People Analytics: Workforce Mental Health Risk and Performance Analysis

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Executive Overview

This analysis evaluates whether workplace structure (remote, hybrid, on-site) or demographic factors (age, gender) more strongly influence employee mental health risk and productivity outcomes.

Across structural comparisons, work environment demonstrates minimal variation in mental health risk distribution, stress levels, and productivity metrics. Differences between remote, hybrid, and on-site settings are statistically small and operationally insignificant.

Given the limited impact of work environment, the analysis expands to demographic segmentation to determine whether age or gender exhibit stronger associations with elevated risk or stress concentration.

The findings suggest that employee well-being variation is more closely associated with individual-level factors than physical work setting alone.

Business Objective

The purpose of this analysis is to support data-driven decision-making regarding workplace wellness strategy. Specifically, this report aims to:

- Identify high-risk concentration patterns
- Quantify variation across segments
- Determine whether intervention strategies should focus on structural or demographic factors
- Support evidence-based decision-making in workforce wellness initiatives

Data Quality Assessment and Validation

The dataset was sourced from Kaggle and includes self-reported metrics related to:

- Stress level
- Anxiety score
- Depression score
- Sleep hours

- Productivity score
- Mental health risk classification (low, medium, high)
- Work environment (remote, hybrid, on-site)

Prior to analysis, a data quality assessment was conducted to evaluate:

- Duplicate records
- Missing values
- Category consistency
- Range validation for numerical fields

All calculations were validated to ensure normalization within comparison groups (each segment totaling 100%) to prevent distortion.

Limitations include reliance on self-reported responses and absence of longitudinal tracking, limiting causal interpretation.

Phase 1: Work Environment Performance and Risk Analysis

Objective

Examines whether work environment significantly impacts mental health risk or stress concentration.

Core Outcomes

- Mental health risk levels vary <3 percentage points across environments.
- High stress concentration differs <2 percentage points.
- Productivity differences based on work environment is negligible.
- Work environment does not impact mental health risk or performance metrics.

Question 1

What factors are associated with mental health risk levels?

Findings:

Mental health risk classification is most strongly associated with elevated stress, anxiety, and depression scores rather than work environment location.

Employees categorize as High Risk consistently exhibit:

- Higher stress

- Higher anxiety
- Higher depression
- Slightly lower productivity

This means that work environment does not alter these relationships.

Business Impact:

Risk appears driven by underlying psychological strain rather than physical work setting. Organizational intervention should focus on support systems and workload management rather than workplace structural policies.

This indicates that this distinction is very critical because organizations seeking to reduce mental health risk may need to focus on targeted employee support initiatives rather than relying solely on structural workplace environments.

Question 2

How is mental health risk distributed across work environment?

Findings:

After normalizing within each work environment:

- Medium Risk: **58-60%**
- High Risk: **22-26%**
- Low Risk: **16-18%**

Variation across work environment is minimal with 3-4 points.

Business Impact:

Risk concentration remains stable regardless of remote, hybrid, or an on-site work environment. Structure flexibility alone is unlikely to shift overall risk distribution.

This suggests that risk concentration appears relatively stable regardless of physical work setting. Organizations evaluating remote or hybrid policies may therefore need to focus on underlying organizational drivers such as workload, leadership support, and access to mental health resources, rather than assuming location flexibility alone will shift overall risk levels and promote better work from employees.

Question 3

Does well-being differ across work environments?

Findings:

Average values across environments show a narrow difference:

- Stress **5.56-5.63**
- Productivity: **76-77**
- Anxiety, depression, and sleep remain tightly clustered

The differences between the different well-being factors are miniscule.

Business Impact:

Work environment does not independently drive measurable changes in day-to-day well-being factors.

As a result, these findings implies that structural flexibility when comparing remote vs on-site, may not independently drive improvements in employee well-being or productivity. Organizations seeking measurable change may need to focus on internal workload management, leadership support, and mental health resources rather than try to change the workplace environment.

Question 4

How many employees are highly stressed across environments?

Findings:

High stress proportions:

- Hybrid: **40.4%**
- On-site: **42%**
- Remote: **41.8%**

Across the board, there is less than 2% between the work environments

Business Impact:

Elevated stress is a systemic concern rather than the specific work environment.

This indicates that stress appears to be a broader organizational concern rather than one driven primarily by remote, hybrid or on-site arrangements.

As a result, to lower stress, an organization may need to focus on systemic factors such as workload distribution among employees, leadership practices, and organizational culture rather than workplace format.

Question 5

Is productivity different across work environments?

Findings:

Productivity spread between highest and lowest environment averages:

- 0.23 points.

This difference is operationally insignificant.

Business Impact:

Concerns that remote or hybrid work reduces productivity are not supported by this dataset.

This suggests that work environment does not impact productivity within this dataset. Concerns that remote or hybrid work environment reduces employee performance is not supported by these averages. Instead, productivity appears stable regardless of a physical (on-site) work setting.

The minimal spread between averages suggests that any observed differences are unlikely to represent meaningful operational impact.

Phase 1 Conclusion:

Work environments demonstrate to have minimal influence across:

- Risk distribution
- Stress concentration
- Well-being factors
- Productivity

Structure workplace changes alone are unlikely to reduce mental health risk or improve performance.

The analysis, therefore, shifts focus to demographic (age and gender) to see if there are any correlation with mental health risk.

Phase 2: Demographic Risk and Performance Analysis

Objective

This phase examines the demographic segmentation to determine whether age or gender explains a greater differentiation in mental health risk and stress concentration compared to environment.

Core Outcomes

- Age shows a 5-7 percentage point spread in high-risk and high-stress categories.
- Mid-career employees (age 36-55) exhibit higher concentration of elevated stress.
- Gender differences are small (4-5 percentage points in high-risk share).
- Productivity variance aligns with risk level, not demographic group.

Question 1

How is mental health risk distributed across age groups?

Findings:

The mental health risk by age group ranges from 16%-22% which is a 5-percentage point difference between the highest and lowest percent.

High-risk concentration increases steadily from early career (18-25) through mid-year career (36-55), then stabilizes slightly in later age groups.

The 46-55 age group showcases the highest proportion of high-risk employees which sits at 22%.

Business Impact:

Work environment alone does not explain mental health risk concentration. Employees, particularly employees in mid-career may warrant more targeted well-being initiatives.

Question 2

How is high stress distributed across age groups?

Findings:

Stress by age group ranges from 15%-22% which is a 6.8-percentage point difference between the highest and lowest percent.

High stress peaks in the 35-46 age group sitting at 22% and remains elevated across 26-55 age groups

Business Impact:

Stress concentration appears more strongly associated with career stage than work location . Mid-career employees may be experiencing higher workload, leadership responsibility or work-life pressure.

Question 3

Does mental health risk differ by gender?

Findings:

Male: **52.3%**

Female: **47.7%**

Ther is a difference of 4.6 percentage points for high-risk male and female.

Business Impact:

Gender alone does not demonstrate a strong influence on mental health risk calculations within this dataset.

Question 4

Is productivity different by age?

Findings:

Productivity ranges from 1-100.

Across all age groups:

- Low-risk productivity: **92–93**
- Medium-risk productivity: **78–79**
- High-risk productivity: **62–63**

When examining productivity within age groups, there is a difference of 1-percentage point.

Business Impact:

Mental health levels is a stronger driver of productivity than demographic segmentation.

Phase 2 Conclusion

Demographic factors demonstrate greater differentiation than work environment structure, particularly across age groups.

Key Observations:

- Age exhibits a 5-7 percentage point range in both high-risk and high-stress categories.
- Gender differences exist but the differences are small.
- Productivity differences align with mental health risk level, but not at a demographic segmentation.
- Work environment remains the least explanatory factor across all analyses.

Strategic Recommendation

Based on the analysis:

1. Workplace structure adjustments (remote vs on-site) are unlikely to reduce mental health risk.
2. Mental health risk level is directly associated with productivity decline.
3. Age segmentation suggests mid-career employees may require targeted support.
4. Organization-wide stress management strategies are likely more impactful than work environment policy changes.

Recommended Focus Areas:

- Proactive stress monitoring initiatives
- Mid-career leadership support programs
- Mental health access expansion
- Workload and capacity reviews
- Manager training in early risk identification

Final Executive Conclusion:

This analysis indicates that:

1. Work environment structure demonstrates minimal influence on mental health risk, stress, or productivity.
2. Age segmentation shows moderate variation, particularly among mid-career employees.
3. Gender differences are present but limited.
4. Productivity decline is strongly associated with high mental health risk across all groups.

Overall, mental health risk status, rather than workplace structure or demographic segmentation, is the most consistent predictor of performance variance.

Organizational strategy should therefore prioritize early risk identification, stress mitigation, and support access rather than structural work environment policy changes alone.