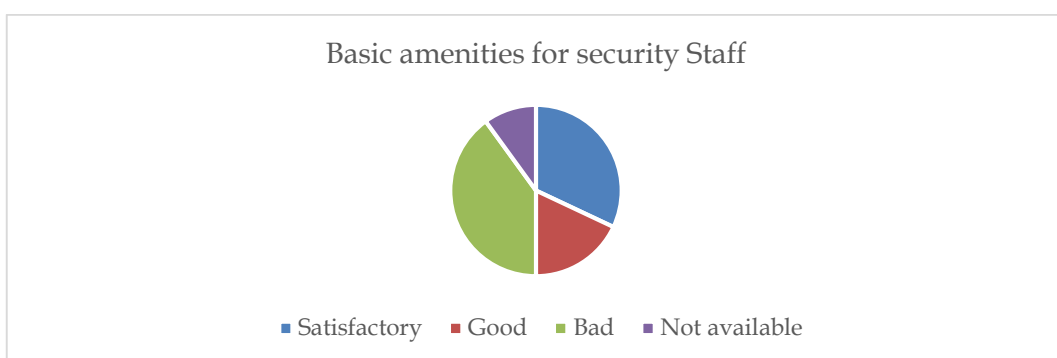


Figure 2. Survey results on availability of basic amenities for deployed staff.

There is another set of consideration as the security is frontline to any guest, visitors, employees entering the premises of the installation the risk of getting diseases

related to contagious nature or contact specific nature gets on the higher side like flu, cough, skin issues, Covid-19 being the best example here. Temperature or environment specific health risks like Mesko skeletal issues, heat strokes, pneumonia in cold have impact on the health status of the security cadre employee.

During the survey it was observed that 35% of the manpower either does not have sufficient arrangements for harsh weather conditions and supporting equipment or are making a make shift arrangements for the said purpose in order to complete the official requirements of the operational duties and being stationed at remote sensitive stations.

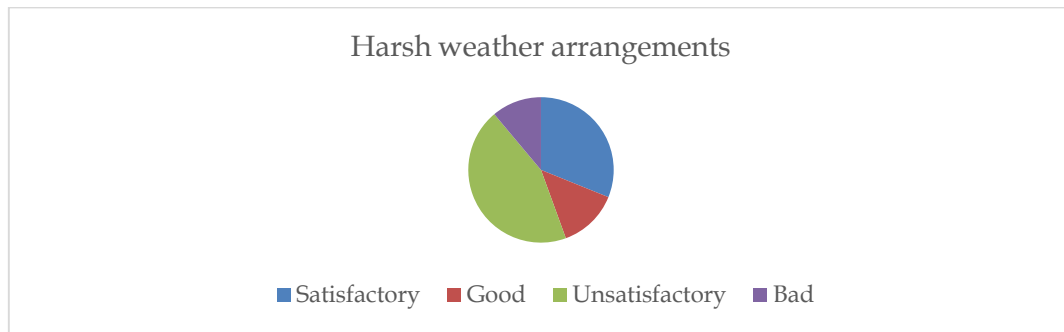


Figure 3. Survey results on availability of equipment to cope-up harsh weathers.

Thus, the deployment policy was critically viewed as one of the contributory factors by its strong critique on the aspect of using human as observatory on the watchtowers or as gate control mechanism this being the WW-II strategy still being practiced in 21st century in modern times. The successful alternate was to install at CCTV camera instead of the watch tower which requires 04 persons to man 24/7 in 8 hourly rosters with one on leave, this could have slashed the 90% operational cost as calculated in response to the working done in this aspect in addition to saving valuable human health or cutting on the operational downtime in this lieu.

The second administrative component of the policy was leave rest rotation as it elaborated with far flung areas having 42 days of continues duty followed by 14 days of the off-rest period and in settled areas it was 21 days of continues duty followed by 7 days of the rest period. This policy was analyzed critically as contributor to the deteriorating health condition of the employees due to two basic factors.

First as per international labour law, ILO Weekly Rest Convention of 1921 (No. 14) provides for a 24 consecutive hour weekly rest period. One day weekly rest is the minimum standard in the EU and in national legislation in many countries this legislation was passed considering many of medical and socio-economic factors which was violated directly (figure 1.1). The second one was that in already sensitive, environmentally harsh settings the continues duty of 42 days considered a contributor provided the job nature being harsh and demanding.

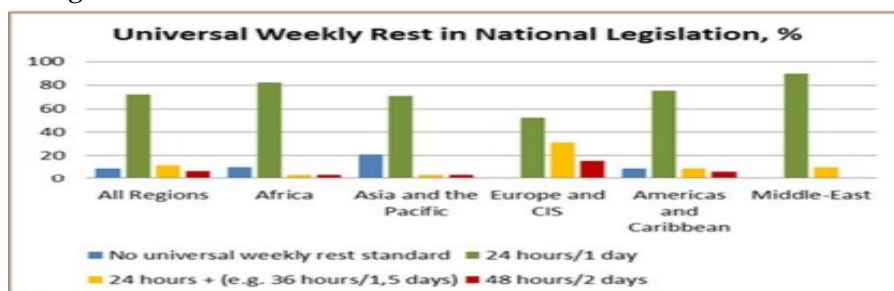


Figure 4. Source ILO Convention 1921 No 14

The third policy which was viewed was posting transfer policy. This being the subject of crucial importance for the low paid staff of security cadre, as the transfer to the remote station not only increase the stressors in life due socio-economic reasons but in addition cause extra Burdon of expense of double kitchen and the dependency on the food from external source for which the hygiene is crucial factor.

The low paid staff cannot afford the standardized meals which are costly hence have to make compromises on the health status. The staff often posted out are termed to have been posted for period of three years but in practice this duration normally expands over 5 years due multiple reasons. The time away from family in remote stations at that certain age is impacting the mental and physical health conditions of the security staff. A survey in this regard was carried out in all the geographical locations under study which showed that huge expenses are met in terms of only travelling from duty stations to the home stations per month by the security staff.

This expense is in addition to the expenses of the food and allied living costs. The survey was done using google survey and the input was obtained as per September 2024 from 82 different supervisors of the installations at different geographical locations. The average salary of the security staff at Pakistan at the moment is PKR 55000 including all the allowances. (\$198.96 USD as per current rate). The data showed on the average the travelling expense is around 40% of the total salary which an employee gets per month this is indeed a big stressor to the mental and physical health of the employee.

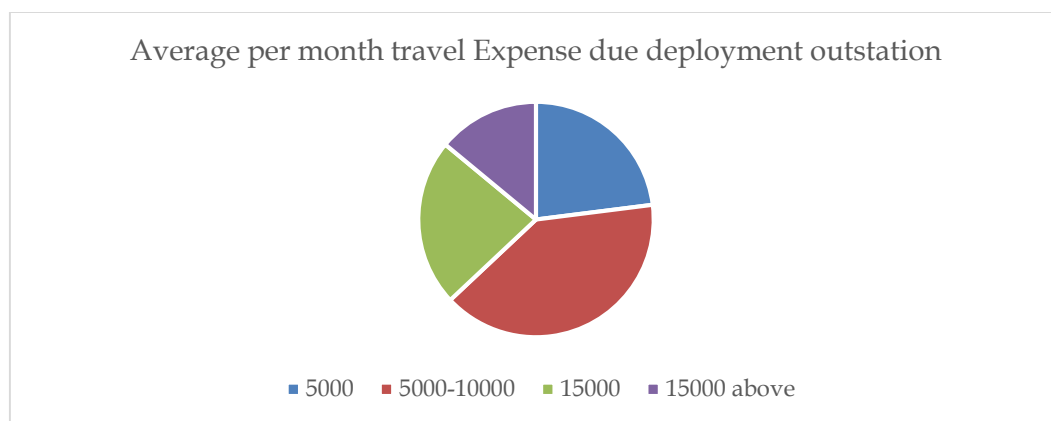


Figure 5. Survey on per month expenditure for traveling from duty station to home station. The amount depicted is in PKR with average salary of 55000 per employee in local currency which is equivalent as per current rate to 200 USD approx.

Fourth policy which was reviewed was health policy. As per the health policy the company is under contractual agreement with insurance company who has its designated OPD out patient's department and IPD in patient's department units. The location of these approved health care setups is in far localities and require longer travel periods to reach except for the big cities.

The facilities like cardiac or specialized treatments are not available at each location the staff is deployed this is also considered as contributory factor to the mental and physical health of the employee. In this regard the survey was carried out from supervisors of the installations at different geographical locations the result show immense resentment of about 85% on the financial and healthcare policies of the employees.

The records were reviewed in respect of the three sections the mortality, morbidity and employees declared medically unfit for further service in this regard the data was

scrutinized for the last five years from 2019 till 2023 out of total 1600 employees the data showed astonishing results. (Employee count varies due to retirement and induction procedures).

Table 1
Year wise depiction of cases with before and after policy

| Year | Mortality | Medically Unfit | Morbidity | Policy (0=Before, 1=After) | Total Employees |
|------|-----------|-----------------|-----------|----------------------------|-----------------|
| 2019 | 5 | 3 | 92 | 0 | 1642 |
| 2020 | 6 | 5 | 113 | 0 | 1611 |
| 2021 | 15 | 9 | 176 | 1 | 1569 |
| 2022 | 12 | 8 | 217 | 1 | 1543 |
| 2023 | 14 | 11 | 312 | 1 | 1580 |

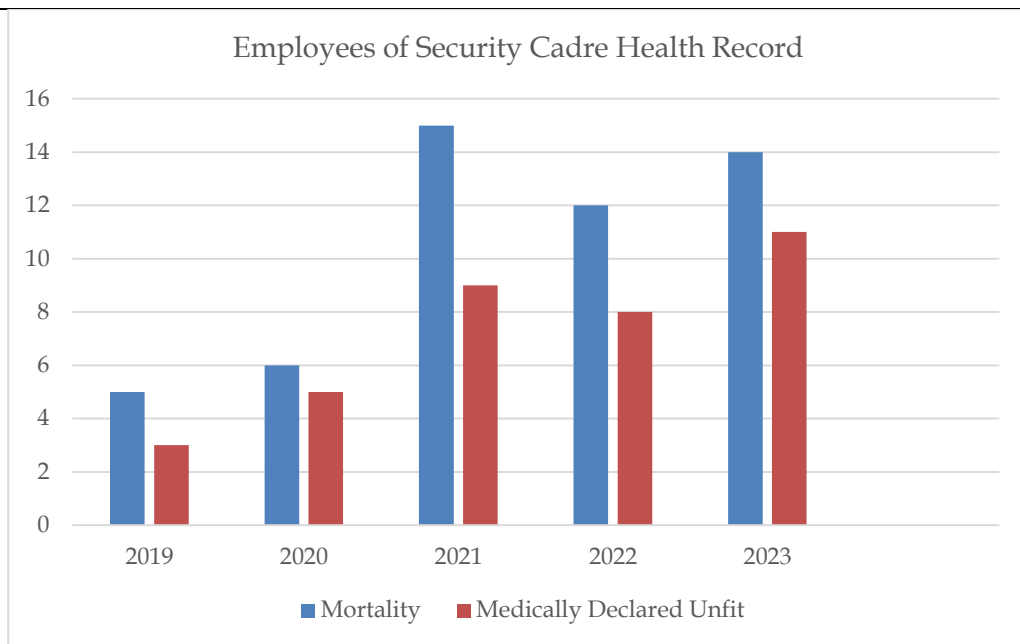


Figure 6. Graphical representation of four-year comparison for mortality and medically declared unfit for further service cases.

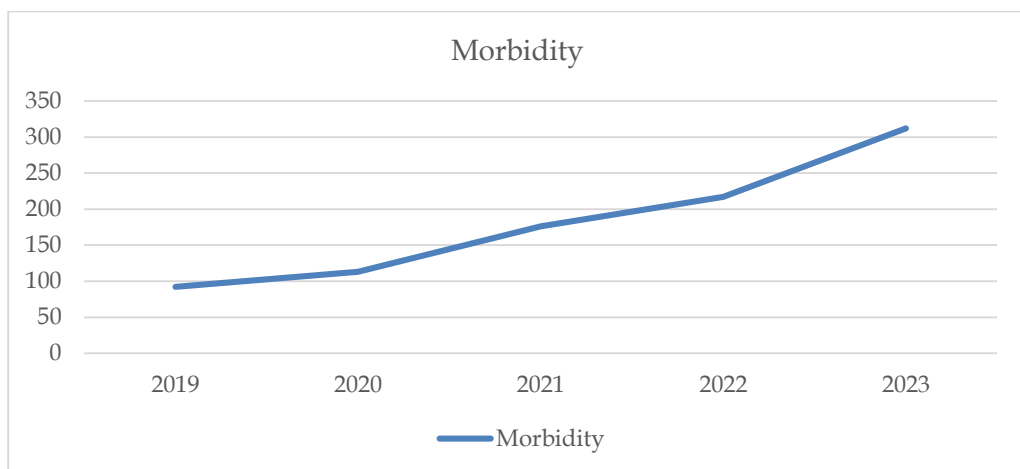


Figure 7. Graphical representation for morbidity and those on life saving drugs.

Table 2
Descriptive Statistical Analysis

| Metric | Count | Mean | Std Dev | Min | 25th % | Median | 75th % | Max |
|------------------------|-------|---------|---------|------|--------|--------|--------|------|
| Mortality | 5 | 10.40 | 4.62 | 5 | 6 | 12 | 14 | 15 |
| Medically Unfit | 5 | 7.20 | 3.19 | 3 | 5 | 8 | 9 | 11 |
| Morbidity | 5 | 182.00 | 88.07 | 92 | 113 | 176 | 217 | 312 |
| Total Employees | 5 | 1589.00 | 38.37 | 1543 | 1569 | 1580 | 1611 | 1642 |

Table 3
Correlation Analysis

| Variable | Mortality | Medically Unfit | Morbidity | Policy | Total Employees |
|------------------------|-----------|-----------------|-----------|--------|-----------------|
| Mortality | 1.00 | 0.94 | 0.79 | 0.97 | -0.82 |
| Medically Unfit | 0.94 | 1.00 | 0.93 | 0.91 | -0.77 |
| Morbidity | 0.79 | 0.93 | 1.00 | 0.82 | -0.66 |
| Policy | 0.97 | 0.91 | 0.82 | 1.00 | -0.89 |

Mortality is highly correlated with Medically Unfit (0.94) and Policy (0.97), showing a strong relationship between these variables.

Total Employees shows a negative correlation with both Mortality (-0.82) and Policy (-0.89), suggesting that as these factors increased, total employees decreased.

Table 4
Before vs. After Policy Comparison:

| Metric | Before Policy | After Policy |
|------------------------|---------------|--------------|
| Mortality | 5.5 | 13.67 |
| Medically Unfit | 4.0 | 9.33 |
| Morbidity | 102.5 | 235.00 |

This suggests a significant increase in mortality, medically unfit cases, and morbidity after the policy was introduced.

Student's t-test. The t-test compares the means of two independent groups to determine if there is a statistically significant difference between them. The results of the test showed following properties;

The **p-value** is checked to determine the probability that the observed t-statistic (or more extreme) would occur under the null hypothesis that the group means are the same. The results from the t-tests comparing the pre-policy (2019-2020) and post-policy (2021-2023) periods:

Mortality: t-statistic: -6.82, **p-value:** 0.006 (significant at the 0.05 level). There is a statistically significant difference in mortality rates between the pre-policy and post-policy periods.

Medically Unfit: t-statistic: -3.92, **p-value:** 0.030 (significant at the 0.05 level). There is a statistically significant difference in the number of medically unfit employees between the pre-policy and post-policy periods.

Morbidity: t-statistic: -2.52, **p-value:** 0.086 (not significant at the 0.05 level, but borderline). While morbidity has increased post-policy, the difference is not statistically significant at the 0.05 threshold, but it is close.

These results suggest that the policy change had a statistically significant impact on both mortality and medically unfit cases but had a less clear impact on morbidity. The results proved that the policies have significant impact on the employees mental and physical health at the power sector public company in the security cadre.

Conclusion

Pakistan's energy sector is categorized as essential services for the state. The impact of energy security is directly related to the National Security Posture of the country. The factors effecting the performance of energy sector needs attention, keeping in view the current energy crises at the country the electricity sector is of pivotal importance. It is necessary for policy makers to consider the immediate steps which are needed to improve the operational efficiency of the sector. This study undertook an effort to raise the crucial point of how the centralized policies are impacting the operational performance of the sector. The results showed significant direct relationship of the policies on the performance of the employees by considering the variable of mental and physical health. In larger organizations which are spread throughout the different cultural, environmental and geographical settings the centralized policies are expected to give generalized framework and in continuation regional decentralized policies can be worked to address the issues at the grassroot level. Policy makers and stake holders should focus on the effective regional policies instead of centralized package. Implications of the physical security measures are in direct relationship with the energy security of the country which in turn is directly related to the national security of the state.

Recommendations

Given the critical role of Pakistan's energy sector in the country's national security framework, immediate attention is required to address issues affecting the performance and operational resilience of these systems. This study highlighted the significant impacts of centralized policies on the mental and physical health of employees working at frontlines as security staff mandated to protect these systems. It is recommended that policy makers and stakeholder adopt to a more flexible approach by incorporating decentralized, region-specific policies with input from all the stakeholders in the system. This will include for more tailor-made solutions that address the challenges postured by Pakistan's diverse cultural, environmental, and geographical settings. Effective regional policies will guarantee that grassroots-level issues are sufficiently resolved, improving both the well-being of the security staff and the overall performance of system. Furthermore, enhancing and upgrading the physical security measures with technological incorporations which is essential for strengthening energy security and is a key component of national security.

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