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# The Impact of Hygiene and Motivator Factors on Job Satisfaction: A Case Study of Laboratory Professionals in Islamabad

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## ABSTRACT

**Objectives:** To find out how hygiene factors like salary, working conditions, and organizational policies, and motivator factors such as recognition, achievement, and growth opportunities affect job satisfaction among lab professionals, using Herzberg's Two-Factor Theory. To check how well the basic needs of lab professionals like physiological, safety, social, esteem, and self-actualization needs are being fulfilled at their workplace, based on Maslow's Hierarchy of Needs, and how these needs are linked to their overall job satisfaction. **Methodology: Study Setting:** The study was carried out among lab professionals working at Al Nafees Medical College (ANMC) and partnered hospitals in Islamabad. **Study Design:** A cross-sectional study was conducted using a questionnaire that included both open-ended and closed-ended questions. This helped collect both detailed and statistical data from participants. **Sampling Technique:** Random sampling was used to select lab professionals from different hospitals in Islamabad. **Sample Size:** A total of 328 medical laboratory professionals took part in the study. **Study Duration:** The data collection took 6 months, starting from 26th June 2024 to 23rd December 2024. **Data Analysis:** Data were analyzed using SPSS version 27. Descriptive statistics like frequencies and percentages were used to summarize the responses. **Results:** The findings showed that job satisfaction among lab professionals in Islamabad was moderate. Out of 328 participants, 126 (38.4%) were satisfied with their salary, while 78 (23.7%) were not. In comparison, 150 (45.7%) were satisfied with their responsibilities, and 151 (46%) felt satisfied with their achievements. However, 112 (34%) were not satisfied with their job security. Regarding basic needs, 128 (39.4%) of participants said their physiological needs were met, while 149 (45.4%) felt their social needs were fulfilled. On the other hand, 126 (38.4%) were dissatisfied with their safety needs. These results highlight important areas that need improvement to increase job satisfaction and help healthcare institutions retain qualified laboratory staff. **Conclusion:** The study concluded that job satisfaction among medical laboratory professionals is influenced by both hygiene factors and the fulfillment of needs described in Maslow's theory. The results showed that while many professionals are satisfied with growth and recognition, concerns remain around salary and job security. Addressing both types of factors is important to improve job satisfaction and create a better working environment for lab professionals.

## INTRODUCTION

The COVID-19 pandemic laid bare a critical shortage of laboratory professionals both medical technologists and assistants in many regions, exacerbating pre-existing staffing gaps.[1] In 2019, for example, an Ontario study documented widespread shortages of medical lab personnel, which translated into heavier workloads, frustration, and higher turnover rates.[2] Similar research has consistently shown that understaffing drives unsustainable workloads.[3–4] When job satisfaction dips, stress levels rise, further impairing performance and wellbeing among lab staff.[5]

Yet job satisfaction is not merely the absence of stress, it actively fosters positive attitudes, boosts efficiency, and elevates the quality of work.[6] Dissatisfied healthcare professionals, including medical laboratory technologists, often struggle to maintain patient-focused care.[7] Despite this, most healthcare job-satisfaction research centers on nursing, leaving critical roles like MLTs under-examined.[8] One African survey identified six primary drivers of dissatisfaction across healthcare workers low pay, limited promotion opportunities, inadequate training, poor supervisory relationships, substandard working

conditions, and inflexible policies, underscoring the multifactorial nature of the problem.[9]

Workplace stress arises when demands outstrip capacity, triggering physical and emotional responses.[10] Job dissatisfaction can both stem from and contribute to this stress, creating a feedback loop that undermines performance.[11–12] Factors such as salary, workload, health risks, organizational structure, training, and decision-making autonomy all feed into this cycle.[13] Among Iranian hospital nurses, for instance, high stress and low satisfaction correlated with medical errors, turnover, and suboptimal performance.[14] In Canada's Community Health Survey, laboratory technicians ranked among the most stressed healthcare groups.[15]

Excessive workloads have been linked to alarming consequences: chronic fatigue, plummeting job satisfaction, and rising absenteeism.[16] The resulting strain on morale and retention can compromise laboratory accuracy and, ultimately, patient care. Targeted interventions—such as workload optimization and motivational programs are essential for sustaining the lab workforce and safeguarding healthcare quality.[17]

Despite their indispensable role, medical laboratory professionals' job satisfaction remains under-studied relative to other clinical staff. Common dissatisfaction drivers include inadequate compensation, limited career growth, excessive workload, and a lack of organizational support. Addressing these issues is crucial not only for improving MLPs' work lives but also for ensuring the reliable, high-quality diagnostic services that underpin effective patient care.

This study therefore investigates the key factors shaping job satisfaction among MLPs in Islamabad exploring workload, financial security, work-life balance, stress, and institutional support to inform practical recommendations that can enhance both staff wellbeing and healthcare outcomes.

### Research Objectives

1. To examine the impact of Hygiene factors (salary, working conditions, and organizational policies) and Motivator factors (recognition, achievement, and opportunities for growth) on job satisfaction among laboratory professionals, based on Herzberg's Two-Factor Theory.
2. To assess how well the laboratory professionals' needs are met according to Maslow's Hierarchy of Needs (physiological, safety, love and belonging, esteem, and self-actualization) and its relationship with their overall job satisfaction.

## MATERIALS AND METHODS

### Study Design

This study employed a quantitative, cross-sectional design to explore the levels of job satisfaction among medical laboratory professionals. By collecting data at a single point in time, the study aimed to provide a snapshot of satisfaction-related factors affecting this group.

### Study Setting

The research was conducted at Al Nafees Medical College (ANMC) in collaboration with several public and private **hospitals in Islamabad**, ensuring a diverse sample of laboratory professionals from various institutional backgrounds.

### Study Duration

Data collection was carried out over a period of six months, beginning on June 26, 2024, and concluding on December 23, 2024.

### Sample Size

A total of 328 medical laboratory professionals participated in the study. This sample size was considered sufficient to provide reliable and generalizable insights into the population under investigation.

### Sampling Technique

Participants were selected using a random sampling technique. Eligible individuals from various laboratory departments in Islamabad were approached, and those who agreed to participate were included in the study. This method helped reduce selection bias and ensured broader representation.

### Inclusion Criteria

Participants were eligible for inclusion if they met all of the following conditions:

- They were actively employed as a laboratory professional in a hospital in Islamabad.
- They had held their current position for a minimum of six months, ensuring adequate on-the-job experience.
- They provided written informed consent, indicating their voluntary agreement to participate.

### Exclusion Criteria

Participants were excluded if they met any of the following criteria:

- They had been in their current laboratory role for fewer than six months.
- They declined to provide informed consent.
- They had previously participated in a similar study on job satisfaction, to prevent duplicate data.

### Operational Definitions

### Job Satisfaction

Refers to how content and fulfilled laboratory professionals feel about various aspects of their job, including salary, working conditions, recognition, career growth, work-life balance, and interpersonal relationships. These aspects were evaluated using a structured questionnaire comprising both quantitative and qualitative items.

### Herzberg's Two-Factor Theory

According to Herzberg, job satisfaction is influenced by:

**Hygiene factors**: salary, work environment, and institutional policies.

**Motivator factors**: recognition, achievement, and opportunities for growth. These were assessed through targeted questions designed to reflect each factor's role in overall satisfaction.

**Maslow's Hierarchy of Needs:** This framework was used to assess how well the workplace meets professionals' needs, including:

**Physiological** (basic salary and resources)

**Safety** (job security and physical safety)

**Love and belonging** (collegial relationships)

**Esteem** (recognition and respect)

**Self-actualization** (career development and personal growth)

Responses were gathered through specific items designed to evaluate each level of need.

**Sample Size Calculation:** The required sample size was determined using the standard formula:

N=Z2·p(1−p)d2N = \frac{Z^2 \cdot p (1 - p)}{d^2}N=d2Z2·p(1−p)

Where:

**Z = 1.28** (for 40% confidence level)

**p = 0.5** (assumed proportion of the population)

**d = 0.05** (margin of error)

N=(1.28)2·0.5·0.5(0.05)2=0.40960.0025=163.84N = \frac{(1.28)^2 \cdot 0.5 \cdot 0.5}{(0.05)^2} = frac{0.4096}{0.0025} = 163.84N=(0.05)2(1.28)2·0.5·0.5 =0.00250.4096=163.84

Thus, a minimum sample of ≥169 participants was needed. The final sample exceeded this threshold.

**Cross-Sectional Study Definition:** A cross-sectional study collects data from participants at a single point in time. It is designed to identify prevalence and relationships between variables but does not establish causality.

**Random Sampling:** A technique in which every eligible participant has an equal chance of being selected, helping to ensure unbiased representation and valid generalization of results.

## METHODOLOGY

### Ethical Considerations

Ethical approval for this study was granted by the Institutional Research and Bioethics Committee under approval number: F.1/IUIC-ANMC/IRBC-278/2024. Written informed consent was obtained from all participants prior to data collection. Participants were assured of anonymity and confidentiality, and no personal identifiers were recorded. The study posed no risk to participants and was conducted in accordance with established ethical principles.

### Data Collection

Questionnaires were distributed in person to eligible lab professionals. Participation was voluntary, and all forms were completed anonymously. Each participant received a unique identifier code to maintain confidentiality.

### Pilot Testing

A preliminary pilot test was conducted on a small group of lab professionals to evaluate the clarity, relevance, and effectiveness of the questionnaire. Based on their feedback, several items were refined to enhance clarity and ensure alignment with study objectives.

### Questionnaire Format

The questionnaire included both open- and close-ended questions. Closed-ended items used a five-point Likert scale, with options ranging from:

1. Very Satisfied
2. Satisfied
3. Neutral
4. Dissatisfied
5. Very Dissatisfied

This structure enabled a standardized assessment of satisfaction levels across different job factors.

### Data Analysis

Responses were coded and entered into SPSS (Version 27). Descriptive statistics such as frequencies and percentages were used to summarize the demographic data and evaluate patterns in job satisfaction responses.

## RESULTS

This study explored the complex and multidimensional concept of job satisfaction among medical laboratory professionals. A broad range of factors was examined, including financial compensation, benefits, job responsibilities, opportunities for career growth, recognition, and the fulfillment of psychological and social needs. The findings provide a nuanced understanding of how these variables contribute to overall job satisfaction.

The analysis revealed that while there is a moderate level of satisfaction overall, certain domains—particularly social interaction and personal achievement—showed relatively higher satisfaction. In contrast, areas such as compensation, job benefits, and job security emerged as potential areas for improvement.

### Hygiene Factors *(Based on Herzberg's Two-Factor Theory)*

Hygiene factors refer to external job conditions, including salary, benefits, and job security. Although these do not directly enhance satisfaction when present, their absence can lead to dissatisfaction.

- **Salary:** Out of 328 respondents, 126 (38.4%) reported satisfaction with their salaries, 124 (37.8%) remained neutral, and 78 (23.7%) expressed dissatisfaction. These figures reflect a divide, with a considerable number of professionals either indifferent or unsatisfied with their earnings (see Graph 1).
- **Job Benefits:** Satisfaction with job-related benefits was slightly more positive, with 128 (39.4%) satisfied. However, 106 (32.4%) were dissatisfied and 93 (28.4%) remained neutral, suggesting that benefit structures may require reassessment (see Graph 2).
- **Job Security:** A larger portion, 144 (43.9%), expressed satisfaction with job security. Still, 112 (34.0%) reported dissatisfaction and 72 (22.0%) were neutral, indicating ongoing concerns regarding employment stability (see Table 1 and Graph 3).

### Motivator Factors *(Based on Herzberg's Two-Factor Theory)*

Motivator factors represent intrinsic elements that encourage higher engagement and satisfaction, such as recognition, achievement, and career advancement.

- **Recognition:** A total of 145 (44.2%) participants were satisfied with the recognition they received for

their work. However, 114 (34.8%) felt dissatisfied and 69 (21%) were neutral, suggesting inconsistency in how recognition is practiced across institutions.

- **Growth Opportunities:** Professional development opportunities received moderate feedback, 139 (42.4%) were satisfied, 77 (23.5%) were neutral, and 112 (34.2%) were dissatisfied. These numbers point to a noticeable gap in career advancement prospects.
- **Achievements:** The sense of achievement scored relatively high, with 151 (46%) of respondents satisfied, while 94 (28.7%) were dissatisfied and 83 (25.3%) were neutral. This suggests that many lab professionals derive fulfillment from the nature of their work.
- **Responsibilities:** Regarding job responsibilities, 150 (45.7%) were satisfied, 100 (30.5%) were dissatisfied, and 78 (23.8%) were neutral. This reflects a moderately positive perception of role clarity and workload (see Table 2 and Graph 4).

### Maslow's Hierarchy of Needs

Maslow's framework was used to assess whether fundamental psychological and emotional needs of lab professionals were being met within their work environments.

- **Physiological Needs:** 128 (39.4%) felt their basic needs (e.g., salary, breaks, physical comfort) were adequately met. Meanwhile, 106 (32.4%) expressed dissatisfaction, and 93 (28.4%) were neutral, showing a mixed perception of financial and physical well-being (see Graph 5).
- **Social Needs:** This category received the highest satisfaction level, with 149 (45.4%) respondents indicating positive workplace relationships and teamwork. However, 97 (29.6%) were dissatisfied and 82 (25%) were neutral.
- **Safety Needs:** Satisfaction regarding safety—including job stability, physical safety, and working conditions was recorded by 135 (41.2%) of respondents. Nonetheless, 126 (38.4%) were dissatisfied and 67 (20.4%) were neutral, highlighting persistent concerns around safety and stability in the workplace (see Table 3).

**Table 1**

*Showing responses in frequency and percentage according to Hygiene Factor (Herzberg's Two-Factor Theory).*

| Job satisfaction Factors | Frequency (%) Satisfied | Frequency (%) Neutral | Frequency (%) Unsatisfied |
|---|---|---|---|
| Salary | 126(38.4) | 124(37.8) | 78(23.7) |
| Benefits | 128(39.4) | 93(28.4) | 106(32.4) |
| Job security | 144(43.9) | 72(22.0) | 112(34.0) |

**Table 2**

*Distributions of Respondents in Terms of Frequency and Percentage According to Motivator Factors (Herzberg's Two-Factor Theory)*

| Job satisfaction Factors | Frequency (%) Satisfied | Frequency (%) Neutral | Frequency (%) Unsatisfied |
|---|---|---|---|
| Recognition | 145(44.2) | 69(21) | 114(34.8) |
| Growth opportunities | 139(42.4) | 77(23.5) | 112(34.2) |
| Achievements | 151(46) | 83(25.3) | 94(28.7) |
| Responsibilities | 150(45.7) | 78(23.8) | 100(30.5) |

**Table 3**

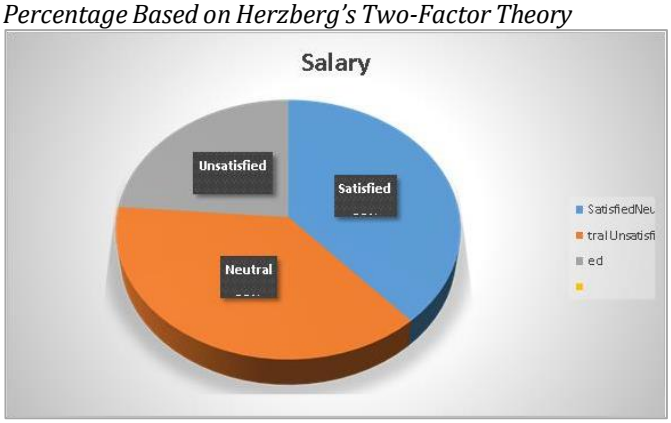
*Distribution of Respondents in Terms of Frequency and Percentage According to Maslow's Hierarchy of Needs*

| Job satisfaction Factors | Frequency (%) Satisfied | Frequency (%) Neutral | Frequency (%) Unsatisfied |
|---|---|---|---|
| Physiological Needs | 128(39.4) | 93(28.4) | 106(32.4) |
| Social Needs | 149(45.4) | 82(25) | 97(29.6) |
| Safety | 135(41.2) | 67(20.4) | 126(38.4) |
| Self-Actualization | 153(46.7) | 68(20.7) | 107(32.7) |
| Esteem | 145(44.2) | 69(21) | 114(34.8) |

## Graphs

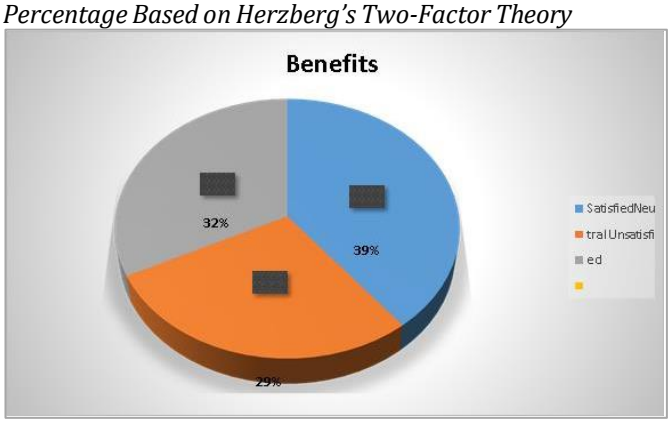
**Graph 1**

*Salary-wise Distribution of Respondents in Terms of Percentage Based on Herzberg's Two-Factor Theory*



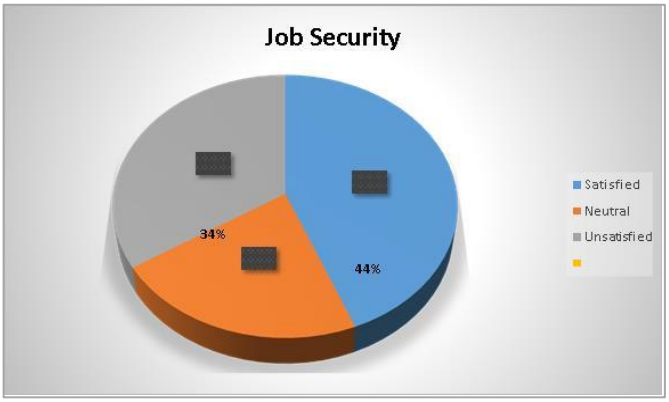

**Graph 2**

*Job Benefits-Wise Distribution of Respondents in Terms of Percentage Based on Herzberg's Two-Factor Theory*



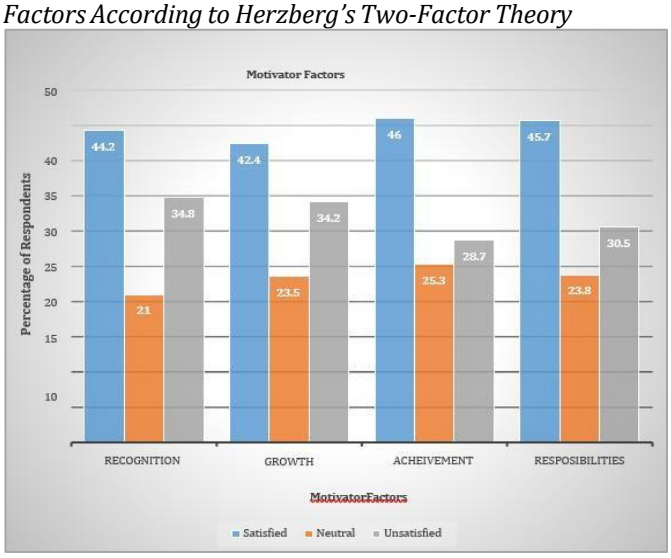

**Graph 3**

*Job Security-Wise Distribution of Respondents in Terms of Percentage Based on Herzberg's Two-Factor Theory*



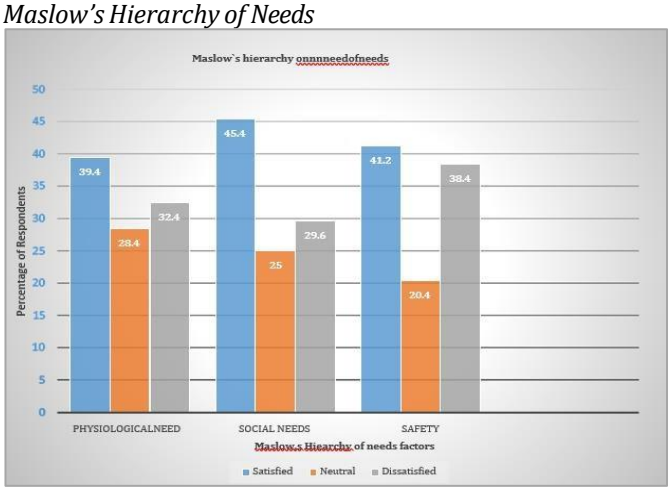
**Graph 4**

*Percentage Distribution of Respondents Based on Motivator Factors According to Herzberg's Two-Factor Theory*



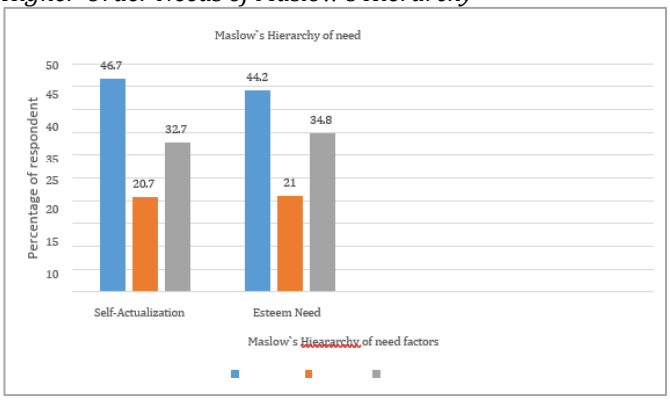

**Graph 5**

*Percentage Distribution of Respondents According to Maslow's Hierarchy of Needs*




**Graph 6**

*Percentage Distribution of Respondents According to the Higher-Order Needs of Maslow's Hierarchy*




## DISCUSSION

Job satisfaction among medical laboratory professionals (MLPs) is a complex interplay of emotional, cognitive, and behavioral responses to the work environment. It serves as a cornerstone of employee well-being, directly affecting productivity, retention, and overall service quality. In healthcare, where accuracy and timeliness are paramount, satisfied MLPs contribute substantially to patient outcomes and laboratory performance. [17]

Guided by Herzberg's Two-Factor Theory and Maslow's Hierarchy of Needs, our study in Islamabad's hospitals uncovered both strengths and areas for improvement. A notable 38.4% of participants reported satisfaction with their salary, and 43.9% felt secure in their positions—both classified as hygiene factors that primarily prevent dissatisfaction rather than actively motivate. [18]Still, nearly a quarter of respondents expressed discontent with their pay, and over one-third felt insecure about ongoing employment, suggesting that financial constraints and contract instability remain pressing issues.

On the other hand, intrinsic motivators shone through: 46% of professionals felt a strong sense of achievement in their roles, and 45.7% were content with assigned responsibilities. This aligns with Herzberg's assertion that recognition, responsibility, and opportunities for personal growth fuel deeper job fulfillment .[19]

When mapping responses onto Maslow's framework, we found mixed results. Basic physiological needs—such as adequate compensation for living expenses—were only fully met for 39.4% of respondents, and 41.2% felt their safety needs (job stability, protective measures) were addressed. In contrast, 45.4% experienced satisfactory social belonging, and 44.2% felt respected and valued, pointing to strong collegial relationships within labs.[20]

These findings underscore the dual imperative for healthcare administrators and policymakers:

1. **Strengthen Hygiene Factors:** Competitive salary structures and clear, secure employment contracts are essential to prevent dissatisfaction and turnover. [21]
2. **Enhance Motivator Factors:** Formal recognition programs, clear career pathways, and ongoing professional development opportunities can boost intrinsic motivation and engagement.[22]

Investing in robust safety protocols and comprehensive benefits—such as health coverage and leave policies—will further address physiological and safety needs, creating an environment where MLPs can thrive both personally and professionally.

## CONCLUSION

This cross-sectional study confirms that job satisfaction among Islamabad's medical laboratory professionals hinges on both hygiene factors (salary, job security, working conditions) and higher-order needs (recognition, achievement, personal growth). While many MLPs derive fulfillment from their responsibilities and team dynamics, gaps in financial remuneration and employment stability must be addressed. A balanced strategy that simultaneously safeguards basic needs and fosters professional development is crucial for sustaining a motivated, high-performing laboratory workforce.

### Recommendations

1. **Expand Geographic Scope:** Conduct a nationwide survey to capture regional variations and develop tailored interventions for both urban and rural MLP populations.

2. **Public vs. Private Comparison:** Compare job satisfaction determinants in public versus private sector laboratories to identify best practices and sector-specific challenges.
3. **Financial Incentives:** Review and adjust salary scales and benefits packages to align with industry standards and cost-of-living changes.
4. **Job Security Measures:** Introduce longer-term or permanent contracts and transparent promotion pathways to bolster employment stability.
5. **Professional Development:** Implement structured career development programs, such as workshops, certifications, and mentorship to enhance skills and recognition.
6. **Recognition Systems:** Establish formal recognition awards and regular feedback mechanisms to celebrate achievements and maintain high morale.
7. **Safety Enhancements:** Upgrade laboratory safety protocols, provide adequate personal protective equipment, and offer health-related benefits to meet physiological and safety needs.

**Limitations**

1. The study focused on a selected set of factors and did not explore variables such as leadership style or laboratory accreditation status.
2. Time constraints limited the depth of qualitative insights and follow-up interviews.

Variability in individual laboratory environments, team dynamics, management approaches, and resource availability, may affect the generalizability of findings.

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