

Job Strain and Organizational Effectiveness: Strategic Solutions for a Healthier Workforce

A Comprehensive Step-by-Step Guideline to Tackle Increasing Job Strain
in the US and India Offices

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GROUP 4

By Rhea Nair, Samiksha Sarda, Sana Sawant, Vedika Khandelwal

Table of Contents

Table of Contents.....	1
Executive Summary.....	3
Big Idea.....	3
3-minute story.....	4
Narrative about the problem, analyses, findings.....	4
Visuals with conclusions from each visual and associated analyses.....	6
Changes in Job Strain: Cross-Country Trends Over Time.....	6
Optimizing Job Design: Balancing Autonomy and Skill Variety to Mitigate Job Strain.....	7
Autonomy Alone Isn't Enough: Boost Feedback to Prevent Rising Strain.....	8
Autonomy and Skill Variety: Finding the Right Balance to Manage Job Strain.....	9
Mitigating Job Strain: Balancing Skill Variety with Improved Feedback.....	10
Optimize Feedback Strategies Based on Autonomy Levels to Manage Job Strain.....	12
Enhancing Workplace Satisfaction: Utilizing Autonomy to Mitigate Job Strain.....	14
Key recommendations.....	15
Appendix.....	17
Appendix 1: Storyboard.....	17
Appendix 2: Big idea worksheet.....	19
Appendix 3: Analyses conducted and conclusions conducted from each analysis.....	20
Mediation.....	21
Dataset 1-United States.....	22
Relationship 1- Autonomy.....	22
Relationship 2- Job Satisfaction.....	24
Relationship 3- Skill Variety.....	28
Relationship 4- Feedback.....	30
Relationship 5- Task Identity.....	32
Relationship 6- Task Significance.....	33
Dataset 2-India.....	34
Relationship 1- Autonomy.....	34

Relationship 2- Job Satisfaction.....	38
Relationship 3 - Skill Variety.....	42
Relationship 4- Feedback.....	45
Relationship 5- Task Identity.....	48
Relationship 6- Task Significance.....	50
Moderation.....	52
Dataset 1 - United States.....	53
Relationship 1- Skill Variety.....	53
Relationship 2- Job Satisfaction.....	57
Relationship 3- Autonomy.....	61
Relationship 4- Task Significance.....	63
Relationship 5- Task Identity.....	67
Relationship 6- Feedback.....	69
Dataset 2 - India.....	71
Relationship 1- Task Identity.....	71
Relationship 2- Feedback.....	73
Relationship 3- Skill Variety.....	78
Relationship 4- Autonomy.....	82
Relationship 5- Job Satisfaction.....	89
Relationship 6- Task Significance.....	92
Appendix 4: Justification for choice of visuals.....	96
Changes in Job Strain: Cross-Country Trends Over Time.....	96
Optimizing Job Design: Balancing Autonomy and Skill Variety to Mitigate Job Strain..	98
Autonomy Alone Isn't Enough: Boost Feedback to Prevent Rising Strain.....	100
Autonomy and Skill Variety: Finding the Right Balance to Manage Job Strain.....	101
Mitigating Job Strain: Balancing Skill Variety with Improved Feedback.....	102
Optimize Feedback Strategies Based on Autonomy Levels to Manage Job Strain.....	104
Enhancing Workplace Satisfaction: Utilizing Autonomy to Mitigate Job Strain.....	106

Executive Summary

This analysis explores the complexities of job strain and employee satisfaction across cultural contexts, focusing on how factors like autonomy, skill variety, and feedback interact to impact employee well-being. We conducted a detailed investigation within U.S. and Indian offices, recognizing distinct patterns that emphasize the need for customized approaches.

Key insights reveal that while autonomy is traditionally valued for reducing job strain, it can inadvertently increase stress when not balanced with consistent feedback. In high-autonomy roles, the presence of robust feedback mechanisms effectively buffers strain, particularly in the U.S., where employees rely on feedback to navigate autonomy. Conversely, in India, job strain correlates significantly with skill variety, especially in low-feedback environments, underscoring a cultural need for structured support in skill-diverse roles.

Our recommendations include enhancing feedback systems for high-autonomy roles in the U.S. and adjusting skill variety and feedback strategies in India. Implementing mentorship programs, role-specific training, and periodic feedback reviews will address these unique challenges and foster a balanced work environment. Ultimately, this targeted, data-driven approach aims to cultivate a globally cohesive and stress-managed workforce, tailored to regional nuances.

Big Idea

To enhance employee well-being across cultures, by identifying the factors affecting employee well-being and proposing strategies to optimize managerial controls and mitigate job strain.

3-minute story

Our company's goal is to improve employee well-being and optimize managerial controls such as job autonomy and employee feedback across different cultural contexts. Observing an increasing trend in employee job strain over time, we assumed that giving employees more autonomy would reduce their job strain. However, after conducting exploratory analysis, we discovered that autonomy unexpectedly increased job strain. We conducted a deeper multivariate analysis on the data from our U.S. and India offices that revealed important cultural distinctions. In the U.S., improved feedback was a key factor in mitigating job strain. In India, skill variety in conjunction with feedback had the strongest effect on this relationship. These findings highlight the need for tailored approaches in managing employee job strain. By addressing feedback in the U.S. and skill variety and feedback in India, we can create an environment where employees thrive without unnecessary stress.

Narrative about the problem, analyses, findings

Understanding and Mitigating Rising Job Strain

In recent years, organizations have expanded autonomy across roles, operating under the belief that increased job control would alleviate employee stress. However, an initial analysis across the U.S. and India revealed a counterintuitive trend—job strain has been rising despite greater autonomy. This unexpected increase raised concerns among management about the effectiveness of autonomy as a stress-relief measure. Observing this rise in strain prompted a deeper investigation into other potential contributing factors beyond autonomy, such as skill variety and feedback, to understand their influence on job strain. The cross-regional study aimed to uncover cultural or operational differences driving these strain levels.

Analysis Insights: The Role of Skill Variety and Feedback

As the analysis progressed, it became evident that both autonomy and skill variety correlated strongly with increased job strain. Contrary to the traditional view that higher autonomy would reduce stress, the data suggested that simply increasing autonomy or skill variety was not a guaranteed solution. In fact, higher levels of these characteristics without adequate support mechanisms seemed to exacerbate job strain. The analysis highlighted a crucial insight: feedback quality plays a moderating role in this dynamic. When employees received meaningful feedback, it appeared to buffer the negative effects of high autonomy and skill variety, lowering strain.

Cultural Differences and Regional Findings

Diving deeper into the data, significant regional differences emerged. In India, skill variety was a prominent predictor of job strain, especially in environments with low feedback. This finding suggested that Indian teams might be particularly vulnerable to stress when expected to handle diverse skill sets without sufficient guidance or performance feedback. In contrast, in the U.S., skill variety showed a weaker relationship with job strain, indicating that the strain experienced in U.S. roles might be more closely tied to the alignment (or lack thereof) between autonomy and feedback quality. These differences underscored the need for tailored, region-specific approaches rather than a uniform strategy.

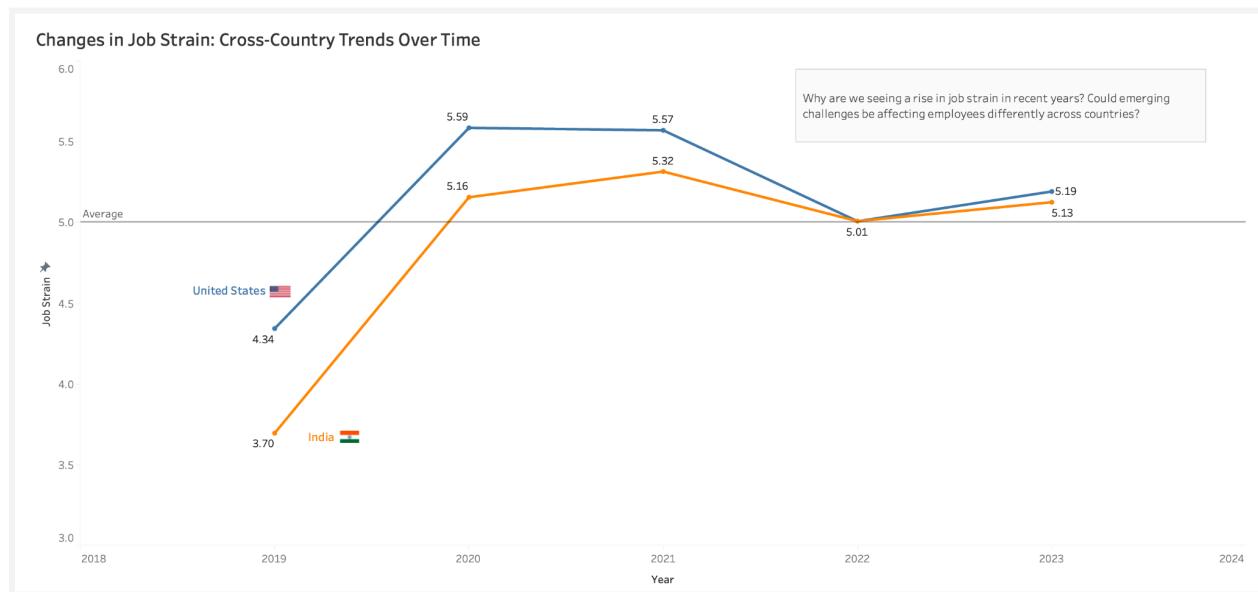
Strategic Recommendations: Tailored Approaches for Effective Strain Management

Given these insights, the recommended strategies vary by region to address the distinct drivers of job strain effectively. For the U.S., enhancing feedback mechanisms, such as implementing regular reviews and constructive feedback sessions, could help mitigate the stress associated with increased autonomy. On the other hand, in India, management should focus on carefully calibrating skill variety in roles and pairing it with structured feedback processes to reduce the potential for job strain. Across both regions, the introduction of mentorship programs and ongoing performance evaluations can help monitor and adjust job characteristics to ensure a supportive and balanced work environment.

By embracing these region-specific, data-driven strategies, the organization can proactively address the root causes of job strain, fostering a healthier, more productive workforce globally.

Visuals with conclusions from each visual and associated analyses

Changes in Job Strain: Cross-Country Trends Over Time



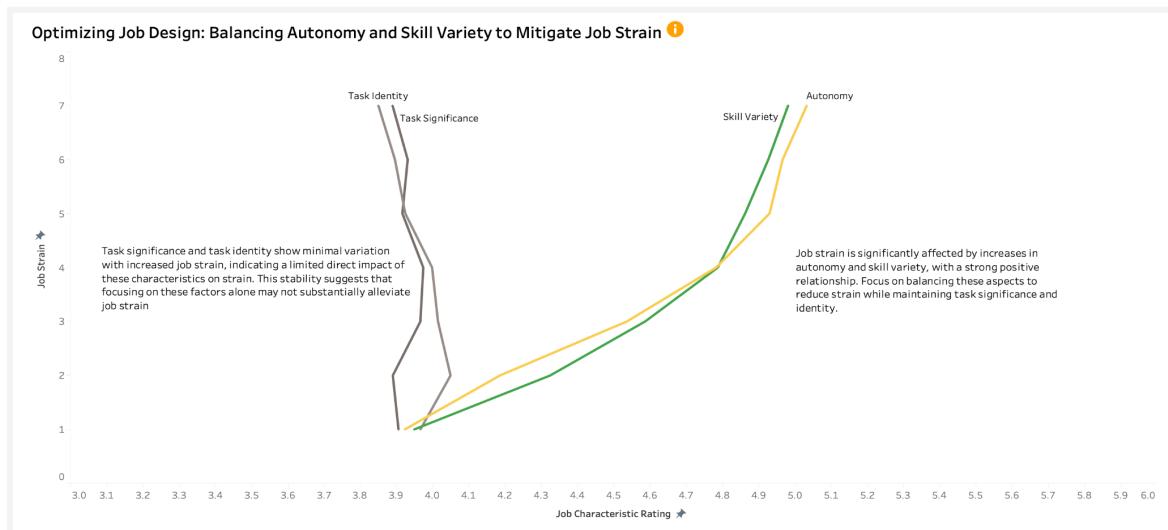
From the graph we can conclude that the job strain in both countries has been rising from 2018 to 2021. We also see that US job strain has had a higher peak compared to India.

Conclusions:

- **Rising Job Strain Over Time:** Both the United States and India experienced a steady increase in job strain from 2018 to 2021, suggesting a growing issue with workplace stress or challenges impacting employee well-being.
- **Regional changes:** The U.S. consistently shows higher levels of job strain compared to India, indicating possible regional differences in work conditions, expectations, or stressors.
- **Peak and then Decline:** After a peak in job strain in 2020 (U.S.) and 2021 (India), both countries saw a decline in 2022, aligning with the overall average. This may suggest temporary relief factors or adaptive strategies that were effective during this period.

- Emerging Challenges: The slight increase in job strain in 2023 hints at potential emerging challenges or stressors reappearing, proactive measures are needed to mitigate further increases.

Optimizing Job Design: Balancing Autonomy and Skill Variety to Mitigate Job Strain

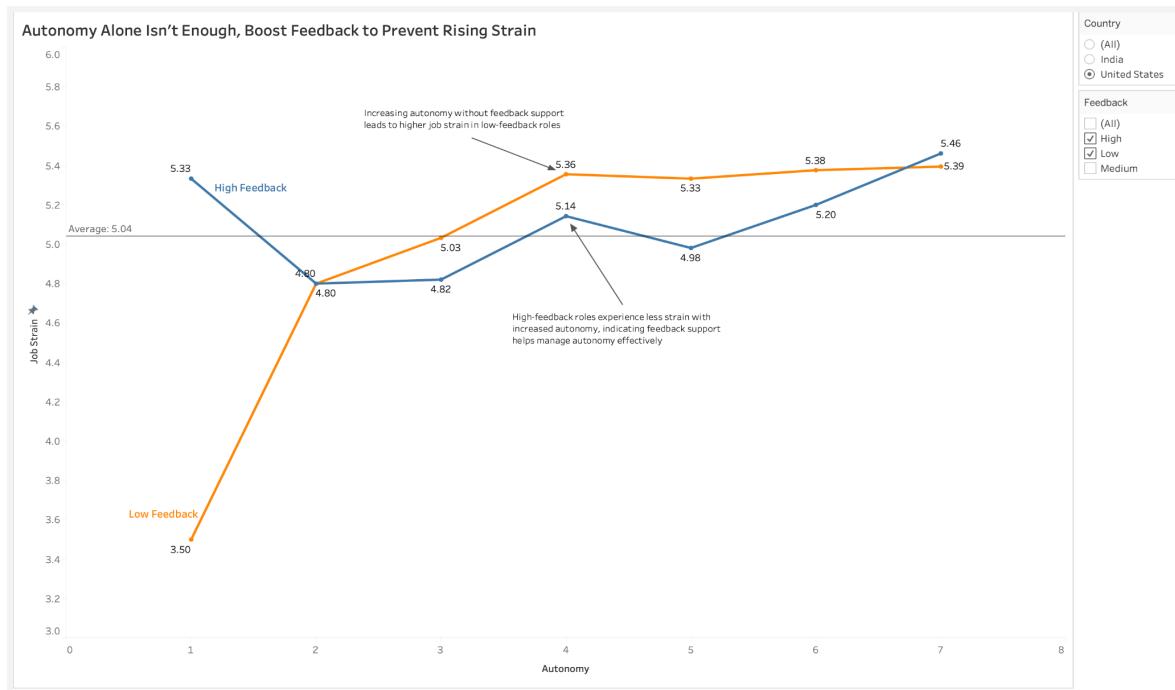


Conclusions:

- Low impact of Task Significance and Task Identity: The lines representing task significance and task identity show less variation across the job strain axis, indicating that these factors have a limited direct impact on job strain. This stability suggests that focusing on these aspects alone may not be effective in significantly reducing strain levels.
- Significant Impact of Autonomy and Skill Variety: The lines for autonomy and skill variety show a steep increase in job strain as their values rise, indicating a strong positive relationship. Higher levels of autonomy and skill variety correlate with higher job strain, suggesting these factors play a significant role in increasing strain.
- Need for Balance: Since both autonomy and skill variety intensify job strain, the findings imply that these factors should be balanced carefully. Simply increasing autonomy or skill variety without considering their potential to increase strain may lead to unintended negative outcomes.

Associated analysis: We conducted mediation and moderation analysis; through the observations, we could see that task significance and task identity do not have an indirect effect on job strain in any way. But skill variety and autonomy have been good mediators and moderators in several relationships that we have seen earlier. Hence, through the analysis and the graph, we can see that skill variety and autonomy do have a greater influence on job strain.

Autonomy Alone Isn't Enough: Boost Feedback to Prevent Rising Strain



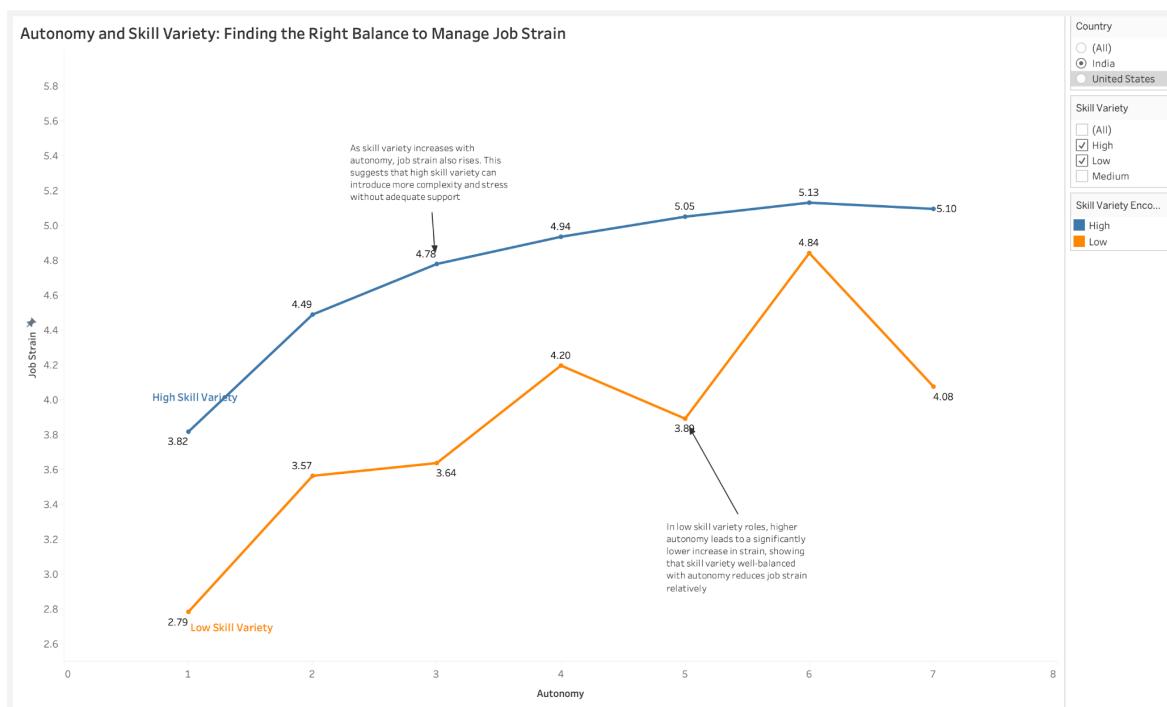
Conclusions:

- Feedback as a Critical Moderator: The impact of autonomy on job strain differs significantly when we add feedback to the relationship. Based on feedback levels. High-feedback roles experience relatively stable job strain even as autonomy increases, indicating that feedback helps manage the stress associated with autonomy.
- Increased Strain with Low Feedback: In low-feedback roles, job strain increases sharply with increased level of autonomy. This suggests that autonomy without adequate feedback support may increase the employee's stress, this shows that even employees with higher autonomy need feedback from time to time.

- Autonomy Alone Isn't Sufficient: Simply increasing autonomy does not necessarily reduce job strain. Feedback is essential to balance the job strain level for employees with higher levels of autonomy.
- As we see in the graph, that low feedback is reducing the job strain with less autonomy but that's an anomaly in the data.

Associated analysis: This graph comes for the moderator analysis, we see that in the relationship of autonomy and job strain “Feedback” is a strong moderator. Hence we have created this graph.

Autonomy and Skill Variety: Finding the Right Balance to Manage Job Strain



Conclusions:

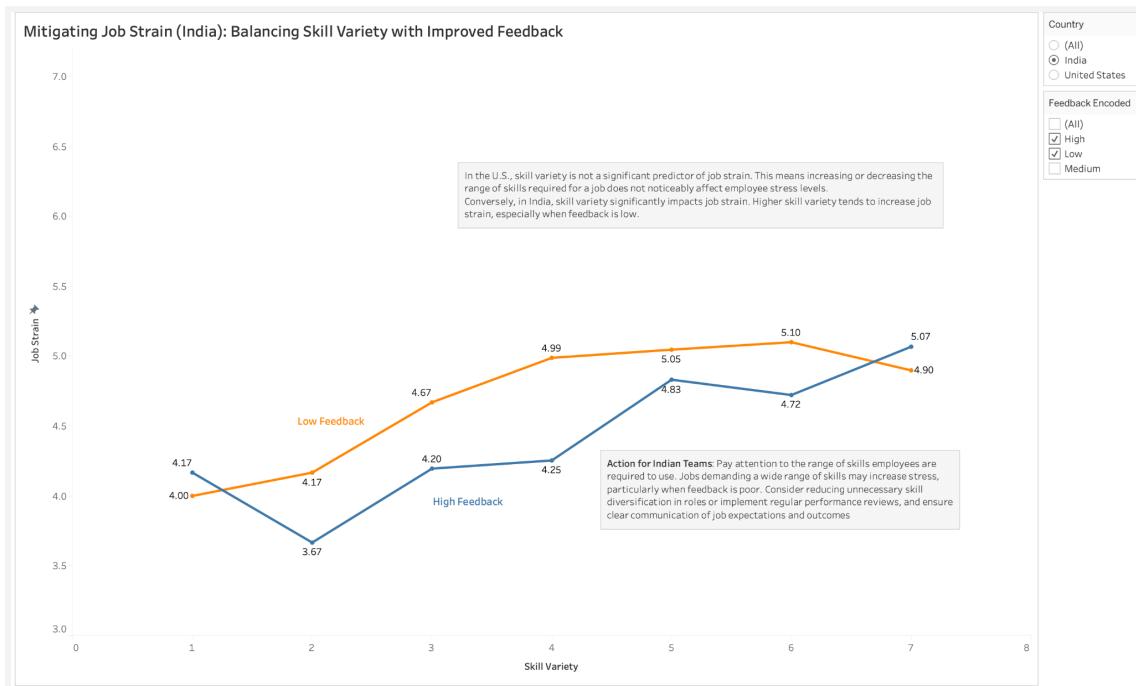
- Skill Variety as a Strain Factor: Higher skill variety with autonomy correlates with increased job strain, indicating that while diverse skill requirements might be helpful for employees, it can also add complexity that could lead to higher stress.
- Lower Strain with Low Skill Variety: In low skill variety roles, higher autonomy is associated with relatively lower increases in job strain. This suggests that when skill

variety is lower, employees may manage autonomy easily, possibly due to simpler or more predictable tasks.

- **Finding Balance:** The relationship between autonomy, feedback, and skill variety highlights the need to balance these characteristics to manage job strain efficiently. High autonomy should ideally be paired with either high feedback or low skill variety to minimize stress.

Associated analysis: From the analysis we have conducted till now, we identified skill variety as a strong mediator in the relationship between autonomy and job strain in both datasets. Which shows that skill variety has an indirect effect on this relationship.

Mitigating Job Strain: Balancing Skill Variety with Improved Feedback



Conclusions:

- **High Feedback:** When feedback is high, job strain remains relatively stable as skill variety increases, suggesting that adequate feedback helps employees manage the challenges of diverse skill requirements without increasing strain.

- Low Feedback: With low feedback, job strain increases significantly as skill variety rises. This indicates that without regular feedback or support, employees may feel overwhelmed by a broader range of skills, leading to higher strain.

Country differences:

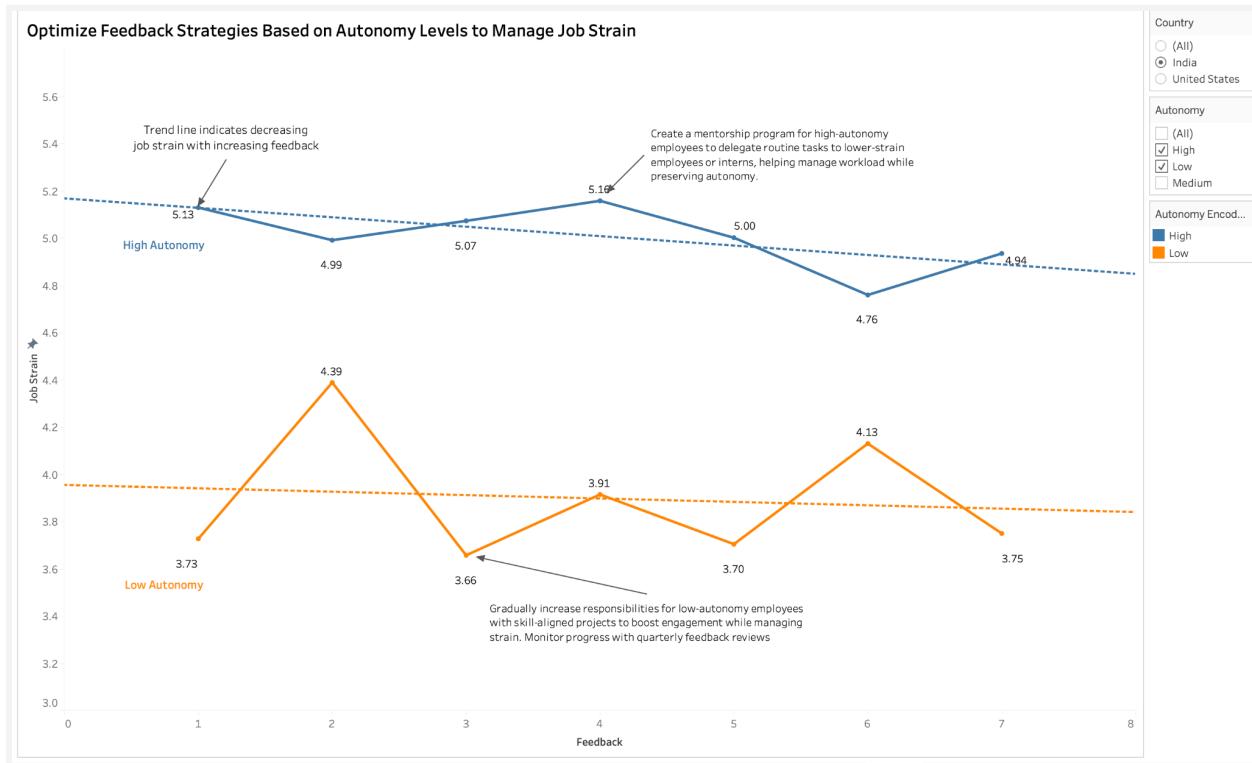
- In the U.S. dataset, skill variety does not appear to be a strong predictor of job strain, meaning that a wider or narrower range of skills does not significantly impact job strain levels. This suggests that U.S. employees may have better support or are accustomed to roles with varying skill requirements.
- In contrast, skill variety is an important factor for job strain in India, especially when feedback is low. This suggests that Indian employees may need more structured roles or support to manage the stress associated with high skill variety.

Recommendations for Indian Teams:

- To manage job strain, Indian teams should pay particular attention to jobs with high skill variety, especially where feedback is limited. Reducing unnecessary skill diversification in roles or implementing performance reviews and clear communication may help alleviate strain.

Associated analysis: In the analysis we have done earlier, in the Indian dataset Feedback was a mediator and also a moderator in the relationship between job strain and skill variety. Which explains its effect on the relationship.

Optimize Feedback Strategies Based on Autonomy Levels to Manage Job Strain



Feedback's Impact on High-Autonomy Roles:

- For roles with high autonomy, there is a downward trend in job strain as feedback levels increase. This indicates that increased feedback helps to reduce job strain in high-autonomy roles.
- This suggests that providing regular feedback or guidance to high-autonomy employees helps them manage the job stress associated with independent decision-making.

Stability in Low-Autonomy Roles:

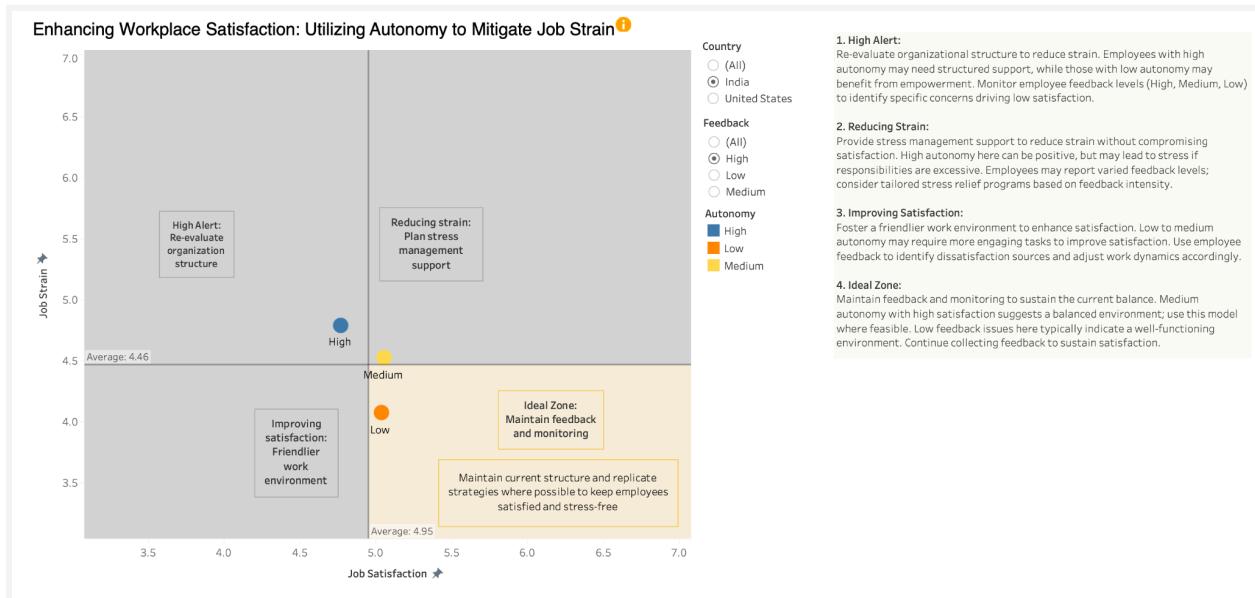
- In contrast, job strain in low-autonomy roles is relatively stable across different feedback levels, fluctuating slightly around the average job strain level of approximately 4.7.
- Low-autonomy employees experience less change in strain with different feedback levels, suggesting that feedback has a lesser impact on job strain in these roles.

Tailored Recommendations:

- For High Autonomy: A mentorship program or feedback structures that allow high-autonomy employees to delegate routine tasks can help reduce strain. This approach preserves autonomy while reducing the burden of constant decision-making.
- For Low Autonomy: Low-autonomy employees can benefit from gradually increased responsibilities or skill-aligned projects, along with consistent feedback reviews. This approach may boost engagement without adding strain.

Associated analysis: In both datasets, skill variety is the moderator. Which means that the strength of job strain and feedback's relationship is determined by skill variety.

Enhancing Workplace Satisfaction: Utilizing Autonomy to Mitigate Job Strain



- **High Strain with High Autonomy (Top Left - High Alert):**
 - Employees with high autonomy and low satisfaction experience the highest job strain. This suggests that high autonomy without adequate support or satisfaction can be overwhelming, potentially leading to burnout.
 - In these situations, a "High Alert" action is suggested, recommending an organizational review to add structured support for high-autonomy employees to help mitigate strain.
- **Moderate Strain with Moderate Autonomy (Top Right - Reducing Strain):**
 - For employees with moderate satisfaction and strain, structured stress management support can help to alleviate strain without compromising satisfaction.
 - Introduce tailored stress-relief programs and monitor feedback intensity. This approach helps maintain the balance between autonomy and satisfaction without overloading employees.

- Low Strain with Low to Medium Autonomy (Bottom Left - Improving Satisfaction):
 - Employees with low to medium autonomy and relatively low strain levels may benefit from a friendlier or more engaging work environment to improve satisfaction further.
 - Engage these employees with more varied or meaningful tasks to boost satisfaction. Utilizing feedback to understand dissatisfaction sources can also help enhance workplace satisfaction.
- Ideal Zone for Balance (Bottom Right - Ideal Zone):
 - This quadrant, where employees experience high satisfaction and low strain, represents the optimal balance between autonomy and feedback. Maintaining this balance can keep employees engaged, satisfied, and stress-free.
 - Continue to provide regular feedback and replicate strategies where possible to keep employees in this ideal zone, maintaining both high satisfaction and low strain.

Associated analysis: When we checked the relationship of job strain and job satisfaction, we found that autonomy is a good mediator in both datasets. That means that it has an indirect influence on the relationship between job strain and job satisfaction. Adding autonomy to this quadrant chart shows us what the level of autonomy should be ideal for lower job strain and higher job satisfaction.

Key recommendations

Short-Term Strategies (Implementation Timeframe: Less than 6 months)

1. Tailor Feedback Intensity Based on Autonomy Levels

To effectively manage job strain and improve job satisfaction, it's essential to tailor feedback intensity based on autonomy levels. This involves assessing current autonomy levels and feedback mechanisms, and developing a framework to adjust feedback intensity accordingly. For high-autonomy roles, regular performance reviews should be implemented to provide employees with consistent feedback and support. In contrast, low-autonomy roles require task-specific guidance to help employees stay on track.

Timeline:

Month 1-2: Assess current autonomy levels and feedback mechanisms

Month 3-4: Develop framework to adjust feedback intensity

Month 5-6: Implement changes to feedback mechanisms

2. Monitor and Adjust Based on Job Satisfaction Metrics

Regularly monitoring and adjusting job satisfaction and job strain metrics is crucial for identifying areas of improvement. This involves developing a metrics framework, collecting and analyzing data, and identifying areas of high strain and low satisfaction. By adjusting autonomy and feedback levels based on metrics findings, organizations can respond promptly to changes in employee satisfaction and strain levels.

Timeline:

Month 1-2: Develop metrics framework

Month 3-4: Collect and analyze data

Month 5-6: Identify areas of improvement and adjust autonomy and feedback levels

Medium-Term Strategies (Implementation Timeframe: 6-18 months)

1. Implement Mentorship Programs for High-Autonomy Roles

Implementing mentorship programs for high-autonomy roles can help employees manage their workload and reduce strain. This involves identifying high-autonomy roles that require mentorship, developing a mentorship program framework, training mentors, and pairing them with mentees. Regular check-ins should be established to ensure mentees receive consistent guidance and support.

Timeline:

Month 6-9: Identify high-autonomy roles and develop mentorship program framework

Month 10-12: Train mentors and pair them with mentees

Month 13-18: Establish regular check-ins and monitor program effectiveness

2. Optimize Skill Variety Based on Cultural and Regional Sensitivity

Optimizing skill variety based on cultural and regional sensitivity is essential for preventing unnecessary skill diversification and reducing job strain. This involves analyzing current skill variety in roles, assessing cultural and regional differences in job strain and autonomy, and developing a framework to adjust skill variety accordingly. By implementing changes to skill variety in roles, organizations can reduce job strain and improve employee satisfaction.

Timeline:

Month 6-9: Analyze current skill variety and assess cultural and regional differences

Month 10-12: Develop framework to adjust skill variety

Month 13-18: Implement changes to skill variety in roles

Long-Term Strategies (Implementation Timeframe: More than 18 months)

1. Role Redesign to Provide Varied Tasks Aligned with Employees' Skill Levels

Redesigning roles to provide varied tasks aligned with employees' skill levels can help reduce job strain and improve employee satisfaction. This involves analyzing current role designs and task assignments, assessing employee skill levels and interests, and developing a framework to

redesign roles accordingly. By implementing changes to role designs and task assignments, organizations can provide employees with engaging and challenging work.

Timeline:

Month 18-24: Analyze current role designs and task assignments

Month 24-30: Assess employee skill levels and interests

Month 30+: Implement changes to role designs and task assignments

2. Create a "Low-Strain, High-Satisfaction" Zone

Creating a "low-strain, high-satisfaction" zone involves replicating the factors that contribute to high satisfaction and low strain across different departments and regions. This requires analyzing current job satisfaction and strain metrics, identifying factors that contribute to high satisfaction and low strain, and developing a framework to replicate these factors. By implementing changes to create a "low-strain, high-satisfaction" zone, organizations can maintain a balanced and satisfied workforce.

Timeline:

Month 18-24: Analyze current job satisfaction and strain metrics

Month 24-30: Identify factors that contribute to high satisfaction and low strain

Month 30+: Implement changes to create a "low-strain, high-satisfaction" zone

Appendix

Appendix 1: Storyboard

Phase 1: Plot

- The initial analysis across the US and India shows us that job strain has been rising in recent years, we assumed that this might be due to less autonomy given to the employees.
- We observed a marked increase in strain in both countries, sparking concern about the effectiveness of autonomy as a relief factor.
- This prompted us to explore the factors increasing job strain, especially as autonomy is changing across roles.
- We decide to delve deeper into other job characteristics, such as skill variety, feedback, task identity, task significance to understand their impact on job strain strain.
- We decide to do a cross-regional study to evaluate if cultural or operational differences are influencing strain levels.

Phase 2: Rising Action

- The analysis revealed that autonomy and skill variety strongly affect job strain, whereas task identity and task significance have a smaller effect, challenging the assumption that these factors alone can alleviate stress.
- While autonomy and skill variety increase, both countries report higher job strain, with task significance and identity showing little effect on reducing it.
- It becomes clear that autonomy without balance may increase strain, especially where feedback is lacking.
- The team notes that feedback could be a critical moderating factor, potentially reducing strain when the autonomy is high.
- Insights prompt further investigation into how skill variety and autonomy interact under different feedback levels.

Phase 3: Climax

- Further analysis shows that autonomy alone is insufficient; feedback significantly moderates its impact on strain, especially under high-autonomy conditions.
- High-feedback roles see less strain despite increased autonomy, while low-feedback roles

experience rising job strain, highlighting feedback's critical role.

- Skill variety also interacts with autonomy, with high skill variety increasing strain when not supported by appropriate feedback.
- The analysis points to the need for balance, showing that both feedback and skill variety can mitigate the adverse effects of high autonomy.
- These insights suggest that a one-size-fits-all approach won't work; strategies must adapt to specific feedback and skill dynamics.

Phase 4: Falling Action

- In India, skill variety significantly increases job strain when feedback is low, unlike in the U.S., where skill variety shows minimal strain impact.
- These regional differences highlight the need for tailored approaches; India may require more structured skill variety management to mitigate strain.
- U.S. operations, however, could focus more on autonomy feedback alignment, as skill variety impacts strain less directly.
- This differentiation highlights the need for regional adjustments, particularly where feedback or skill variety diverges in influence.
- Leadership is advised to adopt location-specific strategies, ensuring regional factors are addressed to lower the job strain in both the countries.

Phase 5: End

- Based on these findings, management can implement tailored strategies: enhancing feedback mechanisms alongside autonomy in the U.S., and balancing skill variety with feedback in India.
- Both regions are encouraged to develop mentorship or feedback programs to monitor and adjust job characteristics for optimal strain management.
- Skill variety should be carefully monitored in India, while U.S. offices focus on feedback to mitigate strain from high autonomy.
- By implementing these data-driven, region-specific strategies, the organization aims to create a healthier, more productive global workforce.
- Ultimately, this approach supports a balanced work environment that manages job strain effectively across diverse regions.

Appendix 2: Big idea worksheet

11/12/24, 6:31 PM

Big Idea Worksheet Group 4 - Google Docs

the BIG IDEA worksheet

Identify a project you are working on where you need to communicate something to someone. Reflect upon and fill out the following.



NAME: Group 4 (Samiksha Sarda, Rhea Nair , Sana Sawant, Vedika Khandelwal)

WHO IS YOUR AUDIENCE?

- (1) List the primary groups or individuals to whom you'll be communicating.
- Chief Executive Officer (CEO)
 - Chief Human Resource Officer (CHRO)
 - Chief Organizational Development Officer (CODO)
 - Chief Employee Experience Officer (CEEO)
- (2) If you had to narrow that to a *single person*, who would that be?
Chief Human Resource Officer

(3) What does your audience care about?

With rising health concerns within employees due to job strain the top management cares about improving employee well-being, and boosting productivity, and creating an optimal work environment by understanding how managerial functions such as autonomy impact job strain. They are also concerned about addressing regional differences between the U.S. and India to implement effective strategies across diverse teams.

(4) What action does your audience need to take?

For the U.S., management should focus on enhancing employee feedback to buffer the impact of increased responsibilities on job strain. In India, balancing high skill variety with enhanced and regular feedback is crucial to managing responsibilities and alleviating job strain.

WHAT IS AT STAKE?

What are the *benefits* if your audience acts in the way that you want them to?

By implementing region-specific strategies, the company will improve employee well-being, lower job strain, and enhance productivity. This will foster a positive work culture, increase retention, and position the company as a more inclusive and supportive employer, ultimately driving organizational success.

What are the *risks* if they do not?

Failure to address these factors could lead to higher levels of job strain, resulting in decreased productivity, poor employee morale, and higher turnover. Ignoring the cultural differences between regions may also worsen these outcomes, hindering organizational growth and affecting long-term retention across global teams.

FORM YOUR BIG IDEA

To enhance employee well-being across cultures, by identifying the factors affecting employee well-being and proposing strategies to optimize managerial controls and mitigate job strain.

Knafllic, Cole. *Storytelling with You: Plan, Create, and Deliver a Stellar Presentation*, Wiley © 2023.

Appendix 3: Analyses conducted and conclusions conducted from each analysis

The mediation analysis of Dataset 1 reveals that skill variety significantly impacts job strain, with autonomy acting as a mediator. The positive coefficients indicate that when employees use a broader range of skills, they tend to experience higher autonomy, which leads to an increase in job strain. This pattern suggests that the use of diverse skills can boost autonomy but also raises stress, especially when not complemented by sufficient feedback or support mechanisms.

The mediation analysis of Dataset 2 (India) reveals that autonomy is a significant moderator between skill variety and job strain. It shows that at lower levels of autonomy, the effect of skill variety on job strain is stronger. As autonomy increases, the stress impact of skill variety decreases slightly but remains significant. This suggests that while autonomy can buffer some of the strain associated with diverse skill use, it does not fully eliminate the stress caused by high skill variety in roles.

For Dataset 2 the interaction between skill variety and autonomy as a moderator shows that autonomy weakens the positive effect of skill variety on job strain. When autonomy is lower, skill variety has a stronger, more negative impact on job strain, but as autonomy increases, this effect becomes less pronounced. This suggests that employees with more control over their work experience less strain despite the complexity and variety of skills required. Autonomy serves as a buffer that reduces the stress associated with performing a broad range of tasks.

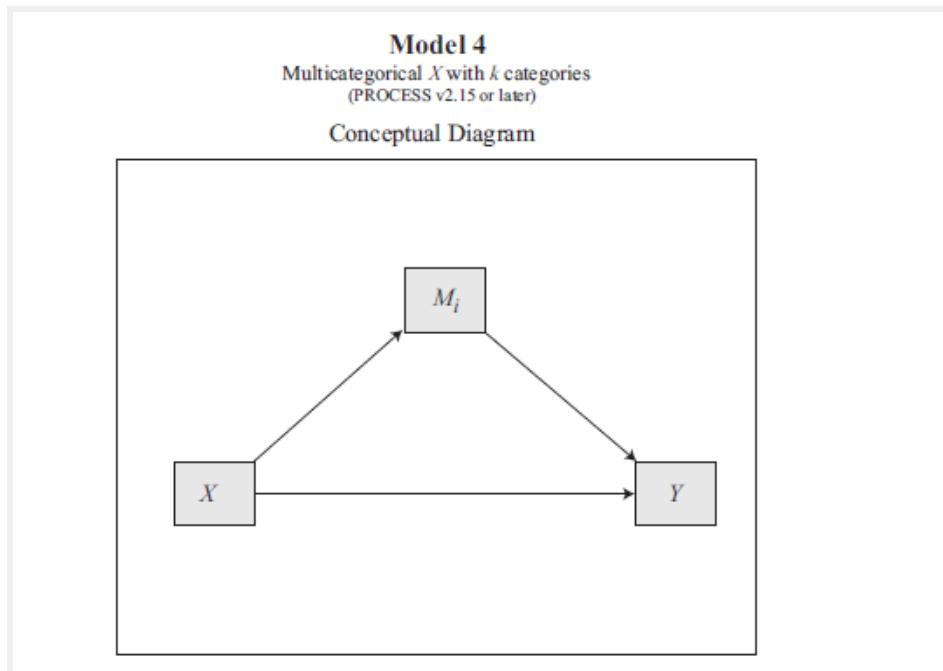
Below are the detailed mediation and moderation analyses, providing insights into the intricate relationships between job characteristics, such as job satisfaction and skill variety, and their effects on job strain under varying conditions and mediating influences.

Mediation

Mediation in statistical analysis refers to the mechanism by which an independent variable affects a dependent variable through one or more intermediary variables, known as mediators. Mediation analysis uncovers the pathways and explains how certain factors influence outcomes indirectly. For example, if autonomy impacts job strain through skill variety, skill variety serves as the mediator. Identifying mediators is crucial because it provides insights into the underlying processes that drive relationships between variables. By understanding these pathways, organizations can develop more targeted interventions to manage job strain effectively, as mediators like autonomy, feedback, and job satisfaction could be adjusted to achieve desired outcomes. Mediation analysis ultimately helps identify where adjustments in workplace policies or support systems can maximize positive outcomes and reduce negative impacts, enhancing overall organizational well-being.

Model Used:

We used Model 4 in SPSS to conduct the mediation analysis on all the relationships we investigated.



Dataset 1-United States

In this analysis we investigated the various relationships of the other independent variables on the dependent variable job strain.

For a mediator to be significant we need to check its indirect effect of the prospective mediator on the relationship. For an indirect effect to be significant, the confidence interval must not include zero. We examined each mediator's confidence interval (BootLLCI and BootULCI) and observed that only autonomy had a confidence interval that did not include zero, confirming its role as a significant mediator. Later, we check the coefficients to determine the size of the effect the mediator has on the outcome.

The magnitude of the coefficient reflects the size of the mediator's effect on the outcome. A larger coefficient means a stronger influence.

Relationship 1- Autonomy

The independent variable is Autonomy and the mediators we tested here are skill variety, Job satisfaction, feedback, Task identity and Task significance.

```
Model : 4
Y   : jobStrn
X   : auto
M1  : taskId
M2  : taskSig
M3  : feed
M4  : jobSat
M5  : skillV

Sample
Size: 1980
```

After running the analysis we understand that skill variety has a significant effect in the relationship of the job strain and autonomy.

Mediation Analysis:

Indirect effect(s) of X on Y:				
	Effect	BootSE	BootLLCI	BootULCI
TOTAL	.0097	.0034	.0034	.0169
taskId	.0001	.0006	-.0011	.0013
taskSig	.0001	.0007	-.0013	.0019
feed	.0024	.0017	-.0001	.0063
jobSat	.0032	.0022	-.0006	.0082
skillIV	.0039	.0021	.0006	.0085

Like mentioned before we say its skill variety because it's the only variable that does not have zero in its confidence interval, it's the only mediator in this relationship.

OUTCOME VARIABLE: jobStrn						
Model Summary						
	R	R-sq	MSE	F	df1	df2
	.1372	.0188	1.9018	6.3086	6.0000	1973.0000
P						
						.0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	4.7250	.2324	20.3330	.0000	4.2692	5.1807
auto	.0945	.0236	3.9973	.0001	.0481	.1408
taskId	-.0090	.0238	-.3808	.7034	-.0557	.0376
taskSig	.0175	.0234	.7484	.4543	-.0284	.0634
feed	-.0463	.0220	-2.1056	.0354	-.0895	-.0032
jobSat	-.0356	.0227	-1.5654	.1177	-.0802	.0090
skillIV	.0626	.0250	2.5033	.0124	.0135	.1116

From this we understand that, the coefficient of the relationship between autonomy and skill variety is positive (0.620), while the coefficient between skill variety and job strain is positive (0.0626). This suggests that skill variety increases, autonomy also increases, thereby job strain also increases. Thus, skill variety acts as a meaningful mediator in this relationship, indicating that more autonomy coupled with greater skill variety may contribute to increased job strain. This implies that when a person has more skills he/she has more autonomy which leads to increase in the job strain.

OUTCOME VARIABLE: skillV						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.0635	.0040	1.6523	7.9972	1.0000	1978.0000	.0047
Model						
	coeff	se	t	p	LLCI	ULCI
constant	4.1871	.1047	39.9814	.0000	3.9817	4.3924
auto	.0620	.0219	2.8279	.0047	.0190	.1050

Relationship 2- Job Satisfaction

The independent variable is Job satisfaction and the mediators we are tested here are skill variety, autonomy , feedback, Task identity and Task significance.

```
Model : 4
Y : jobStrn
X : jobSat
M1 : taskId
M2 : taskSig
M3 : auto
M4 : feed
M5 : skillV

Sample
Size: 1980
```

Mediation analysis:

Indirect effect(s) of X on Y:				
	Effect	BootSE	BootLLCI	BootULCI
TOTAL	-.0269	.0094	-.0451	-.0087
taskId	-.0005	.0014	-.0035	.0023
taskSig	.0035	.0048	-.0056	.0131
auto	-.0067	.0026	-.0124	-.0023
feed	-.0100	.0050	-.0201	-.0009
skillV	-.0131	.0051	-.0234	-.0035

After running the mediation analysis we found that the indirect effect of autonomy, skill variety and feedback is significant. This means that the relationship of Job satisfaction on job strain is mediated by these variables for checking the strength and the direction we will check the coefficient.

OUTCOME VARIABLE: jobStrn						
Model Summary						
	R	R-sq	MSE	F	df1	df2
	.1372	.0188	1.9018	6.3086	6.0000	1973.0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	4.7250	.2324	20.3330	.0000	4.2692	5.1807
jobSat	-.0356	.0227	-1.5654	.1177	-.0802	.0090
taskId	-.0090	.0238	-.3808	.7034	-.0557	.0376
taskSig	.0175	.0234	.7484	.4543	-.0284	.0634
auto	.0945	.0236	3.9973	.0001	.0481	.1408
feed	-.0463	.0220	-2.1056	.0354	-.0895	-.0032
skillV	.0626	.0250	2.5033	.0124	.0135	.1116

For the mediator Autonomy

OUTCOME VARIABLE: auto						
Model Summary						
	R	R-sq	MSE	F	df1	df2
	.0799	.0064	1.7272	12.7045	1.0000	1978.0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	4.9214	.0971	50.7087	.0000	4.7311	5.1118
jobSat	-.0707	.0198	-3.5643	.0004	-.1096	-.0318

From this we understand that, the coefficient of the relationship between job satisfaction and autonomy is negative (-0.0707), while the coefficient between autonomy and job strain is positive (0.0945). This suggests that when autonomy decreases, job satisfaction increases, thereby job strain also decreases. This pattern implies when autonomy is less the job satisfaction is more and thereby the job strain reduces.

For the mediator Skill Variety

OUTCOME VARIABLE: skillV						
Model Summary						
R	R-sq	MSE	F	df1	df2	P
.2431	.0591	1.5609	124.2777	1.0000	1978.0000	.0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	5.4515	.0923	59.0862	.0000	5.2705	5.6324
jobSat	-.2102	.0189	-11.1480	.0000	-.2472	-.1732

From this we understand that, the coefficient of the relationship between job satisfaction and skill variety is negative (-0.2102), while the coefficient between skill variety and job strain is positive (0.0626). This suggests that when skill variety decreases, job satisfaction increases, thereby job strain also decreases. This pattern implies that when a person has less skills, he/she has more job satisfaction which reduces the job strain on them.

For the mediator Feedback

OUTCOME VARIABLE: feed						
Model Summary						
R	R-sq	MSE	F	df1	df2	P
.2220	.0493	1.9964	102.5674	1.0000	1978.0000	.0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	2.6191	.1043	25.1008	.0000	2.4145	2.8238
jobSat	.2159	.0213	10.1276	.0000	.1741	.2578
Standardized coefficients						
	coeff					
jobSat	.2220					

From this we understand that, the coefficient of the relationship between job satisfaction and feedback is positive (0.2220), while the coefficient between Feedback and job strain is negative (-0.0463). This suggests that when Feedback increases, job satisfaction increases, thereby job

strain also decreases. This pattern implies if a manager provides a good amount of feedback the employees are more satisfied and their job strain is reduced.

The conclusion that we draw from this is that autonomy has an overall stronger effect on the relationship due its higher coefficient.

Relationship 3- Skill Variety

The dependent variable is Skill variety and the mediators we are tested here are job satisfaction, autonomy , feedback, Task identity and Task significance.

```
Model : 4
Y : jobStrn
X : skillV
M1 : taskId
M2 : taskSig
M3 : auto
M4 : feed
M5 : jobSat

Sample
Size: 1980
```

After running the mediation analysis we found that the indirect effect of autonomy is significant. This means that the relationship of skill variety on job strain is mediated by autonomy. For checking the strength and the direction we will check the coefficient.

Indirect effect(s) of X on Y:				
	Effect	BootSE	BootLLCI	BootULCI
TOTAL	.0171	.0073	.0034	.0316
taskId	-.0004	.0011	-.0029	.0018
taskSig	.0004	.0009	-.0011	.0025
auto	.0061	.0027	.0015	.0120
feed	.0009	.0013	-.0016	.0039
jobSat	.0100	.0065	-.0022	.0238

From this we understand that, the coefficient of the relationship between job satisfaction and autonomy is negative (-0.0707), while the coefficient between autonomy and job strain is positive (0.0945). This suggests that when autonomy decreases, job satisfaction increases, thereby job strain also decreases.

Model Summary							
	R	R-sq	MSE	F	df1	df2	p
	.1372	.0188	1.9018	6.3086	6.0000	1973.0000	.0000
Model							
	coeff	se	t	p	LLCI	ULCI	
constant	4.7250	.2324	20.3330	.0000	4.2692	5.1807	
skillV	.0626	.0250	2.5033	.0124	.0135	.1116	
taskId	-.0090	.0238	-.3808	.7034	-.0557	.0376	
taskSig	.0175	.0234	.7484	.4543	-.0284	.0634	
auto	.0945	.0236	3.9973	.0001	.0481	.1408	
feed	-.0463	.0220	-2.1056	.0354	-.0895	-.0032	
jobSat	-.0356	.0227	-1.5654	.1177	-.0802	.0090	

OUTCOME VARIABLE:

auto

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0635	.0040	1.7313	7.9972	1.0000	1978.0000	.0047

Model

	coeff	se	t	p	LLCI	ULCI
constant	4.3015	.1069	40.2440	.0000	4.0918	4.5111
skillV	.0650	.0230	2.8279	.0047	.0199	.1100

From this we understand that, the coefficient of the relationship between autonomy and skill variety is positive (0.0650), while the coefficient between autonomy and job strain is positive (0.0945). This suggests that when skill variety increases, autonomy increases, thereby job strain also increases. This pattern implies that when a person increases his/her skills, he/she has more autonomy which increases job strain.

Relationship 4- Feedback

The independent variable is, feedback and the various mediators we tested are Task Identity, Task Significance, Job Satisfaction, Skill Variety and Autonomy,

```
Model  : 4
Y    : jobStrn
X    : feed
M1   : taskId
M2   : taskSig
M3   : jobSat
M4   : skillV
M5   : auto

Sample
Size: 1980
```

Mediation Analysis:

Indirect effect(s) of X on Y:				
	Effect	BootSE	BootLLCI	BootULCI
TOTAL	-.0120	.0058	-.0237	-.0011
taskId	.0003	.0010	-.0016	.0025
taskSig	.0007	.0012	-.0013	.0035
jobSat	-.0081	.0051	-.0187	.0016
skillV	-.0009	.0013	-.0040	.0015
auto	-.0040	.0022	-.0089	-.0002

After analyzing the data, we found that only autonomy shows a significant indirect effect in the relationship between the independent variable and feedback. To further understand how autonomy mediates this relationship, we reviewed the coefficients from individual regressions conducted using the PROCESS tool.

OUTCOME VARIABLE:
auto

Model Summary

R	R-sq	MSE	F	df1	df2	p
.0464	.0022	1.7345	4.2696	1.0000	1978.0000	.0389

Model

	coeff	se	t	p	LLCI	ULCI
constant	4.7450	.0798	59.4726	.0000	4.5885	4.9015
feed	-.0422	.0204	-2.0663	.0389	-.0823	-.0021

Standardized coefficients

	coeff
feed	-.0464

~~~~~  
OUTCOME VARIABLE:  
jobStrn

Model Summary

| R     | R-sq  | MSE    | F      | df1    | df2       | p     |
|-------|-------|--------|--------|--------|-----------|-------|
| .1372 | .0188 | 1.9018 | 6.3086 | 6.0000 | 1973.0000 | .0000 |

Model

|          | coeff  | se    | t       | p     | LLCI   | ULCI   |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 4.7250 | .2324 | 20.3330 | .0000 | 4.2692 | 5.1807 |
| feed     | -.0463 | .0220 | -2.1056 | .0354 | -.0895 | -.0032 |
| taskId   | -.0090 | .0238 | -.3808  | .7034 | -.0557 | .0376  |
| taskSig  | .0175  | .0234 | .7484   | .4543 | -.0284 | .0634  |
| jobSat   | -.0356 | .0227 | -1.5654 | .1177 | -.0802 | .0090  |
| skillV   | .0626  | .0250 | 2.5033  | .0124 | .0135  | .1116  |
| auto     | .0945  | .0236 | 3.9973  | .0001 | .0481  | .1408  |

Standardized coefficients

|         | coeff  |
|---------|--------|
| feed    | -.0483 |
| taskId  | -.0085 |
| taskSig | .0172  |
| jobSat  | -.0381 |
| skillV  | .0579  |
| auto    | .0896  |

From this we understand that, the coefficient of the relationship between feedback and autonomy is negative (-0.422), while the coefficient between autonomy and job strain is positive (0.0945). This suggests that when feedback decreases as autonomy increases, job strain also increases. Thus, autonomy acts as a meaningful mediator in this relationship, indicating that reduced feedback coupled with greater autonomy may contribute to increased job strain.

### *Relationship 5- Task Identity*

The independent variable is, Task Identity and the various mediators we tested are Feedback, Task Significance, Job Satisfaction, Skill Variety and Autonomy,

```

Model  : 4
Y    : jobStrn
X    : taskId
M1   : taskSig
M2   : jobSat
M3   : skillV
M4   : auto
M5   : feed

Sample
Size: 1980

Indirect effect(s) of X on Y:
      Effect     BootSE    BootLLCI   BootULCI
TOTAL       .0011      .0043     -.0073     .0097
taskSig     .0000      .0007     -.0013     .0015
jobSat     -.0026      .0020     -.0072     .0005
skillV      .0024      .0018     -.0004     .0065
auto        -.0007      .0022     -.0053     .0036
feed        .0021      .0016     -.0003     .0058

```

From this analysis we understand that none of the variables act as a mediator.

### *Relationship 6- Task Significance*

The independent variable is, Task Significance and the various mediators we tested are Feedback, Task Identity, Job Satisfaction, Skill Variety and Autonomy.

```
Model : 4
Y   : jobStrn
X   : taskSig
M1  : jobSat
M2  : skillV
M3  : auto
M4  : feed
M5  : taskId
```

```
Sample
Size: 1980
```

Mediation Analysis:

| Indirect effect(s) of X on Y: |        |        |          |          |
|-------------------------------|--------|--------|----------|----------|
|                               | Effect | BootSE | BootLLCI | BootULCI |
| TOTAL                         | -.0086 | .0064  | -.0215   | .0038    |
| jobSat                        | -.0085 | .0054  | -.0191   | .0022    |
| skillV                        | .0014  | .0015  | -.0013   | .0047    |
| auto                          | .0007  | .0022  | -.0037   | .0052    |
| feed                          | -.0021 | .0016  | -.0059   | .0002    |
| taskId                        | .0000  | .0005  | -.0011   | .0012    |

From this analysis we understand that none of the variables act as a mediator.

## Dataset 2-India

### *Relationship 1- Autonomy*

The independent variable is Autonomy and the mediators we are tested here are skill variety, Job satisfaction, feedback, Task identity and Task significance.

```
Model : 4
Y : jobStrn
X : auto
M1 : jobSat
M2 : skillV
M3 : taskId
M4 : taskSig
M5 : feed

Sample
Size: 7330
```

Mediation Analysis:

| Indirect effect(s) of X on Y: |        |        |          |          |
|-------------------------------|--------|--------|----------|----------|
|                               | Effect | BootSE | BootLLCI | BootULCI |
| TOTAL                         | .0330  | .0033  | .0268    | .0397    |
| jobSat                        | .0045  | .0016  | .0016    | .0078    |
| skillV                        | .0236  | .0028  | .0183    | .0293    |
| taskId                        | .0007  | .0005  | -.0003   | .0018    |
| taskSig                       | .0000  | .0002  | -.0003   | .0004    |
| feed                          | .0042  | .0014  | .0017    | .0071    |

From the above analysis we understand that Job satisfaction, Skill Variety and Task Significance are good mediators.

| OUTCOME VARIABLE: |                |              |                |              |               |               |       |
|-------------------|----------------|--------------|----------------|--------------|---------------|---------------|-------|
| jobStrn           |                |              |                |              |               |               |       |
| Model Summary     |                |              |                |              |               |               |       |
| R                 | R-sq           | MSE          | F              | df1          | df2           |               | p     |
| .2373             | .0563          | 1.8984       | 72.8101        | 6.0000       | 7323.0000     |               | .0000 |
| Model             |                |              |                |              |               |               |       |
|                   | coeff          | se           | t              | p            | LLCI          | ULCI          |       |
| constant          | 3.9226         | .1251        | 31.3558        | .0000        | 3.6774        | 4.1679        |       |
| auto              | .1610          | .0125        | 12.8938        | .0000        | .1366         | .1855         |       |
| jobSat            | <b>-0.0441</b> | <b>.0136</b> | <b>-3.2351</b> | <b>.0012</b> | <b>-.0709</b> | <b>-.0174</b> |       |
| skillV            | <b>.1416</b>   | <b>.0135</b> | <b>10.5108</b> | <b>.0000</b> | <b>.1152</b>  | <b>.1680</b>  |       |
| taskId            | -.0430         | .0130        | -3.3151        | .0009        | -.0684        | -.0176        |       |
| taskSig           | -.0066         | .0119        | -.5568         | .5777        | -.0299        | .0167         |       |
| feed              | <b>-.0435</b>  | <b>.0125</b> | <b>-3.4672</b> | <b>.0005</b> | <b>-.0680</b> | <b>-.0189</b> |       |

### For the mediator Job Satisfaction

| OUTCOME VARIABLE: |        |        |         |        |           |        |       |
|-------------------|--------|--------|---------|--------|-----------|--------|-------|
| jobSat            |        |        |         |        |           |        |       |
| Model Summary     |        |        |         |        |           |        |       |
| R                 | R-sq   | MSE    | F       | df1    | df2       |        | p     |
| .1010             | .0102  | 1.7501 | 75.4875 | 1.0000 | 7328.0000 |        | .0000 |
| Model             |        |        |         |        |           |        |       |
|                   | coeff  | se     | t       | p      | LLCI      | ULCI   |       |
| constant          | 4.8279 | .0596  | 80.9697 | .0000  | 4.7110    | 4.9448 |       |
| auto              | -.1021 | .0117  | -8.6884 | .0000  | -.1251    | -.0790 |       |

From this we understand that, the coefficient of the relationship between Job Satisfaction and autonomy is negative (-0.1021) and the relationship between Job Satisfaction and Job Strain is negative (-0.0441). This suggests that when autonomy increases, Job satisfaction decreases thereby job strain also decreases.

### For the mediator Feedback

OUTCOME VARIABLE:  
feed

#### Model Summary

| R     | R-sq  | MSE    | F       | df1    | df2       | p     |
|-------|-------|--------|---------|--------|-----------|-------|
| .0944 | .0089 | 1.8048 | 65.8527 | 1.0000 | 7328.0000 | .0000 |

#### Model

|  | coeff | se | t | p | LLCI | ULCI |
|--|-------|----|---|---|------|------|
|--|-------|----|---|---|------|------|

---

|          |        |       |         |       |        |        |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 4.1439 | .0606 | 68.4358 | .0000 | 4.0252 | 4.2626 |
| auto     | -.0968 | .0119 | -8.1150 | .0000 | -.1202 | -.0734 |

From this we understand that, the coefficient of the relationship between Feedback and autonomy is negative (-0.0968) and the relationship between Feedback and Job Strain is negative (-0.0435). This suggests that when autonomy increases, Feedback decreases thereby job strain also decreases. This pattern suggests that higher autonomy, even with reduced feedback, alleviates job strain.

### For the mediator Skill Variety

```
OUTCOME VARIABLE:  
skillV  
  
Model Summary  
      R       R-sq      MSE        F      df1      df2      p  
.1767    .0312    1.4958   236.2600    1.0000  7328.0000    .0000  
  
Model  
      coeff      se       t       p      LLCI      ULCI  
constant  4.0893  .0551  74.1826    .0000   3.9812   4.1973  
auto      .1669  .0109  15.3708    .0000   .1456   .1882
```

---

From this we understand that, the coefficient of the relationship between Skill Variety and autonomy is positive (0.1669) and the relationship between Skill Variety and Job Strain is positive (0.1416). This suggests that when autonomy increases, Skill Variety increases thereby job strain also increases. This pattern indicates that greater autonomy may encourage a wider variety of skills to be used, potentially heightening job strain.

The conclusion that we draw from this is that Skill Variety has an overall stronger effect on the relationship due to its higher coefficient.

## *Relationship 2- Job Satisfaction*

The independent variable is Job satisfaction and the mediators we are tested here are skill variety, autonomy , feedback, Task identity and Task significance.

```
Model : 4
Y : jobStrn
X : jobSat
M1 : skillV
M2 : taskId
M3 : taskSig
M4 : feed
M5 : auto
```

```
Sample
Size: 7330
```

Mediation Analysis:

| Indirect effect(s) of X on Y: |        |        |          |          |
|-------------------------------|--------|--------|----------|----------|
|                               | Effect | BootSE | BootLLCI | BootULCI |
| TOTAL                         | -.0648 | .0069  | -.0783   | -.0510   |
| skillV                        | -.0284 | .0032  | -.0347   | -.0223   |
| taskId                        | -.0056 | .0018  | -.0092   | -.0022   |
| taskSig                       | -.0019 | .0034  | -.0086   | .0049    |
| feed                          | -.0128 | .0038  | -.0203   | -.0052   |
| auto                          | -.0161 | .0023  | -.0208   | -.0117   |

From the above analysis we understand that Skill Variety, Task Identity, Feedback and Autonomy are good mediators.

OUTCOME VARIABLE:

jobStrn

Model Summary

| R     | R-sq  | MSE    | F       | df1    | df2       | p     |
|-------|-------|--------|---------|--------|-----------|-------|
| .2373 | .0563 | 1.8984 | 72.8101 | 6.0000 | 7323.0000 | .0000 |

Model

|          | coeff  | se    | t       | p     | LLCI   | ULCI   |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 3.9226 | .1251 | 31.3558 | .0000 | 3.6774 | 4.1679 |
| jobSat   | -.0441 | .0136 | -3.2351 | .0012 | -.0709 | -.0174 |
| skillV   | .1416  | .0135 | 10.5108 | .0000 | .1152  | .1680  |
| taskId   | -.0430 | .0130 | -3.3151 | .0009 | -.0684 | -.0176 |
| taskSig  | -.0066 | .0119 | -.5568  | .5777 | -.0299 | .0167  |
| feed     | -.0435 | .0125 | -3.4672 | .0005 | -.0680 | -.0189 |
| auto     | .1610  | .0125 | 12.8938 | .0000 | .1366  | .1855  |

### For the mediator Skill Variety

OUTCOME VARIABLE:

skillV

Model Summary

| R     | R-sq  | MSE    | F        | df1    | df2       | p     |
|-------|-------|--------|----------|--------|-----------|-------|
| .2148 | .0461 | 1.4728 | 354.3213 | 1.0000 | 7328.0000 | .0000 |

Model

|          | coeff  | se    | t        | p     | LLCI   | ULCI   |
|----------|--------|-------|----------|-------|--------|--------|
| constant | 5.7761 | .0483 | 119.6694 | .0000 | 5.6815 | 5.8708 |
| jobSat   | -.2007 | .0107 | -18.8234 | .0000 | -.2216 | -.1798 |

From this we understand that, the coefficient of the relationship between Skill Variety and Job Satisfaction is negative (-0.2007) and the relationship between Skill Variety and Job Strain is positive (0.1416). This suggests that when Job Satisfaction increases, Skill Variety decreases thereby job strain also increases. This pattern implies that when employees are more satisfied, they may engage in a narrower set of skills, which could unintentionally contribute to heightened job strain

### For the mediator Task Identity

```
OUTCOME VARIABLE:  
taskId  
  
Model Summary  
      R      R-sq      MSE      F      df1      df2      p  
    .1381    .0191   1.5436  142.5397    1.0000  7328.0000    .0000  
  
Model  
      coeff      se      t      p      LLCI      ULCI  
constant  3.4071  .0494  68.9495  .0000  3.3103  3.5040  
jobSat    .1303  .0109  11.9390  .0000  .1089  .1517
```

From this we understand that, the coefficient of the relationship between Task Identity and Job Satisfaction is positive (0.1303) and the relationship between Task Identity and Job Strain is negative (-0.0430). This suggests that when Job Satisfaction increases, Task Identity also Increases thereby job strain decreases. This pattern indicates that stronger job satisfaction, coupled with a clearer sense of task identity, may contribute to lower job strain.

### For the mediator Autonomy

```
OUTCOME VARIABLE:  
auto  
  
Model Summary  
      R      R-sq      MSE      F      df1      df2      p  
    .1010    .0102   1.7132  75.4875    1.0000  7328.0000    .0000  
  
Model  
      coeff      se      t      p      LLCI      ULCI  
  
constant  5.3351  .0521  102.4835  .0000  5.2330  5.4371  
jobSat    -.0999  .0115  -8.6884  .0000  -.1224  -.0774
```

From this we understand that, the coefficient of the relationship between Autonomy and Job Satisfaction is negative (-0.0999) and the relationship between Autonomy and Job Strain is positive (0.1610). This suggests that when Job Satisfaction increases, Autonomy decreases thereby job strain decreases. This pattern implies that higher job satisfaction may lead to a lower emphasis on autonomy, ultimately contributing to reduced job strain

### For mediator Feedback

OUTCOME VARIABLE:

feed

Model Summary

| R     | R-sq  | MSE    | F        | df1    | df2       | p     |
|-------|-------|--------|----------|--------|-----------|-------|
| .2904 | .0844 | 1.6674 | 675.1033 | 1.0000 | 7328.0000 | .0000 |

Model

|          | coeff  | se    | t       | p     | LLCI   | ULCI   |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 2.3937 | .0514 | 46.6093 | .0000 | 2.2931 | 2.4944 |
| jobSat   | .2948  | .0113 | 25.9827 | .0000 | .2725  | .3170  |

From this we understand that, the coefficient of the relationship between Feedback and Job Satisfaction is positive (0.2948) and the relationship between Feedback and Job Strain is negative (-0.0435). This suggests that when Job Satisfaction increases, Feedback also increases thereby job strain decreases. This pattern implies that higher job satisfaction, accompanied by greater feedback, contributes to a decrease in job strain.

The conclusion that we draw from this is that Autonomy has an overall stronger effect on the relationship due to its higher coefficient.

### *Relationship 3 - Skill Variety*

The independent variable is Skill variety and the mediators we are tested here are job satisfaction, autonomy , feedback, Task identity and Task significance.

```
Model : 4
Y : jobStrn
X : skillV
M1 : taskId
M2 : taskSig
M3 : feed
M4 : auto
M5 : jobSat
```

```
Sample
Size: 7330
```

```
OUTCOME VARIABLE:
jobStrn
```

```
Model Summary
```

| R     | R-sq  | MSE    | F       | df1    | df2       | p     |
|-------|-------|--------|---------|--------|-----------|-------|
| .2373 | .0563 | 1.8984 | 72.8101 | 6.0000 | 7323.0000 | .0000 |

```
Model
```

|          | coeff  | se    | t       | p     | LLCI   | ULCI   |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 3.9226 | .1251 | 31.3558 | .0000 | 3.6774 | 4.1679 |
| skillV   | .1416  | .0135 | 10.5108 | .0000 | .1152  | .1680  |
| taskId   | -.0430 | .0130 | -3.3151 | .0009 | -.0684 | -.0176 |
| taskSig  | -.0066 | .0119 | -.5568  | .5777 | -.0299 | .0167  |
| feed     | -.0435 | .0125 | -3.4672 | .0005 | -.0680 | -.0189 |
| auto     | .1610  | .0125 | 12.8938 | .0000 | .1366  | .1855  |
| jobSat   | -.0441 | .0136 | -3.2351 | .0012 | -.0709 | -.0174 |

```
Completely standardized indirect effect(s) of X on Y:
```

|         | Effect | BootSE | BootLLCI | BootULCI |
|---------|--------|--------|----------|----------|
| TOTAL   | .0379  | .0040  | .0303    | .0459    |
| taskId  | .0006  | .0005  | -.0002   | .0018    |
| taskSig | .0000  | .0002  | -.0005   | .0003    |
| feed    | .0020  | .0008  | .0007    | .0037    |
| auto    | .0264  | .0029  | .0209    | .0323    |
| jobSat  | .0089  | .0029  | .0034    | .0147    |

From the above analysis we understand that Feedback, Autonomy and Job Satisfaction are good mediators.

### For mediator Feedback

```
OUTCOME VARIABLE:  
feed  
  
Model Summary  
R          R-sq        MSE         F       df1       df2      p  
.0483     .0023     1.8168    17.1580   1.0000   7328.0000   .0000  
  
Model  
coeff      se        t        p      LLCI      ULCI  
constant  3.9269  .0641    61.2148  .0000  3.8011  4.0527  
skillV    -.0525  .0127   -4.1422  .0000  -.0773  -.0276
```

From this we understand that, the coefficient of the relationship between Feedback and Skill Variety is negative (-0.0525) and the relationship between Feedback and Job Strain is negative (-0.0435). This suggests that when Skill Variety increases, Feedback decreases thereby job strain decreases. This pattern indicates that greater use of diverse skills may lower the need for feedback, ultimately contributing to a decrease in job strain.

### For mediator Autonomy

```
OUTCOME VARIABLE:  
auto  
  
Model Summary  
R          R-sq        MSE         F       df1       df2      p  
.1767     .0312     1.6768    236.2600  1.0000   7328.0000   .0000  
  
Model  
coeff      se        t        p      LLCI      ULCI  
constant  3.9844  .0616    64.6519  .0000  3.8636  4.1052  
skillV    .1871   .0122    15.3708  .0000  .1633   .2110
```

From this we understand that, the coefficient of the relationship between Autonomy and Skill Variety is positive (0.1871) and the relationship between Autonomy and Job Strain is positive (0.1610). This suggests that when Skill Variety increases, Autonomy also increases thereby job strain also increases. This pattern implies that higher skill variety may be associated with greater autonomy, though this combination could also contribute to heightened job strain.

For mediator Job Satisfaction

OUTCOME VARIABLE:

jobSat

Model Summary

| R     | R-sq  | MSE    | F        | df1    | df2       | p     |
|-------|-------|--------|----------|--------|-----------|-------|
| .2148 | .0461 | 1.6865 | 354.3213 | 1.0000 | 7328.0000 | .0000 |

Model

| coeff | se | t | p | LLCI | ULCI |
|-------|----|---|---|------|------|
|-------|----|---|---|------|------|

---

|          |        |       |          |       |        |        |
|----------|--------|-------|----------|-------|--------|--------|
| constant | 5.4554 | .0618 | 88.2642  | .0000 | 5.3342 | 5.5766 |
| skillV   | -.2298 | .0122 | -18.8234 | .0000 | -.2537 | -.2059 |

From this we understand that, the coefficient of the relationship between Job Satisfaction and Skill Variety is negative (-0.2298) and the relationship between Job Satisfaction and Job Strain is negative (-0.0441). This suggests that when Skill Variety increases, Job Satisfaction decreases thereby job strain increases. This pattern indicates that while expanding skill variety might reduce job satisfaction, it may inadvertently contribute to increased job strain.

## *Relationship 4- Feedback*

The independent variable is Feedback and the mediators we are tested here are skill variety, Job satisfaction, autonomy, Task identity and Task significance.

```

Model : 4
Y : jobStrn
X : feed
M1 : taskId
M2 : taskSig
M3 : auto
M4 : jobSat
M5 : skillV

Sample
Size: 7330

```

### Mediation Analysis

| Indirect effect(s) of X on Y: |               |              |               |               |
|-------------------------------|---------------|--------------|---------------|---------------|
|                               | Effect        | BootSE       | BootLLCI      | BootULCI      |
| TOTAL                         | -.0346        | .0049        | -.0444        | -.0253        |
| taskId                        | -.0008        | .0005        | -.0020        | .0001         |
| taskSig                       | -.0001        | .0002        | -.0007        | .0003         |
| auto                          | <b>-.0148</b> | <b>.0022</b> | <b>-.0194</b> | <b>-.0108</b> |
| jobSat                        | -.0126        | .0041        | -.0208        | -.0046        |
| skillV                        | -.0063        | .0016        | -.0097        | -.0032        |

After running the analysis we understand that autonomy, job satisfaction and skill variety has a significant effect on the relationship of job strain and feedback. To check its strength and direction, we check the coefficients.

| OUTCOME VARIABLE:<br>jobStrn |              |              |                |              |              |              |
|------------------------------|--------------|--------------|----------------|--------------|--------------|--------------|
| Model Summary                |              |              |                |              |              |              |
| R                            | R-sq         | MSE          | F              | df1          | df2          | p            |
| .2373                        | .0563        | 1.8984       | 72.8101        | 6.0000       | 7323.0000    | .0000        |
| Model                        |              |              |                |              |              |              |
|                              | coeff        | se           | t              | p            | LLCI         | ULCI         |
| constant                     | 3.9226       | .1251        | 31.3558        | .0000        | 3.6774       | 4.1679       |
| feed                         | -.0435       | .0125        | -3.4672        | .0005        | -.0680       | -.0189       |
| taskId                       | -.0430       | .0130        | -3.3151        | .0009        | -.0684       | -.0176       |
| taskSig                      | -.0066       | .0119        | -.5568         | .5777        | -.0299       | .0167        |
| auto                         | <b>.1610</b> | <b>.0125</b> | <b>12.8938</b> | <b>.0000</b> | <b>.1366</b> | <b>.1855</b> |
| jobSat                       | -.0441       | .0136        | -3.2351        | .0012        | -.0709       | -.0174       |
| skillV                       | .1416        | .0135        | 10.5108        | .0000        | .1152        | .1680        |

### For mediator autonomy

```
OUTCOME VARIABLE:  
auto  
  
Model Summary  
R      R-sq      MSE      F      df1      df2      p  
.0944   .0089   1.7154   65.8527   1.0000   7328.0000   .0000  
  
Model  
coeff      se      t      p      LLCI      ULCI  
constant   5.2403   .0443   118.2221   .0000   5.1534   5.3272  
feed       -.0920   .0113   -8.1150   .0000  -.1142  -.0698
```

From this we understand that, the coefficient of the relationship between Feedback and autonomy is negative (-0.0920) and the relationship between Skill Variety and Job Strain is positive (0.1610). This suggests that when autonomy increases, Feedback decreases thereby job strain increases. This pattern implies that when an employee has more autonomy, he/she gets less feedback due to which their job strain increases.

### For mediator job satisfaction

```
OUTCOME VARIABLE:  
jobSat  
  
Model Summary  
R      R-sq      MSE      F      df1      df2      p  
.2904   .0844   1.6189   675.1033   1.0000   7328.0000   .0000  
  
Model  
coeff      se      t      p      LLCI      ULCI  
constant   3.2774   .0431   76.1110   .0000   3.1930   3.3619  
feed       .2862   .0110   25.9827   .0000   .2646   .3078
```

From this we understand that, the coefficient of the relationship between Feedback and Job satisfaction is positive (0.2862) and the relationship between job satisfaction and Job Strain is negative (-0.0441). This suggests that when Feedback increases, the job satisfaction increases thereby the job strain increases. This pattern implies that when an employee gets more feedback on his work, his/her job satisfaction increases and job strain reduces.

### For mediator skill variety

```
OUTCOME VARIABLE:  
skillV  
  
Model Summary  
R          R-sq        MSE         F        df1        df2        p  
.0483     .0023     1.5404    17.1580    1.0000   7328.0000    .0000
```

```
Model  
      coeff       se        t        p      LLCI      ULCI  
constant  5.0709   .0420  120.7253  .0000  4.9886  5.1533  
feed      -.0445   .0107  -4.1422  .0000  -.0656  -.0234
```

From this we understand that, the coefficient of the relationship between Feedback and skill variety is negative (-0.0445) and the relationship between skill variety and Job Strain is positive (0.1416). This suggests that when Feedback increases, the job satisfaction increases thereby the job strain increases. This pattern implies that when an employee has more skills he/she gets less feedback which increases their job strain.

The conclusion that we draw from this is that autonomy has an overall stronger effect on the relationship due its higher coefficient.

## *Relationship 5- Task Identity*

The independent variable is Task identity and the mediators we are tested here are skill variety, Job satisfaction, autonomy, Feedback and Task significance.

```
Model : 4
Y   : jobStrn
X   : taskId
M1  : taskSig
M2  : auto
M3  : jobSat
M4  : skillV
M5  : feed

Sample
Size: 7330
```

Mediation analysis:

| Indirect effect(s) of X on Y: |               |              |               |               |
|-------------------------------|---------------|--------------|---------------|---------------|
|                               | Effect        | BootSE       | BootLLCI      | BootULCI      |
| TOTAL                         | -.0126        | .0036        | -.0198        | -.0055        |
| taskSig                       | -.0001        | .0003        | -.0008        | .0004         |
| auto                          | -.0027        | .0020        | -.0067        | .0012         |
| jobSat                        | <b>-.0065</b> | <b>.0021</b> | <b>-.0108</b> | <b>-.0024</b> |
| skillV                        | -.0024        | .0017        | -.0058        | .0009         |
| feed                          | -.0009        | .0006        | -.0024        | .0002         |

After running the analysis we understand that job satisfaction has a significant effect on the relationship of job strain and task identity. To check its strength and direction, we check the coefficients.

OUTCOME VARIABLE:

jobStrn

Model Summary

| R     | R-sq  | MSE    | F       | df1    | df2       | p     |
|-------|-------|--------|---------|--------|-----------|-------|
| .2373 | .0563 | 1.8984 | 72.8101 | 6.0000 | 7323.0000 | .0000 |

Model

|          | coeff         | se    | t              | p            | LLCI          | ULCI          |
|----------|---------------|-------|----------------|--------------|---------------|---------------|
| constant | 3.9226        | .1251 | 31.3558        | .0000        | 3.6774        | 4.1679        |
| taskId   | -.0430        | .0130 | -3.3151        | .0009        | -.0684        | -.0176        |
| taskSig  | -.0066        | .0119 | -.5568         | .5777        | -.0299        | .0167         |
| auto     | .1610         | .0125 | 12.8938        | .0000        | .1366         | .1855         |
| jobSat   | <b>-.0441</b> | .0136 | <b>-3.2351</b> | <b>.0012</b> | <b>-.0709</b> | <b>-.0174</b> |
| skillV   | .1416         | .0135 | 10.5108        | .0000        | .1152         | .1680         |
| feed     | -.0435        | .0125 | -3.4672        | .0005        | -.0680        | -.0189        |

OUTCOME VARIABLE:

jobSat

Model Summary

| R     | R-sq  | MSE    | F        | df1    | df2       | p     |
|-------|-------|--------|----------|--------|-----------|-------|
| .1381 | .0191 | 1.7344 | 142.5397 | 1.0000 | 7328.0000 | .0000 |

Model

|          | coeff  | se    | t       | p     | LLCI   | ULCI   |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 3.7461 | .0511 | 73.3510 | .0000 | 3.6460 | 3.8462 |
| taskId   | .1464  | .0123 | 11.9390 | .0000 | .1224  | .1705  |

From this we understand that, the coefficient of the relationship between task identity and job satisfaction is positive(0.1464) and the relationship between job satisfaction and Job Strain is negative (-0.0441). This suggests that when the task identity increases, the job satisfaction increases thereby the job strain decreases. This pattern implies that when an employee does more work his/her job satisfaction increases and job strain reduces.

## *Relationship 6- Task Significance*

The independent variable is Task significance and the mediators we are tested here are skill variety, Job satisfaction, autonomy, Feedback and Task identity.

```

Model : 4
Y : jobStrn
X : taskSig
M1 : auto
M2 : jobSat
M3 : skillV
M4 : feed
M5 : taskId

Sample
Size: 7330

```

Mediation Analysis:

| Indirect effect(s) of X on Y: |        |        |          |          |
|-------------------------------|--------|--------|----------|----------|
|                               | Effect | BootSE | BootLLCI | BootULCI |
| TOTAL                         | -.0117 | .0045  | -.0206   | -.0029   |
| auto                          | -.0003 | .0018  | -.0039   | .0031    |
| jobSat                        | -.0111 | .0036  | -.0181   | -.0042   |
| skillV                        | .0009  | .0015  | -.0019   | .0038    |
| feed                          | -.0005 | .0005  | -.0017   | .0004    |
| taskId                        | -.0007 | .0005  | -.0017   | .0002    |

After running the analysis we understand that job satisfaction has a significant effect on the relationship of job strain and task significance. To check its strength and direction, we check the coefficients.

```

OUTCOME VARIABLE:
jobStrn

Model Summary
      R       R-sq        MSE          F         df1        df2        P
    .2373     .0563    1.8984    72.8101    6.0000  7323.0000    .0000

Model
      coeff       se        t        p       LLCI       ULCI
constant  3.9226   .1251  31.3558   .0000   3.6774   4.1679
taskSig   -.0066   .0119  -.5568   .5777  -.0299   .0167
auto      .1610   .0125  12.8938   .0000   .1366   .1855
jobSat   -.0441   .0136  -3.2351   .0012  -.0709  -.0174
skillV    .1416   .0135  10.5108   .0000   .1152   .1680
feed      -.0435   .0125  -3.4672   .0005  -.0680  -.0189
taskId   -.0430   .0130  -3.3151   .0009  -.0684  -.0176

```

```
*****
OUTCOME VARIABLE:
jobSat

Model Summary
      R       R-sq      MSE      F      df1      df2      P
    .2679     .0717   1.6412  566.3757   1.0000  7328.0000   .0000

Model
coeff      se      t      p      LLCI      ULCI

constant   3.3417   .0440   75.8706   .0000   3.2554   3.4280
taskSig    .2517   .0106   23.7986   .0000   .2310   .2725
```

From this we understand that, the coefficient of the relationship between task significance and job satisfaction is positive (0.2679) and the relationship between job satisfaction and Job Strain is negative (-0.0441). This suggests that when the task significance increases, the job satisfaction increases thereby the job strain decreases. This pattern implies that when an employee's work is given the importance it deserves, the job satisfaction increases and the job strain decreases.

## Moderation

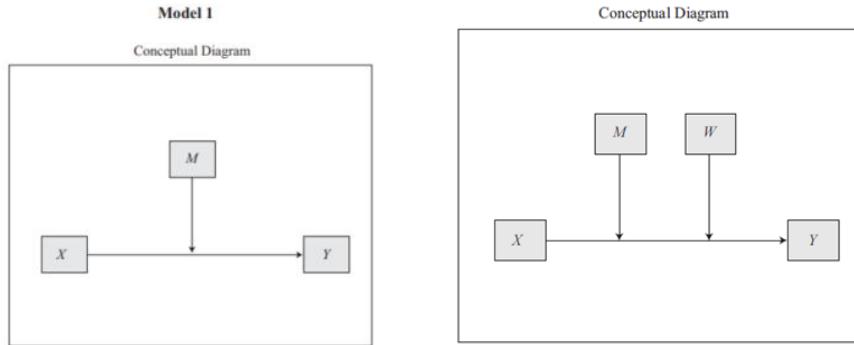
In this analysis we investigated the various relationships of various independent variables on the dependent variable job strain.

To investigate the dynamics influencing job strain, moderation analyses were conducted to examine how the independent variables (autonomy, job satisfaction, task significance, feedback, task identity, and skill variety) impact job strain. Specifically, this approach allowed us to understand not only the direct effects of each variable on job strain but also how these effects might vary under different conditions set by the other variables acting as moderators. By systematically testing each factor both as an independent variable and in combination with moderators, we aim to capture the nuanced interactions that potentially intensify or mitigate job strain in varying workplace scenarios. This comprehensive analysis provides insight into the individual and combined influence of key job characteristics on job strain, offering a clearer picture of which factors play a significant role and under what conditions.

Simultaneous to each moderation analysis we have also run certain covariate variables to understand if any other variables affected the outcome variable. If the covariate was significant to the outcome, we further used them as moderators in the following iterations for the relationship.

We used Model 1 and 2 to conduct the moderation analysis based on the number of moderators we run for the given analysis.

Model Templates for PROCESS for SPSS and SAS  
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## Dataset 1 - United States

### *Relationship 1- Skill Variety*

The independent variable is skill variety and the moderators we tested here are job satisfaction, task significance, task identity, autonomy, feedback.

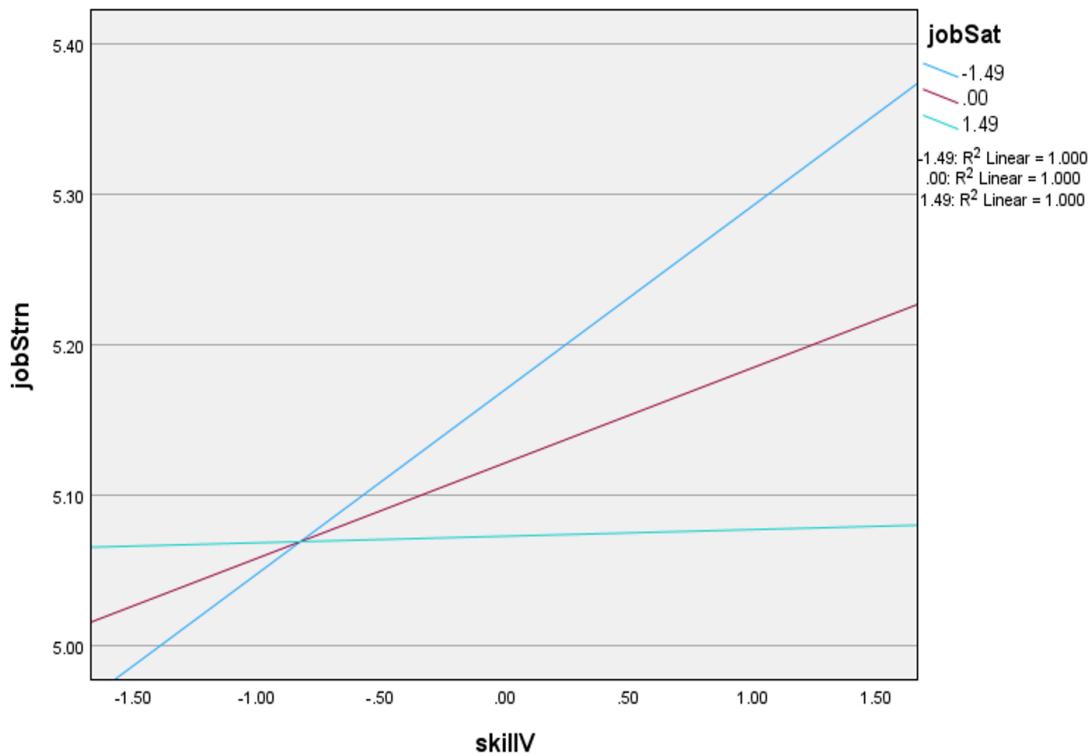
X= Skill Variety

Y= Job Strain

Moderator (M)= Job Satisfaction

| Model    | coeff   | t       | p      | LLCI    | ULCI    |
|----------|---------|---------|--------|---------|---------|
| constant | 4.8315  | 24.9601 | 0      | 4.4519  | 5.2111  |
| skillV   | 0.0633  | 2.5381  | 0.0112 | 0.0144  | 0.1123  |
| jobSat   | -0.0326 | -1.4343 | 0.1516 | -0.0772 | 0.012   |
| Int_1    | -0.0396 | -2.4565 | 0.0141 | -0.0712 | -0.008  |
| auto     | 0.0902  | 3.8104  | 0.0001 | 0.0438  | 0.1366  |
| feed     | -0.0453 | -2.0614 | 0.0394 | -0.0884 | -0.0022 |
| taskId   | -0.0067 | -0.2842 | 0.7763 | -0.0533 | 0.0398  |
| taskSig  | 0.0165  | 0.7064  | 0.4801 | -0.0293 | 0.0624  |

| Conditional effects of the focal predictor at values of the moderator(s) : |         |        |        |        |        |         |        |
|----------------------------------------------------------------------------|---------|--------|--------|--------|--------|---------|--------|
|                                                                            | Effect  | se     | t      | p      | LLCI   | ULCI    |        |
| jobSat                                                                     | -1.4896 | 0.1223 | 0.0349 | 3.5095 | 0.0005 | 0.054   | 0.1907 |
|                                                                            | 0       | 0.0633 | 0.025  | 2.5381 | 0.0112 | 0.0144  | 0.1123 |
|                                                                            | 1.4896  | 0.0044 | 0.0344 | 0.1267 | 0.8992 | -0.0631 | 0.0718 |



The moderation analysis results suggest that Job Satisfaction moderates the relationship between skill variety (independent variable) and job strain (dependent variable).

- Job Satisfaction's Moderation: The interaction between skill variety and job satisfaction (Int\_1 coefficient = -0.0396, p = 0.0141) is significant, showing that the effect of skill variety on job strain varies depending on the level of job satisfaction.

The conditional effects table would show that at different levels of job satisfaction (both standard deviations below and above the mean), skill level has a stronger positive effect on job strain when job satisfaction is higher:

- At lower job satisfaction levels (e.g., -1.49) skill level has a smaller effect on job strain.
- At moderate job satisfaction levels (e.g., 0.0), the effect of skill level on job strain is more noticeable.
- At higher job satisfaction levels (e.g., 1.49), skill level's effect on job strain is strongest.

When job satisfaction is higher (one standard deviation above the mean), skill level leads to a greater increase in job strain compared to when job satisfaction is lower (one standard deviation below the mean). This indicates that job satisfaction amplifies the effect of skill level on job

strain—employees with higher skill levels experience more job strain when they also have higher job satisfaction.

Moderator= Task Significance

| Model    | coeff   | se     | t       | p      | LLCI    | ULCI   |
|----------|---------|--------|---------|--------|---------|--------|
| constant | 4.6303  | 0.1957 | 23.6624 | 0      | 4.2465  | 5.0141 |
| jobSat   | -0.036  | 0.0228 | -1.5759 | 0.1152 | -0.0807 | 0.0088 |
| taskSig  | 0.0176  | 0.0234 | 0.7536  | 0.4512 | -0.0283 | 0.0636 |
| Int_1    | -0.003  | 0.0155 | -0.1945 | 0.8458 | -0.0333 | 0.0273 |
| skillIV  | 0.0624  | 0.025  | 2.497   | 0.0126 | 0.0134  | 0.1115 |
| auto     | 0.0943  | 0.0237 | 3.9821  | 0.0001 | 0.0478  | 0.1407 |
| taskId   | -0.0088 | 0.0238 | -0.3709 | 0.7108 | -0.0555 | 0.0378 |
| feed     | -0.0462 | 0.022  | -2.0955 | 0.0363 | -0.0894 | -0.003 |

In this analysis, task significance was tested as a moderator in the relationship between job satisfaction (independent variable) and the outcome. However, the interaction term between job satisfaction and task significance (Int\_1 coefficient = -0.003, p = 0.8458) is not statistically significant, as indicated by the high p-value (p > 0.05).

The non-significant p-value for the interaction term suggests that task significance does not significantly moderate the relationship between job satisfaction and the outcome variable. Changes in task significance do not meaningfully alter the effect of job satisfaction on the outcome. This indicates that the impact of job satisfaction on the outcome remains stable regardless of the level of task significance.

The analysis conducted with task identity, autonomy, and feedback as moderators similarly showed no significant moderation effect on the relationship between job satisfaction and the job strain.

For each of these variables (task identity, autonomy, and feedback), the interaction terms were not statistically significant, as indicated by high p-values (p > 0.05). This suggests that none of these variables meaningfully alter the relationship between job satisfaction and job strain.

## Moderator: Task Identity

| Model |          | coeff  | se    | t       | p     | LLCI   | ULCI   |
|-------|----------|--------|-------|---------|-------|--------|--------|
|       | constant | 5.0428 | .1691 | 29.8273 | .0000 | 4.7112 | 5.3744 |
|       | skillV   | .0623  | .0250 | 2.4904  | .0128 | .0132  | .1113  |
|       | taskId   | -.0084 | .0238 | -.3541  | .7233 | -.0551 | .0382  |
|       | Int_1    | -.0003 | .0183 | -.0145  | .9884 | -.0362 | .0356  |
|       | taskSig  | .0179  | .0234 | .7630   | .4456 | -.0281 | .0638  |
|       | Int_2    | -.0137 | .0180 | -.7646  | .4446 | -.0489 | .0215  |
|       | jobSat   | -.0357 | .0228 | -1.5697 | .1166 | -.0804 | .0089  |
|       | auto     | .0945  | .0236 | 3.9956  | .0001 | .0481  | .1409  |
|       | feed     | -.0468 | .0220 | -2.1238 | .0338 | -.0900 | -.0036 |

## Moderator: Autonomy, Feedback

| Model |          | coeff  | se    | t       | p     | LLCI   | ULCI   |
|-------|----------|--------|-------|---------|-------|--------|--------|
|       | constant | 5.2703 | .1526 | 34.5261 | .0000 | 4.9709 | 5.5697 |
|       | skillV   | .0625  | .0250 | 2.5000  | .0125 | .0135  | .1116  |
|       | auto     | .0945  | .0237 | 3.9941  | .0001 | .0481  | .1409  |
|       | Int_1    | -.0006 | .0183 | -.0329  | .9738 | -.0365 | .0353  |
|       | feed     | -.0464 | .0220 | -2.1048 | .0354 | -.0896 | -.0032 |
|       | Int_2    | -.0020 | .0170 | -.1152  | .9083 | -.0353 | .0313  |
|       | taskId   | -.0090 | .0238 | -.3765  | .7066 | -.0556 | .0377  |
|       | jobSat   | -.0356 | .0228 | -1.5567 | .1197 | -.0803 | .0092  |
|       | taskSig  | .0174  | .0234 | .7437   | .4571 | -.0285 | .0634  |

## *Relationship 2- Job Satisfaction*

The independent variable is job satisfaction and the moderators we tested here are skill variety, task significance, task identity, autonomy, feedback.

```
*****
Model : 1
Y   : jobStrn
X   : jobSat
W   : skillV

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R       R-sq      MSE        F      df1      df2      p
    .1092    .0119    1.9123    7.9523    3.0000  1976.0000    .0000

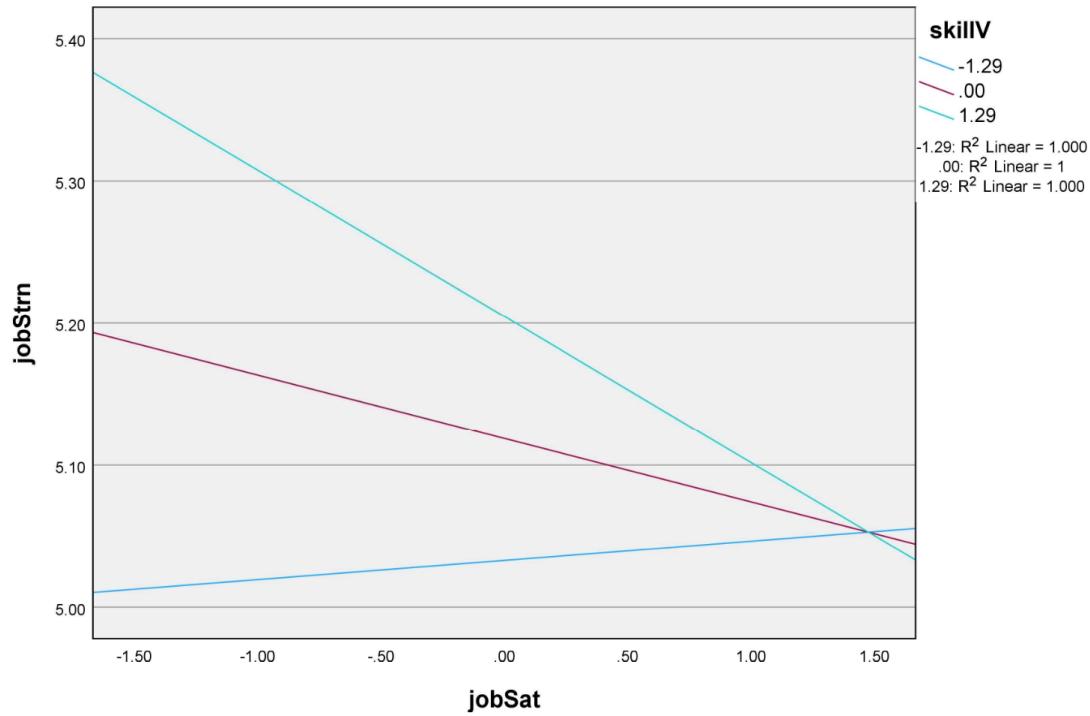
Model
      coeff      se       t       p      LLCI      ULCI
constant  5.1188  .0320  160.0983  .0000  5.0561  5.1815
jobSat    -.0447  .0216  -2.0734  .0383  -.0870  -.0024
skillV     .0668  .0249   2.6821  .0074  .0179  .1156
Int_1     -.0452  .0161  -2.8056  .0051  -.0769  -.0136

Product terms key:
  Int_1   :   jobSat   x   skillV
```

Conditional effects of the focal predictor at values of the moderator(s):

| skillV  | Effect | se    | t       | p     | LLCI   | ULCI   |
|---------|--------|-------|---------|-------|--------|--------|
| -1.2877 | .0135  | .0309 | .4388   | .6609 | -.0470 | .0741  |
| .0000   | -.0447 | .0216 | -2.0734 | .0383 | -.0870 | -.0024 |
| 1.2877  | -.1029 | .0290 | -3.5559 | .0004 | -.1597 | -.0462 |

## Graph



The moderation analysis results suggest that skill level moderates the relationship between job satisfaction (independent variable) and job strain (dependent variable).

**Skill Variety Moderation:** The interaction between job satisfaction and skill variety (Int\_1 coefficient = -0.045, p = 0.0051) is significant, showing that the effect of job satisfaction on job strain is influenced by different levels of skill.

The conditional effects table would show that at different levels of skill (both standard deviations below and above the mean), job satisfaction has varying effects on job strain:

- At lower skill levels (e.g., -1.29), job satisfaction has a stronger negative effect on job strain, as shown by the steeper downward slope.
- At moderate skill levels (e.g., 0.0), the negative effect of job satisfaction on job strain is more balanced but still present.
- At higher skill levels (e.g., 1.29), job satisfaction has the weakest effect on job strain, with a nearly flat line indicating minimal change in job strain with varying job satisfaction.

When skill variety is lower (one standard deviation below the mean), job satisfaction leads to a greater reduction in job strain compared to when skill level is higher (one standard deviation above the mean). This indicates that skill level dampens the effect of job satisfaction on job strain, employees with higher skill levels experience relatively stable job strain levels regardless of changes in job satisfaction, whereas employees with lower skill levels experience more variation in job strain as job satisfaction changes.

The analysis conducted with task significance, feedback, task identity and autonomy as moderators similarly showed no significant moderation effect on the relationship between job satisfaction and the job strain.

For each of these variables (task significance, feedback, task identity and autonomy), the interaction terms were not statistically significant, as indicated by high p-values ( $p > 0.05$ ). This suggests that none of these variables meaningfully alter the relationship between job satisfaction and job strain.

### Moderator: Task Significance

```
*****
Model : 1
Y : jobStrn
X : jobSat
W : taskSig

Covariates:
skillV    auto      taskId    feed

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
.1373   .0188   1.9027   5.4101   7.0000  1972.0000   .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  4.6303  .1957  23.6624  .0000  4.2465  5.0141
jobSat   -.0360  .0228  -1.5759  .1152  -.0807  .0088
taskSig   .0176  .0234   .7536  .4512  -.0283  .0636
Int_1     -.0030  .0155  -.1945  .8458  -.0333  .0273
skillV    .0624  .0250   2.4970  .0126  .0134  .1115
auto      .0943  .0237   3.9821  .0001  .0478  .1407
taskId   -.0088  .0238  -.3709  .7108  -.0555  .0378
feed      -.0462  .0220  -2.0955  .0363  -.0894  -.0030

Product terms key:
Int_1 : jobSat  x  taskSig
```

## Moderator: Feedback, Task Identity

```
*****
Model : 2
Y : jobStrn
X : jobSat
W : feed
Z : taskId

Covariates:
taskSig skillV auto

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .1405    .0197    1.9019   4.9629    8.0000  1971.0000    .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  4.3609   .1754  24.8665    .0000   4.0170  4.7049
jobSat    -.0350   .0228  -1.5330    .1254  -.0798  .0098
feed     -.0476   .0221  -2.1550    .0313  -.0908  -.0043
Int_1     .0079   .0147   .5392   .5898  -.0209  .0367
taskId    -.0111   .0238  -.4662    .6411  -.0578  .0356
Int_2     .0204   .0161  1.2693   .2045  -.0111  .0519
taskSig   .0160   .0234   .6834   .4945  -.0299  .0620
skillV    .0610   .0250   2.4375   .0149   .0119  .1100
auto      .0950   .0236   4.0168   .0001   .0486  .1413

Product terms key:
Int_1 : jobSat x feed
Int_2 : jobSat x taskId
```

## Moderator: Autonomy

```
*****
Model : 2
Y : jobStrn
X : jobSat
W : auto
Z : skillV

Covariates:
feed      taskId  taskSig

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .1490    .0222    1.8972   5.5934    8.0000  1971.0000    .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  5.2515   .1601  32.7956    .0000   4.9374  5.5655
jobSat    -.0313   .0228  -1.3710    .1705  -.0760  .0135
auto      .0905   .0237   3.8237    .0001   .0441  .1370
Int_1     -.0137   .0156  -.8774   .3804  -.0444  .0170
.....  .....
```

### *Relationship 3- Autonomy*

The independent variable is autonomy and the moderators we tested here are skill variety, task significance, task identity, job satisfaction, feedback.

X = Autonomy

Y = Job Strain

The analysis conducted with feedback, job satisfaction, skill variety, task identity and task significance as moderators showed no significant moderation effect on the relationship between job satisfaction and the job strain.

For each of these variables (feedback, job satisfaction, skill variety, task identity and task significance), the interaction terms were not statistically significant, as indicated by high p-values ( $p > 0.05$ ). This suggests that none of these variables meaningfully alter the relationship between job satisfaction and job strain.

#### Moderator: Feedback

```
*****
Model : 1
Y : jobStrn
X : auto
W : feed

Covariates:
jobSat  taskId  taskSig  skillV

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .1382    .0191    1.9022   5.4869    7.0000  1972.0000    .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  4.9874  .1973  25.2771  .0000  4.6004  5.3743
auto     .0951  .0237  4.0196  .0001  .0487  .1415
feed     -.0467  .0220 -2.1223  .0339  -.0899  -.0035
Int_1    -.0123  .0163  -.7518  .4523  -.0443  .0198
jobSat   -.0352  .0227 -1.5491  .1215  -.0798  .0094
taskId   -.0092  .0238  -.3874  .6985  -.0558  .0374
taskSig   .0175  .0234  .7488  .4541  -.0284  .0634
skillV    .0628  .0250  2.5136  .0120  .0138  .1118

Product terms key:
Int_1 : auto x feed
```

## Moderator: Job Satisfaction

```
*****
Model : 1
Y : jobStrn
X : auto
W : jobSat

Covariates:
skillV feed taskId taskSig

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .1395   .0195   1.9015   5.5935   7.0000  1972.0000   .0000

Model
      coeff      se       t      p      LLCI      ULCI
constant  5.0060   .1857  26.9618   .0000   4.6419   5.3702
auto      .0947   .0236   4.0065   .0001   .0483   .1410
jobSat    -.0337   .0228  -1.4772   .1398  -.0784   .0110
Int_1     -.0177   .0156  -1.1391   .2548  -.0483   .0128
skillV    .0610   .0250   2.4370   .0149   .0119   .1101
feed      -.0465   .0220  -2.1124   .0348  -.0897   -.0033
taskId    -.0096   .0238  -.4042   .6861  -.0562   .0370
taskSig   .0160   .0234   .6805   .4963  -.0300   .0619
```

## Moderator: Skill Variety

```
*****
Model : 1
Y : jobStrn
X : auto
W : skillV

Covariates:
jobSat  taskId  taskSig  feed

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .1372   .0188   1.9028   5.4047   7.0000  1972.0000   .0000

Model
      coeff      se       t      p      LLCI      ULCI
constant  5.4387   .1638  33.2008   .0000   5.1174   5.7599
auto      .0945   .0237   3.9939   .0001   .0481   .1408
skillV    .0626   .0250   2.5028   .0124   .0135   .1116
Int_1     -.0005   .0183  -.0262   .9791  -.0363   .0354
jobSat    -.0356   .0228  -1.5619   .1185  -.0804   .0091
taskId    -.0090   .0238  -.3803   .7038  -.0557   .0376
taskSig   .0175   .0234   .7485   .4542  -.0284   .0634
feed      -.0463   .0220  -2.1034   .0356  -.0895  -.0031

Product terms key:
  Int_1 : auto x skillV
```

## Moderator: Task Identity, Task Significance

```
*****
Model : 2
Y : jobStrn
X : auto
W : taskId
Z : taskSig

Covariates:
jobSat skillV feed

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .1376   .0189   1.9035   4.7527   8.0000  1971.0000   .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  5.1940   .1806  28.7532   .0000   4.8397   5.5482
auto      .0944   .0237   3.9890   .0001   .0480   .1408
taskId    -.0084   .0238  -.3539   .7235  -.0551   .0383
Int_1     .0082   .0182   .4497   .6530  -.0275   .0439
taskSig   .0173   .0234   .7365   .4615  -.0287   .0632
Int_2     -.0009   .0171  -.0546   .9565  -.0345   .0326
jobSat   -.0355   .0228  -1.5589   .1192  -.0802   .0092
skillV    .0625   .0250   2.4985   .0126   .0134   .1115
feed      -.0463   .0220  -2.1010   .0358  -.0895  -.0031

Product terms key:
  Int_1 :       auto   x     taskId
  Int_2 :       auto   x     taskSig
```

### *Relationship 4- Task Significance*

The independent variable is task significance and the moderators we tested here are skill variety, autonomy, task identity, job satisfaction, feedback.

X = Task Significance

Y = Job Strain

The analysis conducted with autonomy, skill variety, task identity, feedback and job satisfaction as moderators showed no significant moderation effect on the relationship between job satisfaction and the job strain.

For each of these variables (autonomy, skill variety, task identity, feedback and job satisfaction ), the interaction terms were not statistically significant, as indicated by high p-values ( $p > 0.05$ ). This suggests that none of these variables meaningfully alter the relationship between job satisfaction and job strain.

## Moderator: Autonomy, Skill Variety

```
#####
Model : 2
Y : jobStrn
X : taskSig
W : auto
Z : skillV

Covariates:
feed      taskId    jobSat

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
.1383   .0191   1.9032   4.8011   8.0000  1971.0000   .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  5.5088  .1489  36.9987  .0000   5.2168  5.8008
taskSig   .0179  .0234   .7623  .4460  -.0281  .0638
auto      .0945  .0237   3.9920  .0001  .0481  .1409
Int_1     -.0001  .0171  -.0034  .9973  -.0337  .0335
skillV    .0623  .0250   2.4902  .0128  .0132  .1113
Int_2     -.0137  .0180  -.7633  .4454  -.0490  .0215
feed      -.0468  .0220  -2.1242  .0338  -.0900  -.0036
taskId   -.0084  .0238  -.3538  .7235  -.0551  .0382
jobSat   -.0357  .0228  -1.5698  .1166  -.0804  .0089

Product terms key:
Int_1 :      taskSig x      auto
Int_2 :      taskSig x      skillV
```

## Moderator: Task Identity, Feedback

```
#####
Model : 2
Y : jobStrn
X : taskSig
W : taskId
Z : feed

Covariates:
jobSat skillV auto

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE       F      df1      df2      p
    .1453    .0211   1.8993   5.3121   8.0000  1971.0000   .0000

Model
      coeff      se       t      p      LLCI      ULCI
constant  4.5790  .2072  22.1005  .0000   4.1726   4.9853
taskSig   .0180  .0234   .7694  .4417  -.0279   .0639
taskId   -.0081  .0238  -.3420  .7324  -.0547   .0385
Int_1     -.0165  .0177  -.9303  .3523  -.0512   .0182
feed     -.0464  .0220  -2.1078  .0352  -.0895  -.0032
Int_2     .0298  .0156   1.9062  .0568  -.0009   .0605
jobSat   -.0354  .0228  -1.5550  .1201  -.0800   .0092
skillV    .0647  .0250   2.5874  .0097  .0157   .1137
auto     .0945  .0236   4.0010  .0001  .0482   .1409

Product terms key:
  Int_1 :      taskSig x      taskId
  Int_2 :      taskSig x      feed
```

## Moderator: Job Satisfaction

```
#####
Model : 1
Y   : jobStrn
X   : taskSig
W   : jobSat

Covariates:
skillV    auto      taskId     feed

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE       F      df1      df2      p
      .1373    .0188    1.9027    5.4101    7.0000  1972.0000    .0000

Model
      coeff      se       t       p      LLCI      ULCI
constant  4.6303  .1957  23.6624  .0000  4.2465  5.0141
taskSig   .0176  .0234   .7536  .4512  -.0283  .0636
jobSat   -.0360  .0228  -1.5759  .1152  -.0807  .0088
Int_1     -.0030  .0155  -.1945  .8458  -.0333  .0273
skillV    .0624  .0250   2.4970  .0126  .0134  .1115
auto      .0943  .0237   3.9821  .0001  .0478  .1407
taskId   -.0088  .0238  -.3709  .7108  -.0555  .0378
feed      -.0462  .0220  -2.0955  .0363  -.0894  -.0030

Product terms key:
  Int_1   :      taskSig  x      jobSat
```

## *Relationship 5- Task Identity*

The independent variable is task identity and the moderators we tested here are skill variety, autonomy, task significance, job satisfaction, feedback.

X = Task Identity

Y = Autonomy

The analysis conducted with autonomy, skill variety, task identity, feedback and job satisfaction as moderators showed no significant moderation effect on the relationship between job satisfaction and the job strain.

For each of these variables (autonomy, skill variety, task identity, feedback and job satisfaction), the interaction terms were not statistically significant, as indicated by high p-values ( $p > 0.05$ ). This suggests that none of these variables meaningfully alter the relationship between job satisfaction and job strain.

### Moderator: Autonomy, Skill Variety

```
*****
Model : 2
Y : jobStrn
X : taskId
W : auto
Z : skillV

Covariates:
taskSig feed jobSat

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE       F      df1      df2      p
    .1376    .0189    1.9035   4.7524    8.0000  1971.0000    .0000

Model
      coeff      se       t      p      LLCI      ULCI
constant  5.4039  .1385  39.0112  .0000   5.1323  5.6756
taskId    -.0085  .0238  -.3553  .7224  -.0552  .0382
auto      .0945  .0236  3.9950  .0001  .0481  .1409
Int_1     .0082  .0183  .4493  .6533  -.0277  .0441
skillV    .0625  .0250  2.4991  .0125  .0135  .1115
Int_2     -.0005  .0184  -.0287  .9771  -.0366  .0355
taskSig   .0173  .0234  .7391  .4599  -.0286  .0633
feed      -.0463  .0220  -2.1010  .0358  -.0895  -.0031
jobSat   -.0354  .0228  -1.5560  .1199  -.0801  .0092

Product terms key:
Int_1 :      taskId x      auto
Int_2 :      taskId x      skillV
```

## Moderator: Task Significance, Feedback

```

Model : 2
Y : jobStrn
X : taskId
W : taskSig
Z : feed

Covariates:
jobSat skillV auto

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .1410    .0199    1.9017   4.9985    8.0000  1971.0000    .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  4.5731  .2074  22.0461  .0000   4.1663  4.9799
taskId    -.0082  .0238  -.3448  .7302  -.0548  .0384
taskSig   .0175  .0234  .7477  .4548  -.0284  .0634
Int_1     -.0159  .0177  -.8957  .3705  -.0507  .0189
feed      -.0467  .0220  -2.1223  .0339  -.0899  -.0035
Int_2     -.0179  .0165  -1.0829  .2790  -.0502  .0145
jobSat   -.0339  .0228  -1.4898  .1364  -.0786  .0107
skillV    .0646  .0250  2.5796  .0100  .0155  .1136
auto      .0947  .0236  4.0064  .0001  .0483  .1411

```

## Moderator: Job Satisfaction

```

Model : 1
Y : jobStrn
X : taskId
W : jobSat

Covariates:
skillV auto      taskSig feed

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .1400    .0196    1.9013   5.6324    7.0000  1972.0000    .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  4.5313  .1923  23.5581  .0000   4.1541  4.9086
taskId    -.0107  .0238  -.4499  .6528  -.0574  .0360
jobSat   -.0362  .0227  -1.5918  .1116  -.0808  .0084
Int_1     .0201  .0160  1.2507  .2112  -.0114  .0515
skillV    .0611  .0250  2.4427  .0147  .0120  .1101
auto      .0950  .0236  4.0200  .0001  .0487  .1414
taskSig   .0166  .0234  .7071  .4796  -.0294  .0625
feed      -.0467  .0220  -2.1239  .0338  -.0899  -.0036

Product terms key:
  Int_1 :      taskId x      jobSat

```

## *Relationship 6- Feedback*

The independent variable is feedback and the moderators we tested here are skill variety, autonomy, task significance, job satisfaction, task identity.

X = Feedback

Y = Job Strain

The analysis conducted with skill variety, autonomy, task significance, task identity, and job satisfaction as moderators showed no significant moderation effect on the relationship between job satisfaction and the job strain.

For each of these variables (skill variety, autonomy, task significance, task identity, and job satisfaction), the interaction terms were not statistically significant, as indicated by high p-values ( $p > 0.05$ ). This suggests that none of these variables meaningfully alter the relationship between job satisfaction and job strain.

### Moderator: Skill Variety, Autonomy

```
Model : 2
Y : jobStrn
X : feed
W : skillV
Z : auto

Covariates:
taskId  taskSig  jobSat

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE       F      df1      df2      p
    .1382    .0191    1.9032   4.7991    8.0000  1971.0000    .0000

Model
      coeff      se       t      p      LLCI      ULCI
constant  5.2681  .1525  34.5509  .0000   4.9690   5.5671
feed     -.0468  .0220  -2.1226  .0339  -.0900  -.0036
skillV   .0628  .0250   2.5114  .0121   .0138   .1118
Int_1    -.0011  .0170  -.0646  .9485  -.0344   .0322
auto     .0951  .0237   4.0191  .0001   .0487   .1415
Int_2    -.0122  .0164  -.7458  .4559  -.0443   .0199
taskId  -.0092  .0238  -.3852  .7001  -.0558   .0375
taskSig  .0175  .0234   .7457  .4559  -.0285   .0634
jobSat   -.0352  .0228  -1.5452  .1225  -.0798   .0095
```

## Moderator: Task Significance, Task Identity

```
*****
Model : 2
Y : jobStrn
X : feed
W : taskSig
Z : taskId

Covariates:
jobSat auto skillV

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .1460     .0213    1.8989    5.3632    8.0000   1971.0000    .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  4.5811   .2070  22.1327    .0000   4.1752   4.9870
feed      -.0458   .0220  -2.0834    .0373  -.0890  -.0027
taskSig   .0169   .0234   .7244   .4689  -.0289   .0628
Int_1     .0299   .0156   1.9139   .0558  -.0007   .0606
taskId   -.0079   .0238  -.3310   .7407  -.0544   .0387
Int_2     -.0185   .0164  -1.1249   .2608  -.0507   .0137
jobSat   -.0357   .0227  -1.5691   .1168  -.0803   .0089
auto      .0940   .0236   3.9791   .0001   .0477   .1403
skillV    .0648   .0250   2.5907   .0096   .0157   .1138

Product terms key:
  Int_1 :       feed      x      taskSig
  Int_2 :       feed      x      taskId
```

## Moderator: Job Satisfaction

```
*****
Model : 1
Y : jobStrn
X : feed
W : jobSat

Covariates:
auto skillV taskId taskSig

Sample
Size: 1980

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
    .1376     .0189    1.9025    5.4401    7.0000   1972.0000    .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  4.3914   .1954  22.4719    .0000   4.0081   4.7746
feed      -.0471   .0221  -2.1335    .0330  -.0903  -.0038
jobSat   -.0345   .0228  -1.5105   .1311  -.0793   .0103
Int_1     .0072   .0147   .4934   .6218  -.0215   .0360
auto      .0944   .0236   3.9939   .0001   .0481   .1408
skillV    .0625   .0250   2.4994   .0125   .0135   .1115
taskId   -.0094   .0238  -.3948   .6931  -.0560   .0372
taskSig   .0170   .0234   .7272   .4672  -.0289   .0630

Product terms key:
  Int_1 :       feed      x      jobSat
```

## Dataset 2 - India

### *Relationship 1- Task Identity*

The independent variable is Task Identity and the moderators we tested here are Job satisfaction, Task significance, Feedback, Task identity, and Skill Variety.

```
Model : 2
Y : jobStrn
X : taskId
W : taskSig
Z : jobSat
```

OUTCOME VARIABLE:

jobStrn

Model Summary

| R     | R-sq  | MSE    | F       | df1    | df2       | p     |
|-------|-------|--------|---------|--------|-----------|-------|
| .2377 | .0565 | 1.8986 | 54.8025 | 8.0000 | 7321.0000 | .0000 |

Model

|          | coeff  | se    | t       | p     | LLCI   | ULCI   |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 3.9992 | .2311 | 17.3042 | .0000 | 3.5461 | 4.4522 |
| taskId   | -.0618 | .0504 | -1.2257 | .2204 | -.1606 | .0370  |
| taskSig  | -.0522 | .0393 | -1.3276 | .1844 | -.1293 | .0249  |
| Int_1    | .0115  | .0095 | 1.2169  | .2237 | -.0070 | .0301  |
| jobSat   | -.0204 | .0413 | -.4946  | .6209 | -.1013 | .0605  |
| Int_2    | -.0060 | .0098 | -.6175  | .5370 | -.0251 | .0131  |
| auto     | .1609  | .0125 | 12.8802 | .0000 | .1364  | .1854  |
| skillV   | .1416  | .0135 | 10.5089 | .0000 | .1152  | .1680  |
| feed     | -.0434 | .0125 | -3.4623 | .0005 | -.0680 | -.0188 |

Product terms key:

|       |   |        |   |         |
|-------|---|--------|---|---------|
| Int_1 | : | taskId | x | taskSig |
| Int_2 | : | taskId | x | jobSat  |

Test(s) of highest order unconditional interaction(s):

| R2-chng | F | df1 | df2 | p |
|---------|---|-----|-----|---|
|         |   |     |     |   |

|       |       |        |        |           |       |
|-------|-------|--------|--------|-----------|-------|
| X*W   | .0002 | 1.4809 | 1.0000 | 7321.0000 | .2237 |
| X*Z   | .0000 | .3813  | 1.0000 | 7321.0000 | .5370 |
| BOTH  | .0002 | .7920  | 2.0000 | 7321.0000 | .4530 |
| ----- |       |        |        |           |       |

The moderation analysis results suggest that Task Significance and Job Satisfaction both do not moderate the relationship between Task Identity (independent variable) and job strain (dependent variable).

- The interaction between Task Significance and Task Identity ( $p = .2237$ ) and Job Satisfaction and Task Identity ( $p = .5370$ ) is not significant, showing that variation in Task Significance or Task Identity does not strengthen or weaken the relationship between Task Identity and Job Strain.

We notice the same outcomes for the other moderator variables that we ran to study the relationship between task identity and job strain, hence identifying that none of the selected variables are good moderators for this relationship and they do not affect the strength of their relationships or coefficients. These outcomes are shown below:

```
Model : 2
Y : jobStrn
X : taskId
W : skillV
Z : auto
```

|          | coeff  | se    | t       | p     | LLCI   | ULCI   |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 4.1728 | .2888 | 14.4497 | .0000 | 3.6067 | 4.7389 |
| taskId   | -.1044 | .0653 | -1.5997 | .1097 | -.2324 | .0235  |
| skillV   | .1073  | .0438 | 2.4462  | .0145 | .0213  | .1932  |
| Int_1    | .0085  | .0104 | .8195   | .4125 | -.0119 | .0289  |
| auto     | .1445  | .0418 | 3.4591  | .0005 | .0626  | .2264  |
| Int_2    | .0041  | .0100 | .4104   | .6815 | -.0154 | .0236  |
| feed     | -.0434 | .0125 | -3.4611 | .0005 | -.0680 | -.0188 |
| taskSig  | -.0066 | .0119 | -.5599  | .5756 | -.0299 | .0166  |
| jobSat   | -.0446 | .0136 | -3.2647 | .0011 | -.0713 | -.0178 |

Product terms key:

```
Int_1 : taskId x skillV
Int_2 : taskId x auto
```

```

Model : 1
Y : jobStrn
X : taskId
W : feed

```

| Model    | coeff         | se           | t             | p            | LLCI          | ULCI         |
|----------|---------------|--------------|---------------|--------------|---------------|--------------|
| constant | 3.8262        | .1854        | 20.6345       | .0000        | 3.4627        | 4.1897       |
| taskId   | -.0183        | .0373        | -.4921        | .6227        | -.0914        | .0547        |
| feed     | -.0168        | .0398        | -.4219        | .6731        | -.0949        | .0613        |
| Int_1    | <b>-.0067</b> | <b>.0095</b> | <b>-.7047</b> | <b>.4810</b> | <b>-.0253</b> | <b>.0119</b> |
| taskSig  | -.0066        | .0119        | -.5597        | .5757        | -.0299        | .0166        |
| jobSat   | -.0443        | .0136        | -3.2495       | .0012        | -.0711        | -.0176       |
| skillV   | .1417         | .0135        | 10.5142       | .0000        | .1152         | .1681        |
| auto     | .1609         | .0125        | 12.8801       | .0000        | .1364         | .1854        |

Product terms key:  
Int\_1 : taskId x feed

### Relationship 2- Feedback

The independent variable is Feedback and the moderator we tested here is Autonomy, Task identity, Job satisfaction, Skill Variety, and Task significance.

```

Model : 1
Y : jobStrn
X : feed
W : auto

```

| Model    | coeff        | se           | t             | p            | LLCI         | ULCI         |
|----------|--------------|--------------|---------------|--------------|--------------|--------------|
| constant | 4.4211       | .2103        | 21.0217       | .0000        | 4.0089       | 4.8334       |
| feed     | -.1739       | .0460        | -3.7814       | .0002        | -.2640       | -.0837       |
| auto     | .0601        | .0364        | 1.6498        | .0990        | -.0113       | .1316        |
| Int_1    | <b>.0268</b> | <b>.0091</b> | <b>2.9479</b> | <b>.0032</b> | <b>.0090</b> | <b>.0446</b> |
| skillV   | .1406        | .0135        | 10.4421       | .0000        | .1142        | .1670        |
| taskId   | -.0426       | .0130        | -3.2844       | .0010        | -.0680       | -.0172       |
| taskSig  | -.0068       | .0119        | -.5707        | .5682        | -.0300       | .0165        |
| jobSat   | -.0438       | .0136        | -3.2097       | .0013        | -.0705       | -.0170       |

Product terms key:  
Int\_1 : feed x auto

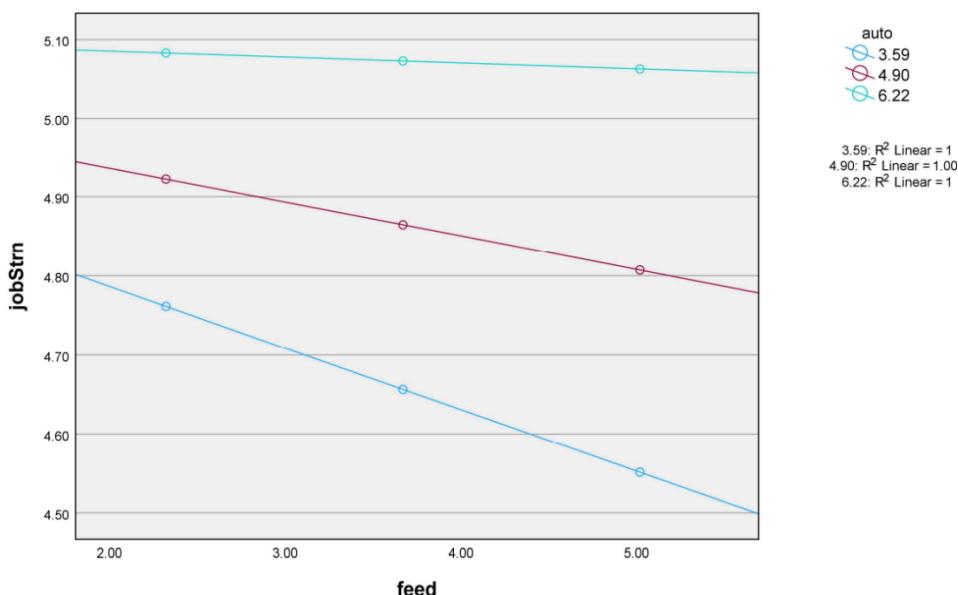
Conditional effects of the focal predictor at values of the moderator(s) :

| auto   | Effect | se    | t       | p     | LLCI   | ULCI   |
|--------|--------|-------|---------|-------|--------|--------|
| 3.5872 | -.0779 | .0171 | -4.5475 | .0000 | -.1115 | -.0443 |
| 4.9027 | -.0427 | .0125 | -3.4064 | .0007 | -.0672 | -.0181 |
| 6.2183 | -.0075 | .0175 | -.4275  | .6690 | -.0418 | .0268  |

Moderator value(s) defining Johnson-Neyman significance region(s) :

| Value  | % below | % above |
|--------|---------|---------|
| 5.4921 | 63.4106 | 36.5894 |

### Graph



The moderation analysis results suggest that Autonomy moderates the relationship between Feedback (independent variable) and job strain (dependent variable).

- Autonomy's Moderation: The interaction between autonomy and feedback (Int\_1 coefficient = 0.0268, p = 0.0032) is significant, showing that the effect of autonomy on job strain varies depending on the level of feedback.

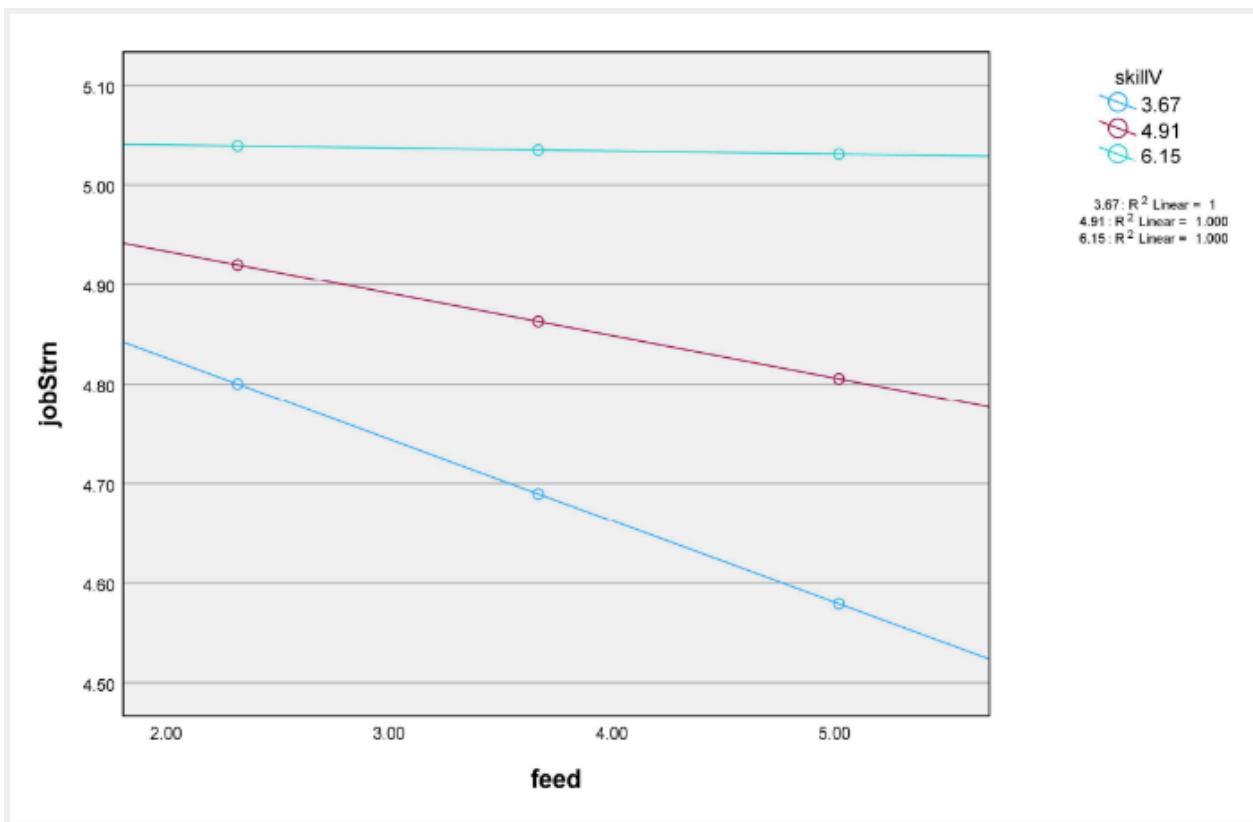
The Johnson-Neyman significance region shows us that below Autonomy values below 5.49 are significant moderators and values above that are not significant to the relationship, implying that the relationship between Feedback and job strain is weakly impacted by Autonomy as it increases in value.

In the plot we notice a similar pattern, with the 1 standard deviation lower than the mean having the steepest slope hence exemplifying the negative correlation between Feedback and Job Strain.

|       |   |         |
|-------|---|---------|
| Model | : | 1       |
| Y     | : | jobStrn |
| X     | : | feed    |
| W     | : | skillV  |

| Model              | coeff  | se    | t       | p      | LLCI   | ULCI   |
|--------------------|--------|-------|---------|--------|--------|--------|
| constant           | 4.5112 | .2167 | 20.8138 | .0000  | 4.0864 | 4.9361 |
| feed               | -.1984 | .0483 | -4.1109 | .0000  | -.2930 | -.1038 |
| skillV             | .0228  | .0382 | .5982   | .5498  | -.0520 | .0977  |
| Int_1              | .0318  | .0096 | 3.3244  | .0009  | .0130  | .0505  |
| taskId             | -.0434 | .0130 | -3.3464 | .0008  | -.0687 | -.0180 |
| taskSig            | -.0062 | .0119 | -.5217  | .6019  | -.0294 | .0171  |
| jobSat             | -.0443 | .0136 | -3.2489 | .0012  | -.0710 | -.0176 |
| auto               | .1598  | .0125 | 12.7960 | .0000  | .1353  | .1843  |
| Product terms key: |        |       |         |        |        |        |
| Int_1              | :      | feed  | x       | skillV |        |        |

| Moderator value(s) defining Johnson-Neyman significance region(s): |         |         |
|--------------------------------------------------------------------|---------|---------|
| Value                                                              | % below | % above |
| 5.4108                                                             | 64.8295 | 35.1705 |



The moderation analysis results suggest that Skill Variety moderates the relationship between Feedback (independent variable) and job strain (dependent variable).

- Skill Variety's Moderation: The interaction between skill variety and feedback (Int\_1 coefficient = 0.0318, p = 0.0009) is significant, showing that the effect of autonomy on job strain varies depending on the level of skill variety.

The Johnson-Neyman significance region shows us that below Skill Variety values of 5.41 are significant moderators and values above that are not significant to the relationship, implying that the relationship between Feedback and job strain is weakly impacted by Skill Variety as it increases above the mean.

In the plot we notice a similar pattern, with the 1 standard deviation lower than the mean having the steepest slope hence exemplifying the negative correlation between Feedback and Job Strain.

1. We notice the insignificant outcomes for the other moderator variables that we ran to study the relationship between Feedback and job strain, hence identifying that none of

the selected variables are good moderators for this relationship and they do not affect the strength of their relationships or coefficients. These outcomes are shown below.

```
Model : 1
Y : jobStrn
X : feed
W : jobSat
```

| Model    | coeff  | se    | t       | p     | LLCI   | ULCI   |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 4.0005 | .1812 | 22.0764 | .0000 | 3.6453 | 4.3557 |
| feed     | -.0657 | .0395 | -1.6643 | .0961 | -.1430 | .0117  |
| jobSat   | -.0633 | .0350 | -1.8067 | .0709 | -.1320 | .0054  |
| Int_1    | .0051  | .0087 | .5939   | .5526 | -.0118 | .0221  |
| auto     | .1612  | .0125 | 12.9039 | .0000 | .1367  | .1857  |
| skillV   | .1417  | .0135 | 10.5139 | .0000 | .1152  | .1681  |
| taskId   | -.0428 | .0130 | -3.2992 | .0010 | -.0682 | -.0174 |
| taskSig  | -.0065 | .0119 | -.5510  | .5817 | -.0298 | .0167  |

Product terms key:

```
Int_1 : feed x jobSat
```

```
Model : 2
Y : jobStrn
X : feed
W : taskId
Z : taskSig
```

| Model    |        | coeff | se      | t     | p      | LLCI   | ULCI |
|----------|--------|-------|---------|-------|--------|--------|------|
| constant | 3.8091 | .2204 | 17.2839 | .0000 | 3.3771 | 4.2412 |      |
| feed     | -.0121 | .0516 | -.2345  | .8146 | -.1133 | .0891  |      |
| taskId   | -.0184 | .0373 | -.4943  | .6211 | -.0915 | .0547  |      |
| Int_1    | -.0067 | .0095 | -.7027  | .4823 | -.0253 | .0119  |      |
| taskSig  | -.0022 | .0333 | -.0657  | .9476 | -.0675 | .0632  |      |
| Int_2    | -.0012 | .0085 | -.1430  | .8863 | -.0179 | .0154  |      |
| jobSat   | -.0443 | .0136 | -3.2495 | .0012 | -.0711 | -.0176 |      |
| auto     | .1609  | .0125 | 12.8797 | .0000 | .1364  | .1854  |      |
| skillV   | .1416  | .0135 | 10.5113 | .0000 | .1152  | .1680  |      |

Product terms key:

|       |   |      |   |         |
|-------|---|------|---|---------|
| Int_1 | : | feed | x | taskId  |
| Int_2 | : | feed | x | taskSig |

### Relationship 3- Skill Variety

The independent variable is Skill Variety and the moderator we tested here is Autonomy, Feedback, Task identity, Job satisfaction, and Task significance.

|             |
|-------------|
| Model : 1   |
| Y : jobStrn |
| X : skillV  |
| W : auto    |

| Model    | coeff  | se    | t       | p     | LLCI   | ULCI   |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 2.5787 | .2424 | 10.6364 | .0000 | 2.1035 | 3.0540 |
| skillV   | .4322  | .0469 | 9.2122  | .0000 | .3402  | .5242  |
| auto     | .4481  | .0461 | 9.7158  | .0000 | .3577  | .5386  |
| Int_1    | -.0611 | .0095 | -6.4646 | .0000 | -.0797 | -.0426 |
| jobSat   | -.0495 | .0136 | -3.6313 | .0003 | -.0762 | -.0228 |
| taskId   | -.0410 | .0129 | -3.1735 | .0015 | -.0664 | -.0157 |
| feed     | -.0405 | .0125 | -3.2349 | .0012 | -.0650 | -.0159 |
| taskSig  | -.0058 | .0118 | -.4870  | .6263 | -.0290 | .0174  |

| Moderator value(s) defining Johnson-Neyman significance region(s): |         |         |  |
|--------------------------------------------------------------------|---------|---------|--|
| Value                                                              | % below | % above |  |
| 6.4081                                                             | 90.8595 | 9.1405  |  |

The moderation analysis results suggest that Autonomy moderates the relationship between Skill Variety (independent variable) and job strain (dependent variable).

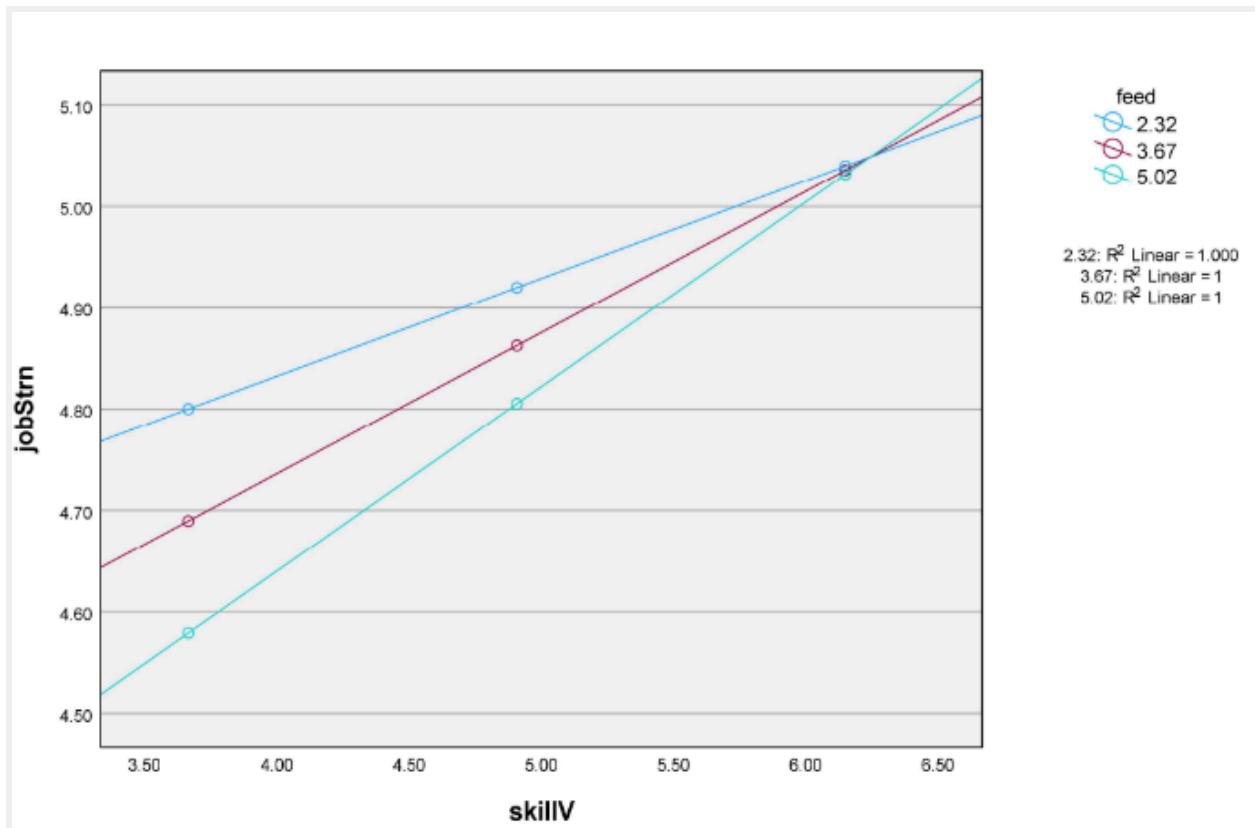
- Autonomy's Moderation: The interaction between skill variety and feedback (Int\_1 coefficient = -0.0611, p = 0.0000) is significant, showing that the effect of skill variety on job strain varies depending on the level of Autonomy.

The Johnson-Neyman significance region shows us that below Autonomy values of 6.41 are significant moderators and values above that are not significant to the relationship, implying that the relationship between Skill Variety and job strain is weakly impacted by Autonomy as it increases above the mean.

```
*****
Model : 1
Y : jobStrn
X : skillV
W : feed
```

| Model Summary      |        |        |         |         |        |           |       |
|--------------------|--------|--------|---------|---------|--------|-----------|-------|
|                    | R      | R-sq   | MSE     | F       | df1    | df2       | p     |
|                    | .2402  | .0577  | 1.8958  | 64.0731 | 7.0000 | 7322.0000 | .0000 |
| Model              |        |        |         |         |        |           |       |
|                    | coeff  | se     | t       | p       | LLCI   | ULCI      |       |
| constant           | 4.5112 | .2167  | 20.8138 | .0000   | 4.0864 | 4.9361    |       |
| skillV             | .0228  | .0382  | .5982   | .5498   | -.0520 | .0977     |       |
| feed               | -.1984 | .0483  | -4.1109 | .0000   | -.2930 | -.1038    |       |
| Int_1              | .0318  | .0096  | 3.3244  | .0009   | .0130  | .0505     |       |
| jobSat             | -.0443 | .0136  | -3.2489 | .0012   | -.0710 | -.0176    |       |
| taskId             | -.0434 | .0130  | -3.3464 | .0008   | -.0687 | -.0180    |       |
| taskSig            | -.0062 | .0119  | -.5217  | .6019   | -.0294 | .0171     |       |
| auto               | .1598  | .0125  | 12.7960 | .0000   | .1353  | .1843     |       |
| Product terms key: |        |        |         |         |        |           |       |
| Int_1              | :      | skillV | x       | feed    |        |           |       |

| Conditional effects of the focal predictor at values of the moderator(s): |         |         |         |       |       |       |  |
|---------------------------------------------------------------------------|---------|---------|---------|-------|-------|-------|--|
| feed                                                                      | Effect  | se      | t       | p     | LLCI  | ULCI  |  |
| 2.3199                                                                    | .0965   | .0191   | 5.0525  | .0000 | .0591 | .1340 |  |
| 3.6693                                                                    | .1394   | .0135   | 10.3417 | .0000 | .1130 | .1658 |  |
| 5.0187                                                                    | .1823   | .0182   | 10.0205 | .0000 | .1466 | .2179 |  |
| Moderator value(s) defining Johnson-Neyman significance region(s):        |         |         |         |       |       |       |  |
| Value                                                                     | % below | % above |         |       |       |       |  |
| 1.0638                                                                    | 4.1746  | 95.8254 |         |       |       |       |  |



The moderation analysis results suggest that Feedback moderates the relationship between Skill Variety(independent variable) and job strain (dependent variable).

- Feedback's Moderation: The interaction between skill variety and feedback (Int\_1 coefficient = 0.0318, p = 0.0009) is significant, showing that the effect of skill variety on job strain varies depending on the level of feedback.

The Johnson-Neyman significance region shows us that above Feedback values of 1.06 are significant moderators and values below that are not significant to the relationship, implying that the relationship between skill variety and job strain is strongly impacted by feedback as it increases above the 1.06.

In the plot we notice a similar pattern, with the 1 standard deviation feedback above the mean having the steepest slope hence exemplifying the positive correlation between Skill Variety and Job Strain.

3. We notice the insignificant outcomes for the other moderator variables that we ran to study the relationship between Skill Variety and job strain, hence identifying that none of the selected variables are good moderators for this relationship and they do not affect the strength of their relationships or coefficients. These outcomes are shown below

```
Model : 2
Y : jobStrn
X : skillV
W : taskSig
Z : taskId
```

| Model    |        |       |         |       |        |        |
|----------|--------|-------|---------|-------|--------|--------|
|          | coeff  | se    | t       | p     | LLCI   | ULCI   |
| constant | 3.7998 | .2942 | 12.9172 | .0000 | 3.2232 | 4.3765 |
| skillV   | .1670  | .0557 | 2.9984  | .0027 | .0578  | .2762  |
| taskSig  | .0725  | .0458 | 1.5805  | .1140 | -.0174 | .1623  |
| Int_1    | -.0162 | .0091 | -1.7855 | .0742 | -.0340 | .0016  |
| taskId   | -.0893 | .0516 | -1.7307 | .0835 | -.1905 | .0119  |
| Int_2    | .0095  | .0102 | .9293   | .3528 | -.0106 | .0296  |
| jobSat   | -.0437 | .0136 | -3.1987 | .0014 | -.0704 | -.0169 |
| auto     | .1607  | .0125 | 12.8669 | .0000 | .1362  | .1852  |
| feed     | -.0439 | .0125 | -3.5041 | .0005 | -.0685 | -.0194 |

```
Product terms key:
Int_1 : skillV x taskSig
Int_2 : skillV x taskId
```

### *Relationship 4- Autonomy*

The independent variable is Autonomy and the moderators we tested here are Feedback, Task identity, Job satisfaction, Skill Variety, and Task significance.

```

Model Summary
      R          R-sq        MSE         F       df1       df2        p
    .2396      .0574    1.8965   63.7156     7.0000  7322.0000    .0000

Model
      coeff        se         t        p      LLCI      ULCI
constant  4.4211    .2103   21.0217    .0000   4.0089   4.8334
auto      .0601    .0364    1.6498    .0990  -.0113   .1316
feed     -.1739    .0460   -3.7814    .0002  -.2640  -.0837
Int_1     .0268    .0091   2.9479    .0032  .0090   .0446
taskSig   -.0068    .0119   -.5707    .5682  -.0300   .0165
skillV    .1406    .0135   10.4421    .0000   .1142   .1670
jobSat   -.0438    .0136   -3.2097    .0013  -.0705  -.0170
taskId   -.0426    .0130   -3.2844    .0010  -.0680  -.0172

Product terms key:
  Int_1 : auto x feed

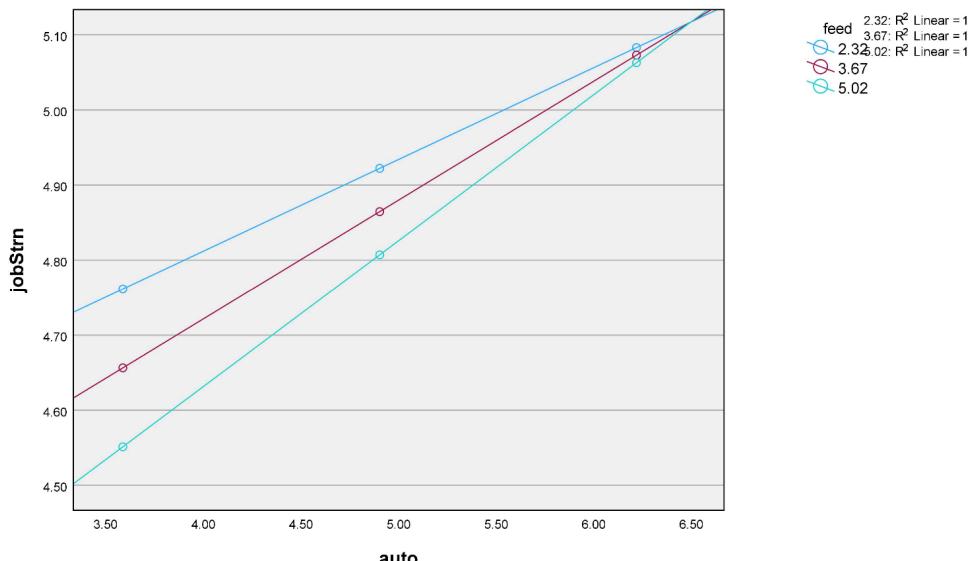
Test(s) of highest order unconditional interaction(s):
      R2-chng        F       df1       df2        p
X*W     .0011    8.6899    1.0000  7322.0000    .0032
-----
```

Conditional effects of the focal predictor at values of the moderator(s):

| feed   | Effect | se    | t       | p     | LLCI  | ULCI  |
|--------|--------|-------|---------|-------|-------|-------|
| 2.3199 | .1222  | .0181 | 6.7328  | .0000 | .0866 | .1578 |
| 3.6693 | .1583  | .0125 | 12.6469 | .0000 | .1338 | .1828 |
| 5.0187 | .1944  | .0169 | 11.5359 | .0000 | .1614 | .2275 |

----- END MATRIX -----

### Graph



The moderation analysis results suggest that feedback moderates the relationship between autonomy (independent variable) and job strain (dependent variable).

- Feedback's Moderation: The interaction between autonomy and feedback (Int\_1 coefficient = 0.0268, p = 0.0032) is significant, showing that the effect of autonomy on job strain varies depending on the level of feedback.

The conditional effects table shows that at different levels of feedback (both standard deviations below and above the mean), autonomy has a stronger positive effect on job strain when feedback is higher:

- At lower feedback levels (e.g., 2.3199), autonomy has a smaller effect on job strain (Effect = 0.1222, p = 0.0000).
- At higher feedback levels (e.g., 5.0187), autonomy's effect is stronger (Effect = 0.1944, p = 0.0000).

When feedback is higher (one standard deviation above the mean), autonomy leads to a greater increase in job strain compared to when feedback is lower (one standard deviation below the mean). This indicates that feedback amplifies the effect of autonomy on job strain—employees with higher autonomy experience more job strain when they also receive higher feedback.

```
Model : 1
Y   : jobStrn
X   : auto
W   : skillV
```

| Model    | coeff  | se    | t       | p     | LLCI   | ULCI   |
|----------|--------|-------|---------|-------|--------|--------|
| constant | 2.4736 | .2409 | 10.2676 | .0000 | 2.0013 | 2.9458 |
| auto     | .4402  | .0461 | 9.5472  | .0000 | .3499  | .5306  |
| skillV   | .4325  | .0470 | 9.2118  | .0000 | .3405  | .5246  |
| Int_1    | -.0590 | .0094 | -6.2501 | .0000 | -.0776 | -.0405 |
| taskId   | -.0476 | .0128 | -3.7145 | .0002 | -.0727 | -.0225 |
| feed     | -.0537 | .0120 | -4.4907 | .0000 | -.0772 | -.0303 |
| taskSig  | -.0180 | .0114 | -1.5852 | .1130 | -.0403 | .0043  |

Product terms key:

|       |   |      |   |        |
|-------|---|------|---|--------|
| Int_1 | : | auto | x | skillV |
|-------|---|------|---|--------|

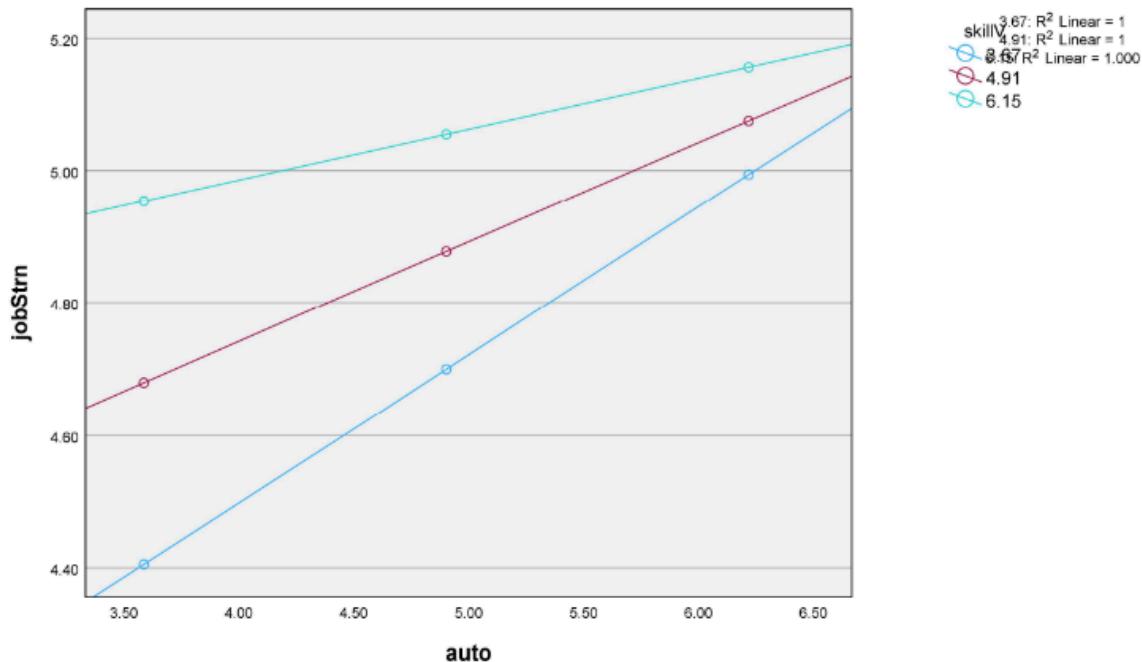
Conditional effects of the focal predictor at values of the moderator(s) :

| skillV | Effect | se    | t       | p     | LLCI  | ULCI  |
|--------|--------|-------|---------|-------|-------|-------|
| 3.6651 | .2238  | .0158 | 14.1388 | .0000 | .1928 | .2549 |
| 4.9076 | .1505  | .0126 | 11.9339 | .0000 | .1257 | .1752 |
| 6.1501 | .0771  | .0185 | 4.1637  | .0000 | .0408 | .1134 |

Moderator value(s) defining Johnson-Neyman significance region(s) :

| Value  | % below | % above |
|--------|---------|---------|
| 6.7036 | 92.1692 | 7.8308  |

### Graph



The moderation analysis results suggest that Skill Variety moderates the relationship between Autonomy (independent variable) and job strain (dependent variable).

- Skill Variety's Moderation: The interaction between skill variety and autonomy (Int\_1 coefficient = -0.0590, p = 0.000) is significant, showing that the effect of autonomy on job strain varies depending on the level of skill variety.

The Johnson-Neyman significance region shows us that Skill Variety values below 6.7 are significant moderators and values above that are not significant to the relationship, implying that the relationship between Autonomy and job strain is weakly impacted by skill variety as it increases above 6.7.

In the plot we notice a similar pattern, with the 1 standard deviation skill variety below the mean having the steepest slope hence exemplifying the positive correlation between autonomy and Job Strain.

```
Model : 2
Y : jobStrn
X : auto
W : skillV
Z : jobSat
```

| Model    |        |       |         |       |        |        |
|----------|--------|-------|---------|-------|--------|--------|
|          | coeff  | se    | t       | p     | LLCI   | ULCI   |
| constant | 2.2272 | .3288 | 6.7742  | .0000 | 1.5827 | 2.8717 |
| auto     | .5208  | .0651 | 8.0044  | .0000 | .3932  | .6483  |
| skillV   | .4411  | .0472 | 9.3358  | .0000 | .3485  | .5337  |
| Int_1    | -.0632 | .0095 | -6.6195 | .0000 | -.0819 | -.0445 |
| jobSat   | .0189  | .0453 | .4175   | .6763 | -.0699 | .1077  |
| Int_2    | -.0142 | .0090 | -1.5828 | .1135 | -.0319 | .0034  |
| taskId   | -.0405 | .0129 | -3.1312 | .0017 | -.0659 | -.0151 |
| feed     | -.0405 | .0125 | -3.2370 | .0012 | -.0650 | -.0160 |
| taskSig  | -.0050 | .0118 | -.4250  | .6709 | -.0283 | .0182  |

| Product terms key: |   |      |   |        |  |  |
|--------------------|---|------|---|--------|--|--|
| Int_1              | : | auto | x | skillV |  |  |
| Int_2              | : | auto | x | jobSat |  |  |

In the above analysis we use Model 2 moderation and recognize that Skill Variety while as discussed above is a significant moderator, Job Satisfaction is not a significant moderator to the relationship of Autonomy and Job Strain.

```

Model : 2
Y : jobStrn
X : auto
W : feed
Z : taskId

Covariates:
taskSig skillV jobSat

Sample
Size: 7330

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE       F      df1      df2      p
    .2397     .0574    1.8967   55.7753    8.0000  7321.0000    .0000

Model
      coeff      se       t      p      LLCI      ULCI
constant  4.5143   .2836  15.9176    .0000   3.9583   5.0702
auto      .0413   .0530   .7780    .4366  -.0627   .1452
feed     -.1733   .0460  -3.7666    .0002  -.2634  -.0831
Int_1     .0267   .0091   2.9357    .0033   .0089   .0445
taskId   -.0660   .0495  -1.3316    .1830  -.1631   .0311
Int_2     .0048   .0098   .4896    .6245  -.0144   .0240
taskSig  -.0068   .0119   -.5746    .5655  -.0301   .0164
skillV    .1405   .0135  10.4306    .0000   .1141   .1669
jobSat   -.0439   .0136  -3.2210    .0013  -.0707  -.0172

Product terms key:
  Int_1 :      auto  x      feed
  Int_2 :      auto  x      taskId

```

In the above analysis we use Model 2 moderation and recognize that Feedback while as discussed above is a significant moderator, Task identity is not a significant moderator to the relationship of Autonomy and Job Strain.

## *Relationship 5- Job Satisfaction*

The independent variable is Job Satisfaction and the moderators we tested here are Skill Variety, Autonomy, Task identity, and Task significance.

None of the studied moderators were significant to the relationship, moreover job satisfaction itself is not significant to job strain.

```
Model : 2
Y : jobStrn
X : jobSat
W : skillV
Z : auto

Covariates:
taskId feed taskSig

Sample
Size: 7330

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
.2374 .0564 1.8988 54.6652 8.0000 7321.0000 .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant 3.7470 .2832 13.2307 .0000 3.1918 4.3021
jobSat -.0049 .0582 -.0850 .9323 -.1190 .1091
skillV .1518 .0441 3.4417 .0006 .0653 .2383
Int_1 -.0024 .0096 -.2509 .8019 -.0211 .0163
auto .1864 .0424 4.3925 .0000 .1032 .2696
Int_2 -.0057 .0091 -.6289 .5294 -.0237 .0122
taskId -.0427 .0130 -3.2915 .0010 -.0681 -.0173
feed -.0435 .0125 -3.4693 .0005 -.0681 -.0189
taskSig -.0062 .0119 -.5210 .6024 -.0295 .0171

Product terms key:
  Int_1 : jobSat x skillV
  Int_2 : jobSat x auto
```

```
*****
Model : 1
Y : jobStrn
X : jobSat
W : taskSig

Covariates:
auto      skillV    taskId    feed

Sample
Size: 7330

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE       F      df1      df2      p
.2373     .0563    1.8987   62.4062    7.0000  7322.0000    .0000

Model
      coeff      se       t      p      LCI      ULCI
constant  3.8944  .1881  20.7010  .0000  3.5256  4.2632
jobSat    -.0376  .0352  -1.0676  .2857  -.1066  .0314
taskSig    .0008  .0386   .0197  .9843  -.0749  .0764
Int_1     -.0017  .0084  -.2008  .8409  -.0182  .0148
auto      .1611  .0125  12.8945  .0000  .1366  .1856
skillV    .1416  .0135  10.5117  .0000  .1152  .1680
taskId    -.0429  .0130  -3.3105  .0009  -.0683  -.0175
feed      -.0434  .0125  -3.4639  .0005  -.0680  -.0188

Product terms key:
Int_1 : jobSat x taskSig
```

```

Model : 2
Y : jobStrn
X : jobSat
W : taskId
Z : feed

Covariates:
taskSig auto skillV

Sample
Size: 7330

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      P
    .2374     .0564   1.8988   54.6569   8.0000  7321.0000   .0000

Model
      coeff      se      t      P      LLCI      ULCI
constant  3.9444   .2379  16.5828   .0000   3.4781   4.4107
jobSat   -.0503   .0499  -1.0082   .3134  -.1482   .0475
taskId   -.0278   .0431  -.6444   .5193  -.1124   .0568
Int_1    -.0034   .0095  -.3640   .7159  -.0220   .0151
feed     -.0667   .0396  -1.6867   .0917  -.1443   .0108
Int_2    .0054   .0087   .6181   .5365  -.0117   .0224
taskSig  -.0065   .0119  -.5482   .5835  -.0298   .0168
auto     .1613   .0125  12.9068   .0000   .1368   .1858
skillV   .1417   .0135  10.5180   .0000   .1153   .1682

Product terms key:
  Int_1 :       jobSat x      taskId
  Int_2 :       jobSat x      feed

```

## *Relationship 6- Task Significance*

The independent variable is Task Significance and the moderators we tested here are Skill Variety, Autonomy, Task identity, and Job Satisfaction.

None of the studied moderators were significant to the relationship, moreover task significance itself is not significant to job strain.

```
Model : 2
Y : jobStrn
X : taskSig
W : taskId
Z : jobSat

Covariates:
skillV    auto      feed

Sample
Size: 7330

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
.2376   .0565   1.8986  54.7667  8.0000  7321.0000  .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  4.0386  .2274  17.7591  .0000  3.5928  4.4844
taskSig   -.0356  .0502  -.7077  .4791  -.1340  .0629
taskId    -.0836  .0383  -2.1832  .0290  -.1586  -.0085
Int_1     .0104  .0092  1.1285  .2591  -.0077  .0285
jobSat    -.0336  .0354  -.9480  .3432  -.1030  .0358
Int_2     -.0028  .0085  -.3333  .7389  -.0195  .0138
skillV    .1415  .0135  10.5033  .0000  .1151  .1679
auto      .1609  .0125  12.8791  .0000  .1364  .1854
feed      -.0432  .0125  -3.4447  .0006  -.0678  -.0186

Product terms key:
Int_1 :      taskSig x      taskId
Int_2 :      taskSig x      jobSat
```

```

Model : 2
Y : jobStrn
X : taskSig
W : auto
Z : skillV

Covariates:
feed      taskId    jobSat

Sample
Size: 7330

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE      F      df1      df2      p
      .2382    .0567    1.8981   55.0288    8.0000  7321.0000    .0000

Model
      coeff      se      t      p      LLCI      ULCI
constant  3.5613    .2520   14.1350    .0000    3.0674    4.0552
taskSig   .0848    .0565   1.5018    .1332   -.0259    .1955
auto      .1744    .0365   4.7809    .0000    .1029    .2459
Int_1     -.0034    .0087   -.3937    .6938   -.0204    .0136
skillV    .2017    .0389   5.1875    .0000    .1255    .2779
Int_2     -.0153    .0093   -1.6492    .0992   -.0335    .0029
feed      -.0439    .0125   -3.5012    .0005   -.0685   -.0193
taskId   -.0428    .0130   -3.3056    .0010   -.0683   -.0174
jobSat   -.0433    .0136   -3.1698    .0015   -.0700   -.0165

Product terms key:
  Int_1 :      taskSig x      auto
  Int_2 :      taskSig x      skillV

```

```
*****
Model : 2
Y : jobStrn
X : taskSig
W : auto
Z : feed

Covariates:
taskID jobSat skillV

Sample
Size: 7330

*****
OUTCOME VARIABLE:
jobStrn

Model Summary
      R      R-sq      MSE       F      df1      df2      p
    .2374    .0564    1.8988   54.6755    8.0000  7321.0000    .0000

Model
      coeff      se       t      p      LLCI      ULCI
constant  3.7656  .2493  15.1064  .0000   3.2770  4.2543
taskSig   .0330  .0560  .5901  .5552  -.0767  .1427
auto      .1872  .0359  5.2116  .0000   .1168  .2576
Int_1     -.0066  .0085  -.7762  .4377  -.0234  .0101
feed      -.0358  .0358  -.9997  .3175  -.1059  .0344
Int_2     -.0020  .0085  -.2304  .8178  -.0187  .0148
taskId   -.0429  .0130  -3.3073  .0009  -.0683  -.0175
jobSat   -.0439  .0136  -3.2173  .0013  -.0706  -.0171
skillV    .1415  .0135  10.5032  .0000   .1151  .1679

Product terms key:
  Int_1 :      taskSig x      auto
  Int_2 :      taskSig x      feed
```

```
*****
Model : 2
Y : jobStrn
X : taskSig
W : skillV
Z : feed

Covariates:
taskId jobSat auto

Sample
Size: 7330

*****
OUTCOME VARIABLE:
jobStrn

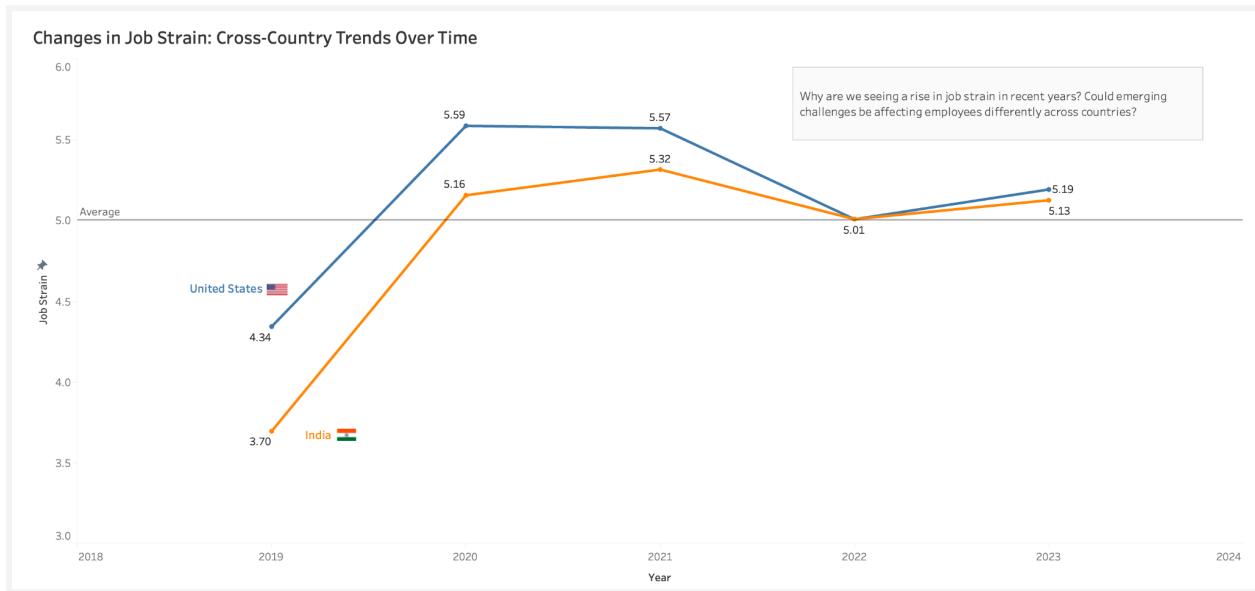
Model Summary
      R      R-sq       MSE        F      df1      df2      p
    .2381    .0567   1.8981   55.0171   8.0000  7321.0000   .0000

Model
      coeff       se        t        p      LLCI      ULCI
constant  3.5790   .2520   14.2032   .0000   3.0850   4.0730
taskSig   .0806   .0570   1.4142   .1573  -.0311   .1923
skillV    .2053   .0382   5.3785   .0000   .1305   .2801
Int_1     -.0162   .0091  -1.7837   .0745  -.0340   .0016
feed      -.0352   .0357  -.9880   .3232  -.1051   .0347
Int_2     -.0022   .0085  -.2592   .7955  -.0189   .0145
taskId   -.0429   .0130  -3.3129   .0009  -.0684  -.0175
jobSat   -.0433   .0136  -3.1764   .0015  -.0701  -.0166
auto     .1609   .0125  12.8836   .0000   .1364   .1854

Product terms key:
  Int_1 :      taskSig x      skillV
  Int_2 :      taskSig x      feed
```

## Appendix 4: Justification for choice of visuals

### Changes in Job Strain: Cross-Country Trends Over Time



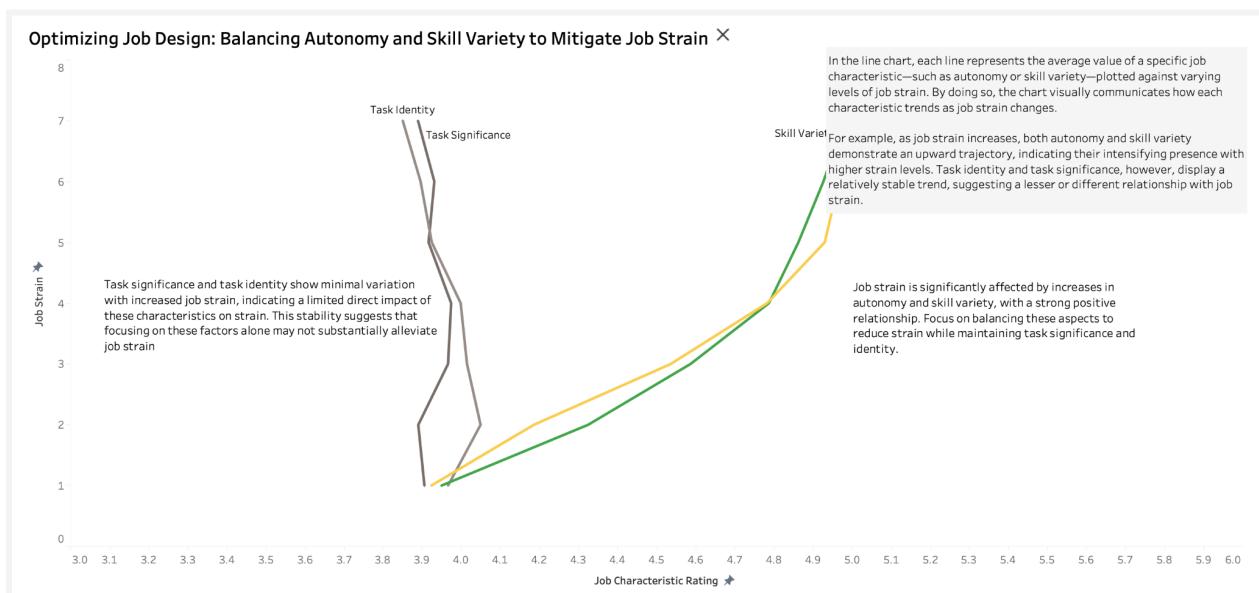
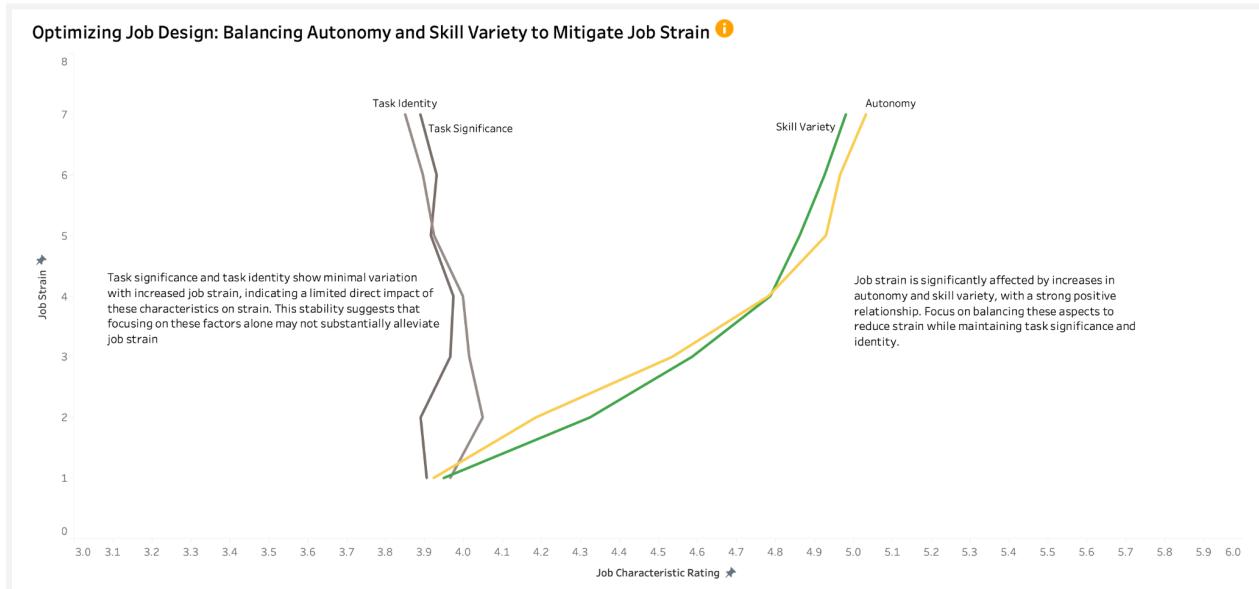
#### Justification:

- Reduce the Clutter: To maintain clarity, the chart eliminates unnecessary elements such as gridlines and excessive labels. This reduction in visual noise ensures that the focus remains on the data itself. The neutral background further simplifies the presentation, creating a clean and distraction-free space where the data lines stand out. By limiting the visualization to two key lines—one for each country—the chart avoids overcrowding and retains the audience's attention on the central trends.
- Develop the Message: The chart is designed to explore the changes in job strain trends across countries over time, with a focus on the United States and India. It addresses the key question: *What factors might be contributing to the rise or decline in job strain across these countries?* The target audience includes business leaders, HR professionals, and policymakers who are interested in addressing cross-country challenges in workforce well-being. By situating the data within a five-year timeline, the chart provides relevant context for strategic planning, employee engagement, and adapting policies to cultural nuances.
- Think Something Different: This chart leverages a layered messaging approach, combining a clear and descriptive title with insightful annotations and compelling data

trends. While the line chart is a traditional tool for illustrating time-series data, the use of color contrast, minimalist design, and focused annotations elevates its effectiveness. The integration of the message, evidence, and commentary provides a comprehensive narrative without overwhelming the audience. This creative approach ensures that the visual is not only informative but also engaging, encouraging reflection and discussion on the trends presented.

- **Enrich Visuals:** The chart enriches the visual experience by incorporating annotations that highlight critical moments in the data, such as the significant rise in job strain in 2020 and the convergence of trends in 2022. The use of distinct and professional colors—blue and orange—not only makes the trends easily distinguishable but also maintains a polished and professional tone. The smooth transitions between points in the line graph make year-to-year changes intuitive to understand. Additionally, directly labeling the lines with the respective countries eliminates the need for a separate legend, further enhancing readability.
- **Build Aesthetic Appeal:** The visualization effectively emphasizes key trends by using two distinct colors—blue for the United States and orange for India—allowing for easy comparison between the countries. Annotations are strategically placed to highlight significant changes, such as the rising strain in the U.S. or the convergence of trends in 2022. Clean preattentive attributes, such as consistent line styles and a minimalist color palette, ensure the chart is visually appealing and easy to interpret. Additionally, the spatial alignment along the horizontal axis reinforces the chronological flow of the data, guiding the viewer's attention naturally.

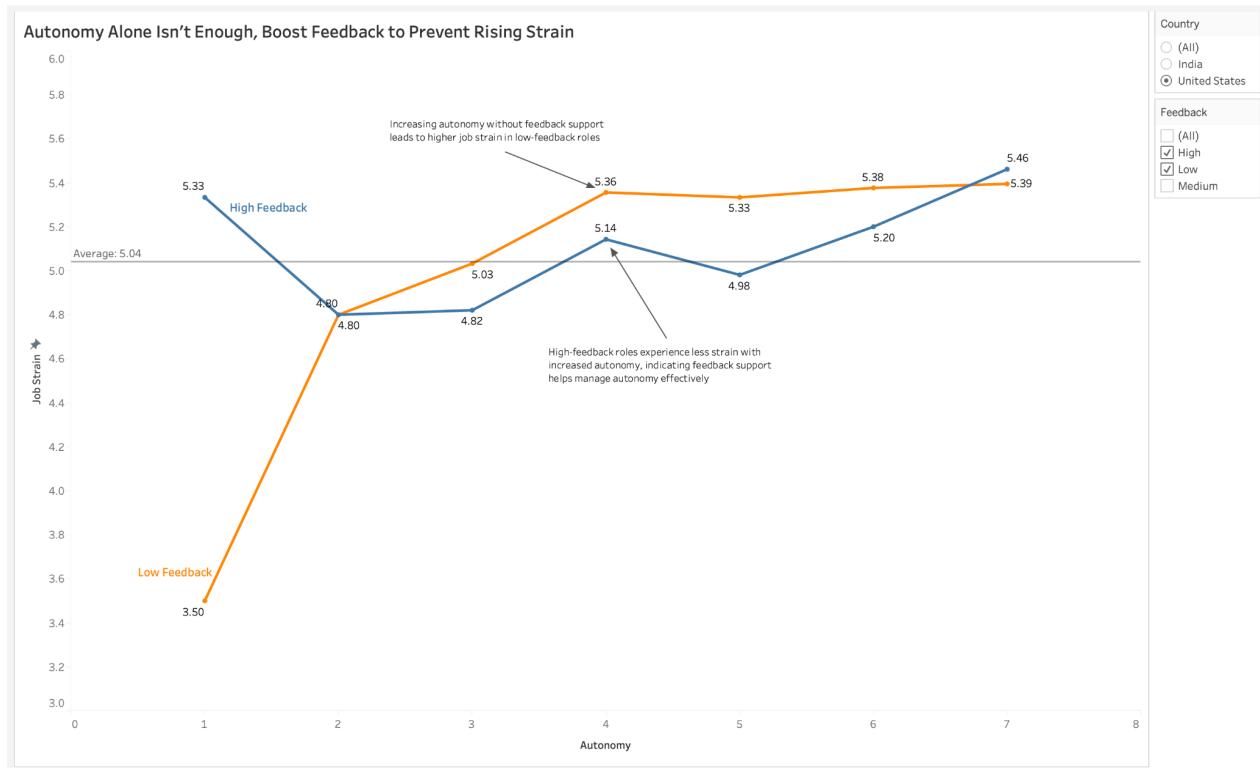
## Optimizing Job Design: Balancing Autonomy and Skill Variety to Mitigate Job Strain



**Justification:**

- **Reduce the Clutter:** This chart includes four lines, each representing a job characteristic. Gridlines are removed to keep the focus on these lines, reducing background distractions. The use of only essential labels and lines further declutters the visual. Instead of crowding the main visualization area with extra text or instructions, the icon provides viewers with additional details or context only if they choose to click on it. This keeps the primary data view clean and maintains focus on the main elements without unnecessary visual distraction.
- **Develop the Message:** The title and annotations clearly communicate the main message: autonomy and skill variety show a stronger relationship with job strain compared to task identity and task significance. The annotations positioned next to each line explain their respective trends, helping viewers immediately grasp the varying degrees of impact. This layered messaging ensures that the visual delivers both a broad overview and specific insights.
- **Think Something Different:** Rather than creating multiple separate charts, this design integrates all four job characteristics into one comparative visual. By doing so, it allows viewers to easily examine the relationships and trends between each characteristic and job strain side by side. This holistic view simplifies the analysis and enhances the chart's utility for understanding the interplay of multiple variables.
- **Enrich Visuals:** Each line is given a unique color to distinguish the job characteristics, with muted tones to maintain a professional appearance. Darker shades are used for autonomy and skill variety to emphasize their stronger correlation with job strain, ensuring these trends are visually prioritized. Annotations placed strategically along the lines further guide viewers in interpreting the data, enriching the overall narrative without adding unnecessary complexity.
- **Build Aesthetic Appeal:** The chart employs clean, distinct line colors with ample spacing between them, creating a balanced and harmonious layout. This open design fosters accessibility, ensuring the visual feels intuitive and easy to understand. The careful use of white space and minimalistic formatting enhances aesthetic appeal while preserving focus on the data. Together, these elements create an engaging and visually pleasing experience for viewers.

## Autonomy Alone Isn't Enough: Boost Feedback to Prevent Rising Strain

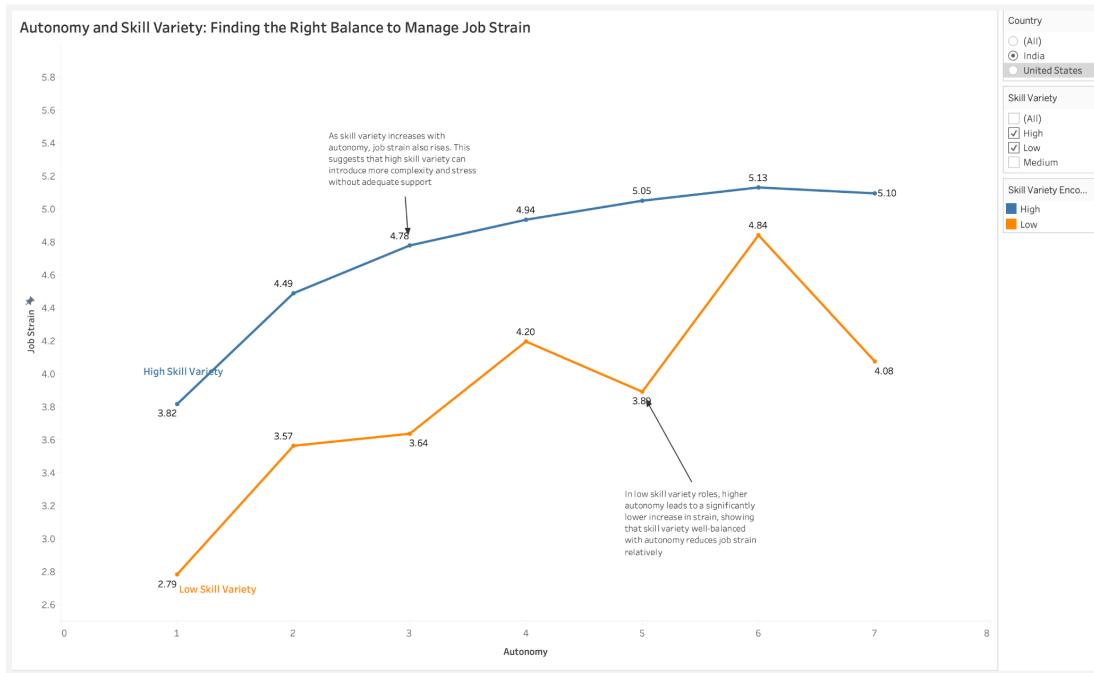


Justification:

- Reduce the Clutter: By showing only two lines (high feedback and low feedback), the chart remains focused and uncluttered. Gridlines are removed to emphasize the lines without any competing visual elements.
- Develop the Message: The title and annotations clarify the main takeaway: autonomy without feedback can increase job strain. Annotations next to the lines at key points reinforce this message by showing how job strain changes with different feedback levels.
- Think Something Different: Using a comparative line chart to display high vs. low feedback offers a unique way of visualizing the impact of feedback on job strain under different levels of autonomy.
- Enrich Visuals: Colors are chosen thoughtfully—blue for high feedback and orange for low feedback—to provide immediate visual differentiation. The contrasting colors help viewers quickly interpret the effect of feedback levels on job strain.

- Build Aesthetic Appeal: The chart's color scheme is simple yet impactful, and the lines have smooth, even spacing. The minimalist design, free of gridlines, offers a clean look that guides the viewer's attention naturally along each line.

## Autonomy and Skill Variety: Finding the Right Balance to Manage Job Strain

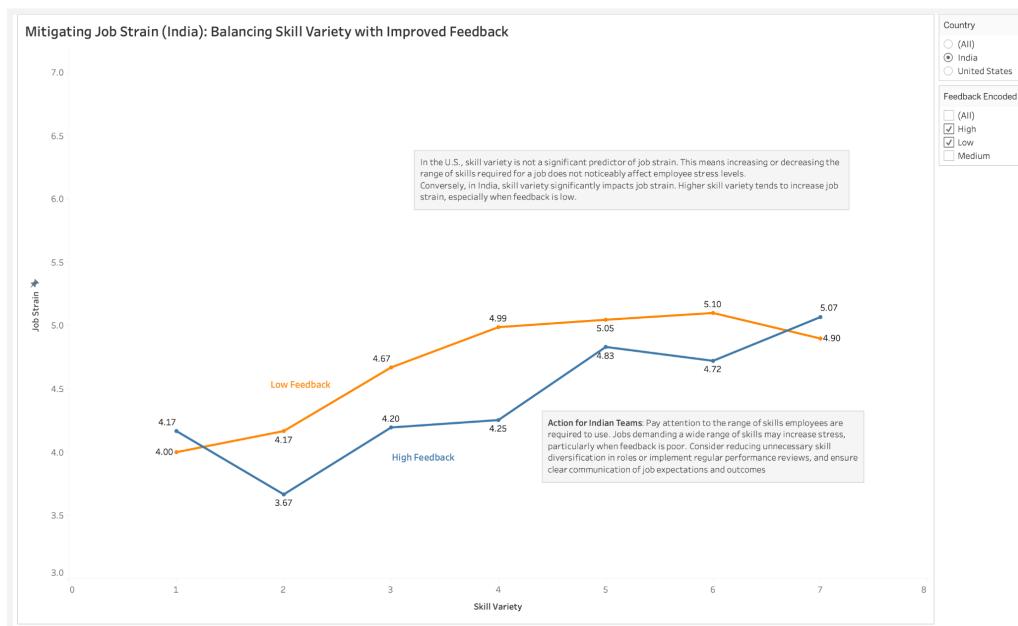


### Justification:

- Reduce the Clutter: By focusing on just two lines (high and low skill variety), the chart reduces unnecessary elements, with gridlines removed to keep attention on the data rather than the background.
- Develop the Message: The title and annotations emphasize the need for a balance between autonomy and skill variety to manage job strain, which aligns with the core message of the visual. Annotations guide viewers through the key insights, explaining the impact of skill variety on strain.
- Think Something Different: This dual-line approach enables direct comparison between high and low skill variety, offering a fresh perspective on managing job strain by showing the contrasting effects within one visual.

- Enrich Visuals: Colors are selected for clarity—blue for high skill variety and orange for low skill variety. The distinct colors make it easy to follow each line, and the annotations provide further clarity on how each skill variety level impacts job strain.
- Build Aesthetic Appeal: The chart's simplicity and spacious layout contribute to an elegant, organized look. The use of color and white space creates an appealing balance that guides the viewer's eye through the data.

## Mitigating Job Strain: Balancing Skill Variety with Improved Feedback



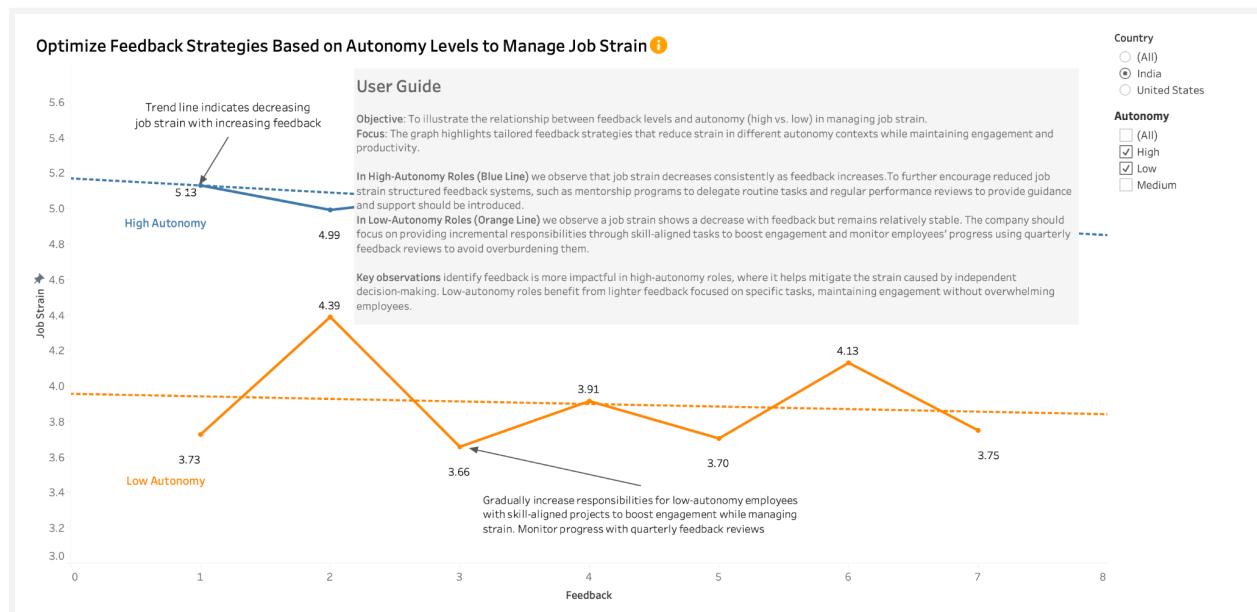
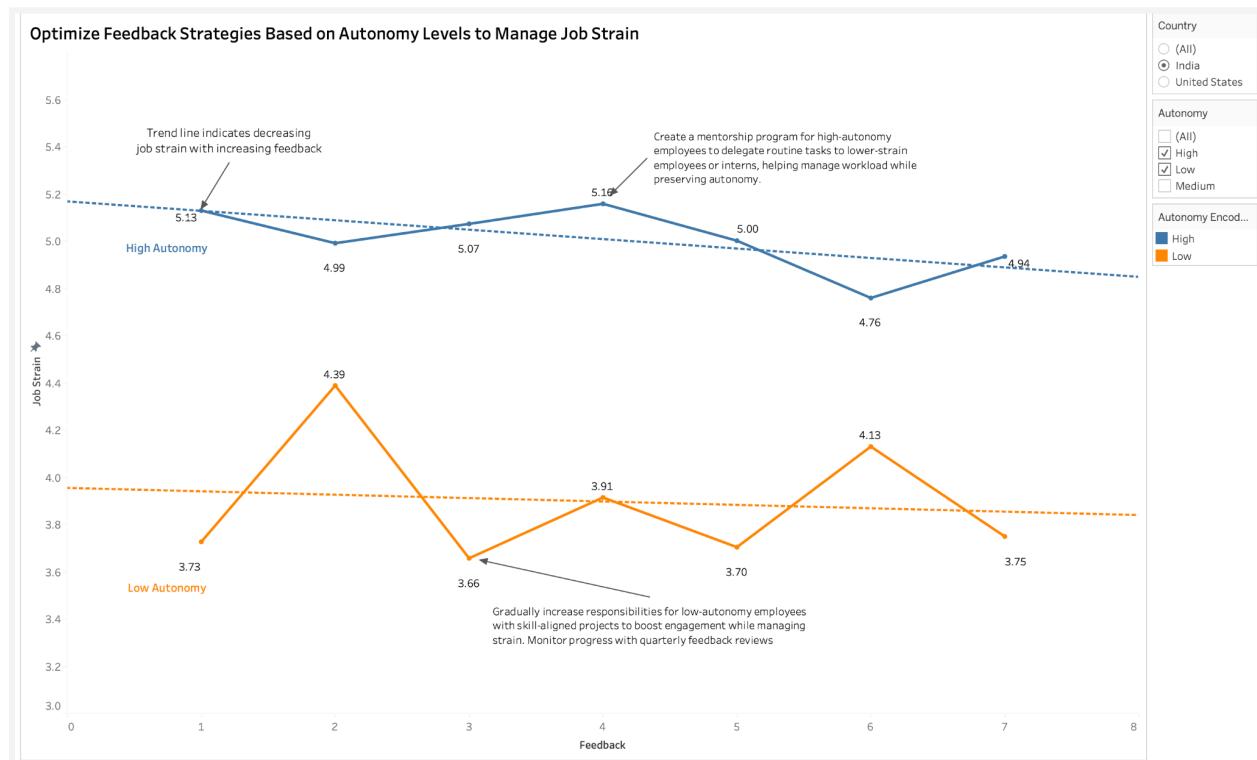
### Justification:

- Reduce the Clutter: The chart presents only two lines for high and low feedback levels, removing gridlines and any unnecessary elements, which keeps the focus on the interplay between skill variety and feedback without distractions.
- Develop the Message: The title and annotations communicate that the impact of skill variety on job strain varies by feedback level and culture. The annotations directly reinforce this message by pointing out differences in the U.S. and India, providing cultural context.
- Think Something Different: Segmenting the visual by cultural impact offers a unique approach to displaying how skill variety affects job strain, helping viewers understand the nuanced impact across regions. Additionally, dynamic titles have been added,

enabling easy identification of key trends or specific regions, providing a tailored experience for different countries or contexts while maintaining a cohesive narrative.

- Enrich Visuals: The use of contrasting colors (blue for high feedback and orange for low feedback) makes it easy to distinguish between the two lines. Cultural notes in the annotations add depth, providing context for why the trends differ across countries.
- Build Aesthetic Appeal: The clean layout, color balance, and strategic annotations enhance the visual appeal. The color contrast adds clarity while maintaining a professional, polished look.

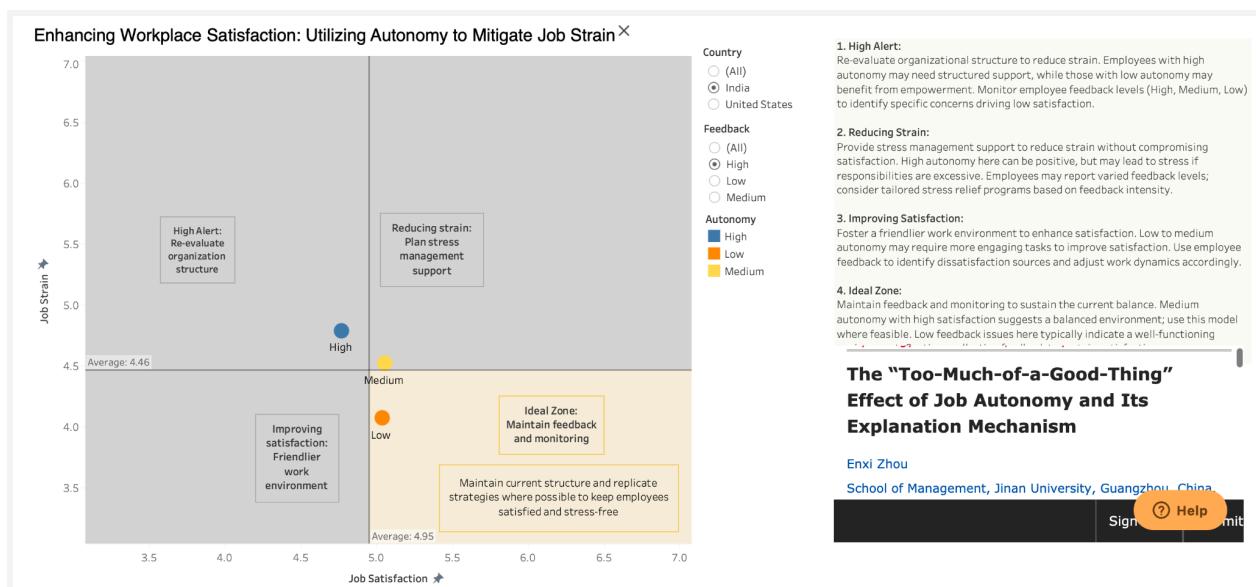
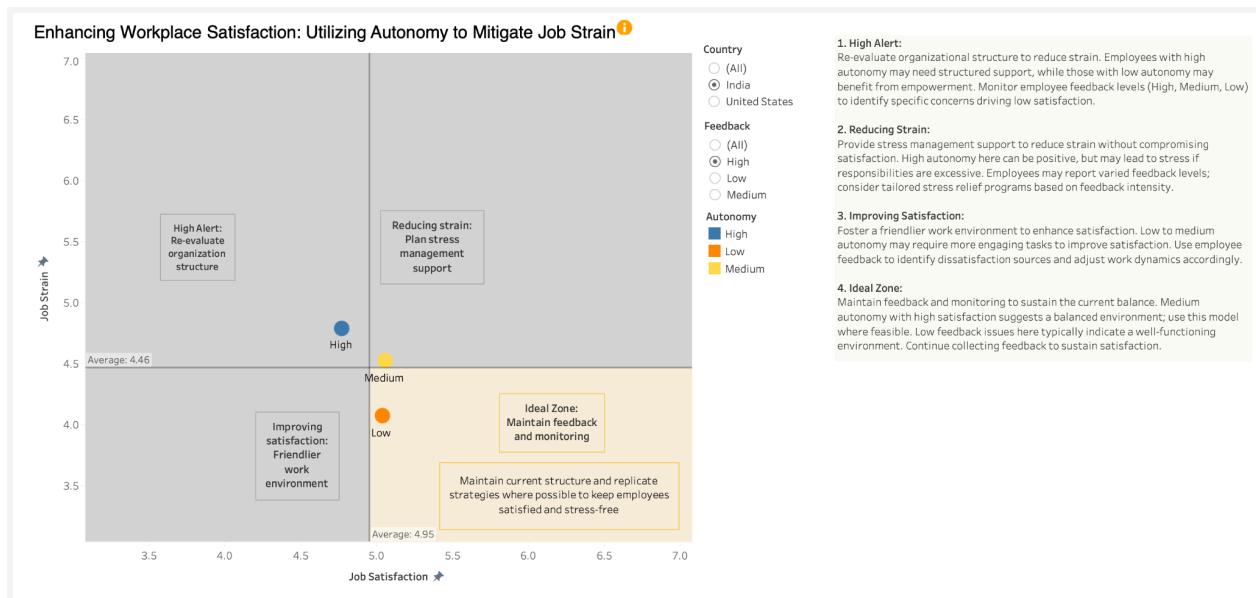
## Optimize Feedback Strategies Based on Autonomy Levels to Manage Job Strain



**Justification:**

- Reduce the Clutter: This visual focuses on only two lines (high and low autonomy) with no gridlines, simplifying the background and keeping attention solely on the relationship between feedback levels and job strain.
- Develop the Message: The title and annotations communicate the need for tailored feedback strategies based on autonomy levels. The annotations guide viewers to understand specific recommendations for each autonomy level, reinforcing the visual's message.
- Think Something Different: By showing how feedback affects job strain differently for high and low autonomy, the chart offers a new perspective, allowing viewers to directly compare the impact of feedback across autonomy levels.
- Enrich Visuals: Colors are carefully selected—blue for high autonomy and orange for low autonomy—to quickly distinguish between the lines. The annotations provide actionable insights, helping viewers understand how to manage strain for each autonomy level.
- Build Aesthetic Appeal: The use of smooth lines, open space, and contrasting colors creates an attractive, balanced visual. The uncluttered design and annotations make it both informative and visually engaging.

# Enhancing Workplace Satisfaction: Utilizing Autonomy to Mitigate Job Strain



**Justification:**

- **Reduce the Clutter:** The quadrant design is organized and clean, with only essential labels and annotations, allowing each zone to stand out clearly without additional clutter or gridlines. Instead of crowding the main visualization area with extra text or instructions, the icon provides viewers with additional details or context only if they choose to click on it. This keeps the primary data view clean and maintains focus on the main elements without unnecessary visual distraction.
- **Develop the Message:** The title and quadrant labels help communicate the message that different levels of autonomy and job satisfaction require specific strategies to manage job strain, making the “Ideal Zone” clear for viewers.
- **Think Something Different:** Using quadrants to represent job satisfaction and strain is a unique way to simplify a complex relationship, helping viewers understand how various levels of autonomy impact job strain.
- **Enrich Visuals:** Each quadrant includes a brief label describing the recommended strategy, adding valuable insights without overwhelming the viewer. Colors distinguish different zones (high, medium, low autonomy) to clarify each area’s focus.
- **Build Aesthetic Appeal:** The quadrant structure, clean layout, and soft colors create a visually appealing, organized presentation. The strategic use of color and labels provides a polished look that is both informative and easy to navigate.