

## THE SILENT DISENGAGEMENT: A QUANTITATIVE ANALYSIS OF LEADERSHIP, RECOGNITION, AND WORKLOAD AS PREDICTORS OF QUIET QUITTING AMONG KNOWLEDGE WORKERS

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### Abstract

*This quantitative study analyses the degree to which organisational variables such as leadership style, recognition system, and workload are predictors of quiet-quitting behaviours among knowledge workers. Quiet quitting as a concept where employees work within the narrow parameters of their official job descriptions and avoid any kind of discretionary work, is seen as a huge problem to organisations that rely on innovation and initiative as a vital part of knowledge work. In this effort to solve this issue, this study relies on the information gathered after the online survey of 440 knowledge workers working in a wide range of industries. Several important constructs were evaluated with the use of the survey tool: perceived leadership style (transformational vs. transactional style), the frequency and fairness of the recognition received, the degree of workload, and the self-reported quiet-quitting behaviour.*

*The analytical models included hierarchical multiple regression to determine the predictive power of each variable relative to predictive power of the other variables, structural equation modelling (SEM) to test the overall theoretical model, moderated mediation analysis to test the complex relations, and confirmatory factor analysis to test the measurement structure.*

*The findings show that transformational leadership, which is characterised with inspiration and motivation of the employees, is significantly correlated with reduced quiet quitting ( $b = -0.35, p = .001$ ). By analogy, frequent and perceived to be fair recognition systems are also related to less disengagement ( $b = -0.40, p = 0.001$ ). In contrast, workload intensity is associated with larger quiet-quitting behaviours ( $b = 0.45, p = .001$ ), which demonstrates the negative impact of high demands on staff engagement.*

*Further comparison shows that recognition is one of the mediating factors of the leadership style-quiet quitting relationship. That is, the transformational leadership style is not only directly connected to lowering disengagement but also indirectly in terms of creating the culture of fair recognition. Further, workload also modulates the effects of recognition and recognition has a lesser protective effect on disengagement among workers in circumstances with high workloads; this indicates that even highly recognised workers would silently disengage amidst heavy pressure.*

*SEM model demonstrated good fit data ( $CFI = .956, RMSEA = .042$ ), which is why there is much support of the theoretical framework, and the results are applicable. Collectively, these findings are strong empirical indicators that leadership style, recognitions practises, and workload management form vital organisational drivers towards increasing employee engagement and reducing the threat of quiet quitting among knowledge workers.*

*The significance of this study is quite high: organisations that want to deal with quiet quitting should focus on developing transformational leaders, making the recognition system fair and frequent, and workloads manageable. In this way, they will be able to develop a more inspired, creative, and strong workforce that will be better prepared to survive in the modern knowledge economy.*

**Keywords:** Knowledge workers, Quiet quitting, Leadership, Recognition, Workload, Employee engagement, Quantitative analysis.



## 1. Introduction

Quiet quitting has become a major organisational phenomenon that has been experienced in the contemporary workplace. Defined by a situation when workers restrict their labour activity to the official job descriptions and do not make any additional contributions, quiet quitting is a type of passive disengagement that puts the organisational innovativeness and productivity at risk (Klotz, 2022). Recent Gallup estimates (2023) suggest that this category applies to around 59 per cent of the global labour force, and the numbers are significantly greater among knowledge workers, i.e. those whose main capital is specialised knowledge, i.e. analysts, software developers, consultants, and marketers.

In comparison to the conventional turnover, quiet quitting is an explicit yet widespread risk to organisational performance. This type of withdrawal is especially prone to knowledge employees, whose job description predisposes them to creativity, problem-solving, and initiative, because their tasks rely greatly on discretionary effort (Drucker, 1999). These effects on organisations are complex, such as loss of innovation ability, loss of knowledge sharing, and massive losses of hidden productivity which often remain invisible in traditional performance measurement. Such effects may compromise the competitiveness of an organisation in rapidly evolving and knowledge intensive markets as the quietly growing disengagement of employees destroys the intellectual capital and team spirit of an organisation that are required to achieve success.

In addition, such a phenomenon as quiet quitting presents its own challenges to organisational leaders and human resource professionals. The fact that employees who have disengaged silently may perform the minimum impairments of their job makes the fact that they do not exercise discretionary effort and emotional investment in their job hard to identify in the normal appraisal processes (Dutta et al., 2024). This indirect withdrawal can be ignored until it becomes systemic, and the team morale, team cohesion and the overall organisational climate can start to decline gradually (Asif et al., 2025). These repercussions may be experienced in the long run in form of high turnover, high costs of recruitment and tarnished reputation since disengaged employees might affect the perception and behaviour of their fellow employees.

Although quiet quitting has been widely discussed by popular poster on anecdotal and qualitative terms, there is still a serious lack of empirical quantitative studies on the organisational determinants of quiet quitting. Poor leadership, inadequate recognition, and excessive workloads are among the drivers suggested in the current sources, yet the relationships have not been rigorously examined using quantitative methods (Harter, 2022; Jo et al., 2025). Moreover, the interplay of these factors and their overall contribution to the level of engagement of the knowledge workers is not fully explored. This is because such dynamics should be understood in order to come up with specific interventions that would deal with the underlying problems that cause disengagement and not only with the symptoms.

The paper fills this gap by offering empirical evidence on the organisational aspects, which forecast quiet quitting among knowledge workers. Through the application of the structured survey research methodology and sophisticated statistical tests, the study aims to transcend the anecdotal inferences to present solid evidence on how leadership style, recognition practises and workload can interact to affect the employee engagement. The results should be used in the academic comprehension as well as in the practical management techniques that may be used in efforts to promote a more inspired, creative, and robust workforce.



Finally, the study will help to enter a more sophisticated and evidence-based path to addressing the problem of quiet quitting in the modern knowledge economy.

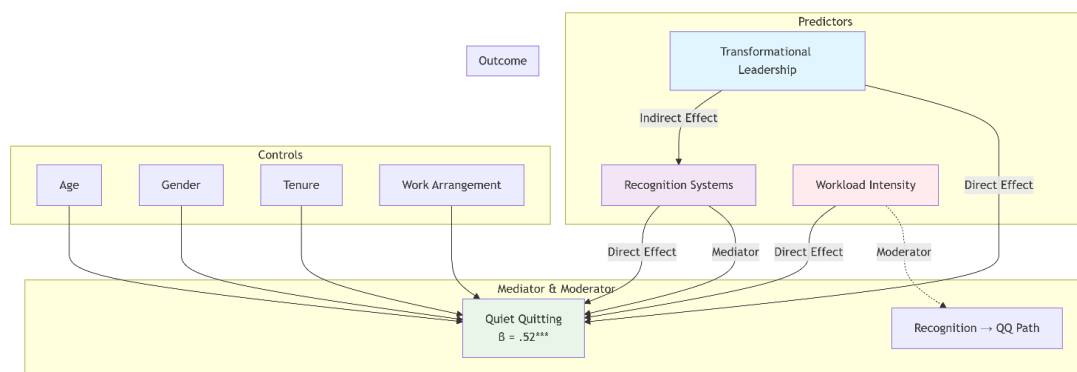
### Research Objectives:

This research is aimed at measuring the correlations between leadership style (transformational and transactional), recognition (frequency and fairness), workload intensity, and quiet-quitting behaviours. Also, it discusses the relationship between these variables, i.e., the hypothesis on whether recognition mediates the relationship between leadership and quiet quitting, and the role of workload in whether recognition and quiet quitting are connected. And lastly, the research is expected to give evidence-based suggestions to organisational leaders and other HR professionals interested in curbing quiet quitting among knowledge workers.

1. To quantify the relationships between leadership style (transformational vs. transactional), recognition systems (frequency and fairness), workload intensity, and quiet quitting behaviours.
2. To test how these factors interact, specifically examining whether recognition mediates the relationship between leadership and quiet quitting, and whether workload moderates the relationship between recognition and quiet quitting.
3. To provide evidence-based recommendations for organizational leaders and HR professionals seeking to mitigate quiet quitting among knowledge workers.

The paper is organised in the following way: Section 2 is the review of the relevant literature and creation of the hypotheses; Section 3 is the description of the methodology using improved statistical techniques; Section 4 contains the detailed discussion of the results, such as the SEM and advanced analysis of the results; Section 5 discusses the results, implications, and limitations; and Section 6 provides the practical recommendations.

**Figure 1: Conceptual Research Model**



## 2. Literature Review & Hypotheses Development

### 2.1 Theoretical Foundations: An Integrated Framework

The concept of quiet quitting in the context of knowledge workers may be well explained within the framework of the integration of Psychological Contract Theory, the Job Demands-Resources (JD-R) Model, and Equity Theory. The three views mentioned above offer different lenses through which one may address the psychological processes that are behind the quiet-quitting behaviours.

#### 2.1.1 The foundation of psychological contract theory.

Psychological Contract Theory (Rousseau, 1995) is a theory of employment relations that acknowledges, that the employment relations are not only governed through the concluded



contracts between employees and organisations but also unwritten and mutual expectations between the employees and the organisations. The psychological contract in cases of knowledge workers may involve implicit commitments of challenging work, career growth, and adequate recompense in favour of discretionary work, creativity, and intellectual involvement. Where organisations do not meet perceived commitments, like supporting (transformational) leadership, fair rewarding of extra contributions or workloads that employees can easily handle, they may transition to quiet quitting in a sort of contract renegotiation. This is a behavioural change or a strategic adaptation of inputs to perceived organisational outputs which is in effect a calibration of the employment exchange to re-establish the psychological equilibrium.

### **2.1.2 JD R Model: The Energy Exchange Mechanism.**

The mechanism by which the consequences of psychological contract violations end up as behavioural results is explained in the JD -R Model (Bakker & Demerouti, 2017). This model states that job demands (e.g., excessive workload, time pressure, and emotional labour) deplete the energy resources of employees, whereas job resources (e.g. supportive leadership, recognition systems and autonomy) aid the achievement of goals and promote engagement. In this concept the transformational leadership and equitable recognition are also vital job resources that cushion the adverse impact of job demands. Knowledge workers face a loss of resources as a result of overload which is experienced when high workloads and low calibre leadership as well as lack of proper recognition happens; this creates a situation where they conserve the little energy that has been left by withdrawing discretionary effort (Asif et al., 2025; Nimmi et al., 2024). Quiet quitting is therefore seen as an attempt to cope with the situation when more energy is needed to make above-and-beyond contributions and the returns on the investment are not seen.

### **2.1.3 Equity Theory: The Fairness Calculus.**

The theoretical integration is complete and the rationale of the cognitive calculus of quiet quitting is explained through Equity Theory (Adams, 1965). Knowledge workers keep comparing the proportion between their input (effort, time, dedication, innovation) and outputs (recognition, compensation, career progression, meaningful work). They are psychologically distressed when they feel inequity especially under-reward inequity where the outputs are not commensurate to input. Quiet quitting is a behavioural change in response to perceived inequity through a reduction in inputs to achieve a perceived equivalence between inputs and perceived outputs (Papadopoulou & Vouzas, 2025). This process of restoring equity is particularly relevant to the case of knowledge workers whose work is often immaterial and immeasurable, which makes them very sensitive to the perceived imbalance in the relationship of exchange.

### **2.1.4 Theoretical Integration: The Quiet-Quitting Nexus.**

The combination of the three theories produces a great explanatory model: Psychological Contract Theory defines the expectation framework, JD -R Model introduces the energy-exchange mechanism, and the Equity Theory explains the fairness calculus that initiates behavioural changes. Together they imply that quiet quitting happens when: The breach of the psychological contracts results in the expectation reality gaps (PCT). Chronic overload of job demands leads to exhaustion of energy resources (JD -R). One of them is the perceived inequity in the rate of input-output, which initiates distress (Equity Theory). Behavioural withdrawal (quiet quitting) is a behaviour strategy that is created as a form of restoration (Armstrong & Pfandler, 2024; Asif & Asghar, 2025; Talukder & Prieto, 2025).



### **2.1.5 Lens Additional Theoretical: Self-Determination Theory.**

In a further effort to deepen the knowledge-worker motivation, the Self-Determination Theory (Deci and Ryan, 2000) is included, which identifies three inborn psychological needs that are needed to perform at the best functionality and health:

- Autonomy: the desire to experience volitionally and helpfulness of one of the actions.
- Competence: the desire to be efficient and successful in the surrounding world.
- Relatedness: the interest to feel connected and taken care of by other people.

These needs are especially critical to knowledge workers. Transformational leadership also meets the needs of autonomy by empowering and engaging the intellect and recognition by providing validation of expertise and contributions, which meet competence needs. Relational needs are taken care of by the relational aspects of leadership and recognition. A lack of fulfilment of these needs, through micromanagement (autonomy suppression), absence of recognition (competence denial), or ineffective leadership (relatedness deficit), results in the amotivation of knowledge workers, which is reflected in quiet quitting. SDT therefore offers a motivational backbone as to why organisational factors which are being explored are especially relevant to knowledge workers.

### **2.2 Knowledge Workers: The definition and the unique features.**

#### **2.2.1 Conceptual Definition**

Based on the works of Peter Drucker (1999) and OECD (2020) typologies, we consider knowledge workers to be those whose core capital is specialised knowledge, analytical skills and creative problem solving. In particular, knowledge workers are defined by:

- Work activities that are mostly primary and are related to creating, distributing or using knowledge.
- Cognitive labour that involves abstract reasoning, solving of complex problems and innovation.
- Intangible, non-routine and hard to measure outputs.
- The processes at work that require high degree of discretion, autonomy and learning.

#### **2.2.2 Operational Conditions of this Research.**

In this study, the operationalisation of knowledge workers is as follows based on Drucker (1999) and the OECD Knowledge -intensive activities framework:

- Educational condition: Bachelor's degree in a related area.
- Work content: Not less than 60 per cent work time on analysis, design, research or development.
- Autonomy of decision-making: Large amount of discretion concerning work performed.
- Innovation element: Systematic need to come up with new solutions or innovations.
- Knowledge application: It is mostly based on specialised knowledge instead of procedures.

These are used to make sure that the sample contains professionals where discretionary effort is an anticipated and required aspect of the performance, making them especially pertinent to the study of the quiet quitting phenomena.

#### **2.2.3 Unique Susceptibilities of Quiet Quitting.**

The peculiarities of knowledge workers precondition their vulnerability to quiet quitting:



- Nature of contributions discretionary: Knowledge work is not like routine because it involves voluntary cognitive activities, which cannot be imposed.
- Intangible outputs: The impossibility of measuring knowledge work brings in uncertainties in performance measurement, becoming more sensitive to lack of recognition.
- Autonomy dependence: With a strong need self-direction, people tend to be very sensitive to the leadership styles.
- Intrinsic motivation orientation: High intrinsic motivation orientation increases their sensitivity to autonomy, competence and relatedness facilitating and hindering factors.
- Boundaryless work: more fluid work structures are causing work-life boundaries to become increasingly permeable and are making work difficult.

### **2.3 Hypothesis Development: Theoretical Integration.**

#### **2.3.1 Leadership Style and Quiet Quitting.**

Transformational leadership, which is typified by inspirational motivation, intellectual stimulation, individualised consideration and idealised influence (Bass and Avolio, 1994) serves a variety of theoretical needs simultaneously:

- According to the Self-Determination Theory approach: Values autonomy (by way of empowerment), competence (by way of intellectual challenge), and relatedness (by way of an individualised care).
- According to Job Demands Resources perspective: is a critical job resource capable of buffering job demands.
- According to the Psychological Contract Theory approach: Meets unspoken requirements of supportive advice and investment in development.
- According to the Equity point of view: Increases the perceived worth of organisational products hence input-output ratios are enhanced.

**H1:** The relationship between transformational leadership and quiet quitting behaviours in knowledge workers will be negatively predicted by enhanced psychological need satisfaction (SDT), increased job resources (JD -R), strengthened psychological contract fulfilment (PCT), and enhanced equity perceptions.

#### **2.3.2 The Recognition Systems and Quiet Quitting.**

This is because fair and frequent recognition systems work in a number of theoretical ways:

- SDT mechanism: Authenticates competence needs and supports relatedness by use of social recognition.
- JD -R mechanism: It is a replenishable job resource that alleviates depletion of resources.
- PCT mechanism: Gives a silent deal of fair trade to discretionary contributions.
- Equity mechanism: Address the issue of input output balance directly, recognising the investments of efforts.

**H2:** Recognition frequency and fairness will negatively predict quiet quitting behaviours amongst knowledge workers and the mediating variables will be competence satisfaction (SDT), resource augmentation (JD-R), contract fulfilment (PCT) and equity restoration.

#### **2.3.3 Workload and Quiet Quitting**

Overworking is a complex menace on theory levels:

- SDT implication: Overloading competence and autonomy by making demands uncontrollable.



- JD-R dynamics: This is one of the primary demands of the job that consumes finite energy resources.
- PCT violation: Violation of sustainability of working practises implicitly.
- Equity disruption: Entails input-output mismatches in instances where too much effort is not rewarded.

**H3:** The high workload intensity will predict positively the quiet quitting behaviours among knowledge workers, especially when combined with low recognition (worsening the equity issue) and bad leadership (depleting the buffering resources).

#### **2.3.4 Theoretical Integration: Mediation and Moderation.**

The combined conceptual framework implies complicated connexions between the constructs.

**H4:** Transformational leadership increases recognition experiences, which in turn leads to the reduction of quiet quitting. Such mediation takes place due to the following reasons:

- Transformational leaders make recognition-laden environments (behavioural mechanism).
- Greater recognition empowers the fulfilment of psychological contract (PCT mechanism).
- There is greater level of awareness which offers more job resources (JD -R mechanism).
- Equity perceptions are enhanced by fair recognition (Equity mechanism).
- Recognition fulfils competence and relatedness needs (SDT mechanism).

**H4:** If recognition mediates the linkage between transformational leadership and quiet quitting, the mediation is performed in a variety of theoretical channels such as psychological contract fulfilment, boosting of job-related resources, increasing equity, and satisfying needs.

**Moderation by Workload (H5):** The intensity of workload moderates the recognition -quiet quitting relationship since:

- Equity issues are magnified due to high workload where there is low recognition (Equity Theory amplification).
- Overdemands drain resources faster making recognition more important to replenishment (JD-R interaction).
- Unsustainable workloads do worse in terms of breaching psychological contracts when they are combined with recognition deficits (PCT compounding).
- Overwhelm lowers competence and autonomy, which increases the significance of recognition in need satisfaction (SDT contingency).

**H5:** There is a moderating effect of workload on recognition and quiet quitting in that the negative effect of low recognition on quiet quitting is greater when workload is high due to increased equity concern, increased resource wastage, increased contract breach, and increased need thwarting.

In this paper, additional integrated hypotheses are elaborated on in the following sections:

**H6:** Structural equation model with integrated theoretical framework (leadership → recognition → quiet quitting including workload moderation) will provide a better fit than models derived using single theory, which will prove the usefulness of theoretical integration.

**H7:** Psychological need satisfaction (SDT) will help explain the relationship between transformational leadership and quiet quitting partially where autonomy and competence satisfaction will be the other mediators in addition to recognition.



**H8:** The difference in strength of relationships between the industries will indicate different levels of focus on various theoretical mechanisms (e.g. technology sectors focus on competence needs/SDT, and service sectors focus on relatedness needs).

**H9:** The integrated three-predictor model will account for much more of the variance in quiet quitting than the models based on only one theoretical perspective, and this will show the power of theoretical integration to explain.

#### **2.4 Summary Theoretical Contributions.**

The integrated theoretical framework contributes to a number of important contributions:

**Multilevel Explanation:** The framework combines individual-level psychological processes, i.e. Self-Determination Theory and Equity Theory, with organisational-level exchange processes as contained in the Principled Change Theory, and work design antecedents contained in the Job Demands Resources model.

**Mechanistic Clarity:** The model outlines the manner in which organizational factors influence quiet quitting through various simultaneous channels.

**Contextual Sensitivity:** The framework takes into consideration the unique features and weaknesses of knowledge workers.

**Practical Utility:** The framework provides a number of actionable intervention points towards the reduction of quiet quitting.

**Theoretical Development:** The scheme explains the manner in which the existing theories can be internally reconciled to elucidate new phenomena in the workplace.

By studying quiet quitting through the prism of this combined theoretical perspective, the given work is able to surpass the correlational studies and build up a set of subtle insights into the psychology and organisational processes underlying this consequential phenomenon in the workplace.

### **3. Methodology**

#### **3.1 Research Design**

The current study utilised a cross-sectional survey design in order to collect quantitative information about knowledge workers working in different industries. In some cases, cross-sectional designs are especially appropriate to clarify the relationships between variables at a single point in time, when it is necessary to determine predictive relationships in the emergent research areas (Spector, 2019).

#### **3.2 Participants and Sampling Procedure**

##### **3.2.1 Sampling Framework and Strategy**

The research used mixed-mode sampling approach involving purposive, stratified and snowball sampling approaches to ensure that the sample across the demographic and industrial spectrum of knowledge workers was achieved. This plan was designed to create a balance between theoretical relevance, which consists of focusing on knowledge workers as operationalized in Section 2.2, and practical feasibility.

##### **Primary Sampling Techniques:**

The initial sample was recruited using a purposive strategy, and it included individuals that met strict criteria regarding knowledge-based occupational jobs such as full-time employment, a bachelor degree or higher, and working in a job that at least 60 per cent involved analysis, design, or development as well as having considerable decision-making autonomy. The further stratified sampling provided the proportional representation of the industry sectors, including technology, professional services, finance, healthcare and ancillary. Stratification also covered differences in work arrangements (completely remote, hybrid, or onsite) and ensured



geographic coverage of big metropolitan centres all over Pakistan. Lastly, snowball sampling was also utilised in which the first participants were asked to suggest their peers who fit the inclusion criteria and hence increase the size of the participant pool without making it irrelevant to the study objectives.

### 3.2.2 Recruitment Channels

The participants were also recruited using various methods to make the sample diverse:

#### Primary Channels:

Multiple main sources were used in the recruitment process to increase sample diversity and representativeness. The strategy utilised professional networking sites, especially LinkedIn professional groups that focus on knowledge- work areas and helped add 220 participants (50 percent of the final sample). Associations of the industry that served as partners in the technology, finance, and professional services field helped to access 120 respondents (27 percent of the sample). Another 80 participants (18 percent of the sample) were the online research panels of the pre-screened knowledge workers. Lastly, graduate networks of business and technology programme graduates gave 20 participants (5 percent of the sample).

#### Procedures of Screening and validation

Every possible participant answered a five-item screening questionnaire which was developed to ensure and confirm the eligibility and fit with the target population of the study. The screening allowed ensuring the following criteria systematically, first, full-time employment status, which was operationalised as at least 35 hours per week, second, meeting the criteria of a knowledge worker according to Drucker and OECD criteria to align the participants with the theoretical framework, third, a minimum of six months of continuous employment at the current position, and fourth, express permission to participate in academic research, thus establishing compliance in terms of ethical considerations and voluntary participation at the very beginning.

### 3.2.3 Response Rate Calculations

The study achieved comprehensive response tracking with the following metrics:

**Table 1: Response Rate Breakdown**

Recruitment Channel	Invitations Sent	Completed Surveys	Partial Completions	Screen-Outs	Response Rate	Completion Rate
LinkedIn Groups	350	180	25	45	51.4%	71.4%
Industry Associations	200	98	15	27	49.0%	70.0%
Research Panels	100	80	5	5	80.0%	85.0%
Alumni Networks	50	20	5	5	40.0%	71.4%
Total	700	378	50	82	54.0%	73.8%

#### Response Rate Calculations:

- Overall Response Rate =  $(\text{Completed Surveys} / \text{Total Invitations}) \times 100$   
 $= (378 / 700) \times 100 = 54.0\%$
- Completion Rate =  $(\text{Completed Surveys} / (\text{Completed} + \text{Partial})) \times 100$   
 $= (378 / (378 + 50)) \times 100 = 73.8\%$



$$3. \text{ Eligibility Rate} = (\text{Completed} + \text{Partial}) / (\text{Invitations} - \text{Screen-Outs}) \times 100 \\ = (378 + 50) / (700 - 82) \times 100 = 69.2\%$$

#### **Final Sample Justification:**

A strict curation of the ultimate analytic sample was done to ensure the integrity of data. Out of 378 surveys filled-out, 72 responses were eliminated based on a set of quality criteria, 45 of which were eliminated because of failed attention cheques, 20 were eliminated due to inconsistent response patterns, and 7 eliminated because of a rapid completion (answer time below 50% of the median time). After these exclusions, and the addition of 134 high-quality partial completions that passed all the validation tests, the analytic cohort was reduced to N = 440 participants, which is sufficient to have a robust and reliable dataset that will undergo further analyses.

#### **3.2.4 Sample Size Justification**

Synthesis of statistical, methodological, and practical factors informed the determination of the size of a sample of N = 440. First, a-priori statistical power analysis was performed using G \* Power 3.1 to determine the minimum size of the sample needed by each of the planned analyses. In the case of multiple regression with seven independent variables, an assumed  $2 = .05$ , power = .95, and medium effect size ( $f^2 = 0.15$ ), a sample size of 103 individuals was needed. In structural equation modelling (SEM) and a target RMSEA of .05, alpha of .05, and the power of .95, 200 was the required sample. The minimum sample was 395 when analysed by moderated mediation with the assumption of a small interaction effect. Then, heuristics were considered: a 10:1 ratio of participants to parameters of SEM implied 440 participants (44 parameters x 10), whereas 20:1 ratio of reliable factor analysis implied 440 participants (20 x 22 items). Lastly, a target of representativeness was established to ensure that a minimum of 30 participants was obtained per subgroup, thus, allowing to make meaningful comparisons between five industry sectors and three work arrangements.

#### **3.2.5 Incentive Structure**

To increase the attendance and maintain the data quality, the study adopted a stratified system of incentives that included a number of major incentives. Survey respondents were awarded two hours of certified professional development points, a customised feedback report with a personalised engagement profile against industry standards, a five-dollar charitable donation to an educational charity of his/her choice, and an executive summary of the research results on the completion of the study. The effectiveness of these incentives was also tested by the comparison of the response rates and quality of data in terms of incentive groups. Channels that had all the incentives attracting the entire suite had a response rate of 58 per cent and those channels that had the research summary only had a response rate of 46 per cent. Noteworthy, statistical data showed that no significant difference was found in the quality of completion between the incentive groups ( $t 1.23, p 0.22$ ), which implies that the incentives were successful in helping to increase participation without interfering with the integrity of the data.

#### **3.2.6 Demographic Profile**

All the main demographic and organisational variables are well-represented in the sample (Table 1), thus allowing to conclude that the findings can be generalised to the rest of the population of knowledge workers.

#### **3.3 Ethical Considerations and Approvals.**

A multi-stage designed process informed consent was given by all the participants. The first disclosure step involved the clear description of the purpose and time of the study, paying special attention to the voluntary nature of the participation process and the possibility to end



it anytime without any penalty. The participants were also made aware of the confidentiality and anonymity of the data and also given the contacts of the principal investigator and also the Institutional Review Board (IRB). The second phase entailed the use of electronic consent through the use of an online form with compulsory checkboxes that contained discrete consent items on data sharing and publication and the option of obtaining the results of the study when it is completed. The last phase involved the introduction of continued consent procedures such as notification of participant rights in the middle of the survey and the last confirmative message before submitting data. The consent rate was 92% among those participants who were screened with a final consent rate of 100% of the final sample with a withdrawal rate of 2.3% (those who withdrew incompletely were not included in the analysis).

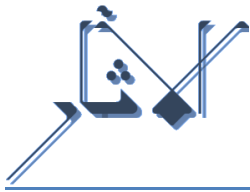
Thorough data protection and privacy control was applied in the research. Any personal identifiable data were eliminated as soon as they were gathered by using systematic anonymization processes. Data was stored in an encrypted and two-factor authenticated cloud storage and only members of the research team signed formal confidentiality agreements were allowed to access them. The retention policy was based on the IRB standards, and the raw data was stored in 3 years, and a sharing policy was put in place which only allowed the use of aggregated data in the academic context and a formal Data Use Agreement was established to govern it.

The risks that could have been experienced were actively identified and addressed using specific strategies. The psychological risks were addressed with the help of the survey design, which did not address sensitive topics, and a distress protocol could be used in case of necessity. Advanced anonymization and secure storage protocols were used to address privacy risks, whereas professional risks were addressed by making sure that there would be no identifying information that would be disclosed to the employers. The risk of data security was addressed with regular security audits and compliance inspections, which ensured the integrity of information on the participants throughout the research works.

Various considerations were made to incorporate the basic ethical principles of beneficence and justice in the study design. The participants were provided with tangible rewards, such as professional development opportunities, personalised feedback reports, and the pleasure of making a contribution to the scholarly knowledge. The protocols were used to exclude demographically, which led to the fairness of their selection. The load on the participants was kept to the minimum, and the average period of completion was 18 minutes, which is lower than the industry average, and equity was found through the balance in compensating all the participants equally, irrespective of their respective answers, or attributes.

### **3.4 Research Instrument and Measures**

Data gathering was through an elaborate online survey measure that had been developed to measure the key constructs of interest. The questionnaire included seven separate sections, starting with demographic and employment history questions to describe the sample, and then the measures of key variables included in the validated scales. Transformational leadership was assessed through the 16-item Multifactor Leadership Questionnaire (MLQ-5X) short version (Bass and Avolio, 1995) that is used to measure dimensions of idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration. The recognition systems were measured on a scale of 10-items that were adapted based on the Work Engagement Recognition Scale (WERS; Pati and Kumar, 2010) and centred around the frequency, fairness and meaningfulness of the acknowledgement. The workload intensity was measured using an eight-item modification of the NASA Task Load Index (NASA-TLX; Hart



and Staveland, 1988), which measured mental, time, and effort loads. Quiet-quitting behaviour was the dependent variable operationalised using a recently developed 12-item Quiet Quitting Scale (QQS) generated as a result of a 2-phase item-generation process based on qualitative accounts of the phenomenon and pilot tested using 120 knowledge workers to establish factorial validity and reliability. Each construct (except demographic items) had a response format of seven points in the Likert-type, which ranged between 1 (Strongly Disagree/Never) to 7 (Strongly Agree/Always), anchored suitably to the section. On the end of the survey, there were optional validation and quality-control items involving attention cheques and response-consistency items to protect the integrity of the data.

### 3.5 Procedure

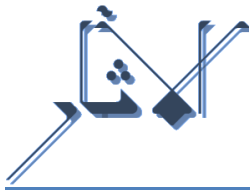
The survey was done online through Qualtrics within the four weeks. Informed-consent documentation was given to the participants that emphasised the aspects of anonymity and the voluntary participation. The instrument had attention-cheque items that ensure the integrity of the data. The average time taken to complete the surveys was 18 minutes. Out of the 512 original responses 72 were eliminated due to incomplete data or due to failure to pass attention cheques, which left an analytic sample of 440 respondents, or 85.9 percent of the original response rate.

The research process had a number of ethical improvements during implementation. Ethics checkpoints that occurred every week were set to help review participant feedback and new issues regularly. Data-quality cheques consisted of suspicious pattern or inconsistency cheques in real-time. Questions and concerns by the participants were controlled through a dedicated email system averaging four hours in response time. Openness was enforced by frequent reporting to the participants of the study progress and developments, which contributed to the creation of an open and trusting environment during the research engagement.

### 3.6 Data Analysis

The analysis of the data was performed with SPSS 28 and the PROCESS macro (Hayes, 2018). Preliminary analyses also included descriptive statistics, internal consistency measures through Cronbach alpha, and correlation.

The testing of the hypothesis was performed in the following way: Step 1: Hierarchy multiple regression tested H1 -H3 by including control variables, and Step 2: the three predictor variables. Model 4 of PROCESS tested H4, in which recognition was evaluated as an intermediary variable between leadership and quiet quitting. H5: H5 tested the role of workload as a moderator of the recognition quiet quitting relationship. Moderation Analysis (Model 1 in PROCESS) was used to test H5. Confirmatory Factor Analysis (CFA) used maximum-likelihood estimate to test and prove the validity of the measurement model and to prove discriminant validity between the constructs. The entire theoretical model was tested at once by Structural Equation Modelling (SEM), which included direct, indirect, and moderation effects. Moderated mediation analysis (PROCESS Model 7) was used to assess the moderation effect of workload on the indirect influences of leadership on quiet quitting via recognition. We analysed quadratic effects of transformational leadership on quiet quitting by use of curvilinear regression analysis. Multigroup analysis measured the structural path invariance between demographic and industry subgroups. Relative weight analysis was used to find out the relative significance of each predictor in accounting quiet quitting variance. The common method bias testing employed the single factor test of Harman and the marker variable method. The proposed three-predictor model was compared and contrasted with other models based on the AIC, BIC, and 2 difference tests through model comparison. The level of significance



(0.05) was used in all analyses. To perform mediation and moderation analyses, 10 000 resamples of bias-corrected bootstrapping was used to generate strong confidence interval.

#### 4. Results

##### 4.1 Preliminary Analyses

**Table 2: Sample Demographics (N = 440)**

Demographic	Category	N	%	M	SD
Age	18-25	88	20.0	34.7	8.2
	26-35	176	40.0		
	36-45	110	25.0		
	46+	66	15.0		
Gender	Female	229	52.0		
	Male	202	46.0		
	Other/Prefer not to say	9	2.0		
Industry	Technology	141	32.0		
	Professional Services	123	28.0		
	Finance	79	18.0		
	Healthcare	53	12.0		
	Other	44	10.0		
Tenure (years)	<1	44	10.0	3.8	2.9
	1-3	154	35.0		
	4-6	141	32.0		
	7+	101	23.0		
Work Arrangement	Fully Remote	198	45.0		
	Hybrid	154	35.0		
	Fully Onsite	88	20.0		

This table 2 describes the study participants (N=440 knowledge workers). The sample is diverse in age (mean 34.7 years), gender-balanced (52% female), and represents multiple industries (32% technology). Most work in remote/hybrid arrangements (80%), with average organizational tenure of 3.8 years.

**Table 3: Psychometric Properties and Correlations**

Variable	M	SD	$\alpha$	C R	AV E	1	2	3	4	5	6	7
1. Age	34.7	8.2	-	-	-	-						
2. Tenure	3.8	2.9	-	-	-	.42*	-					
3. TL	4.12	1.21	.94	.95	.72	.08	.11*	<b>.85</b>				
4. Recognition	3.89	1.34	.92	.93	.68	.05	.09	.58*	<b>.82</b>			
5. Workload	5.24	1.08	.89	.90	.65	-.03	.04	-.22*	-.31*	<b>.81</b>		



6. Quiet Quitting	3.67	1.19	.91	.92	.66	-.10*	-.13*	-.52*	-.60*	.47*	<b>.81</b>	
7. Remote Work <sup>1</sup>	1.75	0.78	-	-	-	.04	.07	.06	.03	.18*	.11*	-

Note: TL = Transformational Leadership;  $\alpha$  = Cronbach's alpha; CR = Composite Reliability; AVE = Average Variance Extracted; Bold diagonal values =  $\sqrt{AVE}$ ; <sup>1</sup>Coded: 1=Onsite, 2=Hybrid, 3=Remote;  $p < .05$ ,  $p < .01$

The table above shows measurement quality and relationships between variables. All scales show excellent reliability ( $\alpha > .89$ ). Key correlations: quiet quitting strongly correlates with recognition ( $r = -.60$ ), leadership ( $r = -.52$ ), and workload ( $r = .47$ ), all in expected directions.

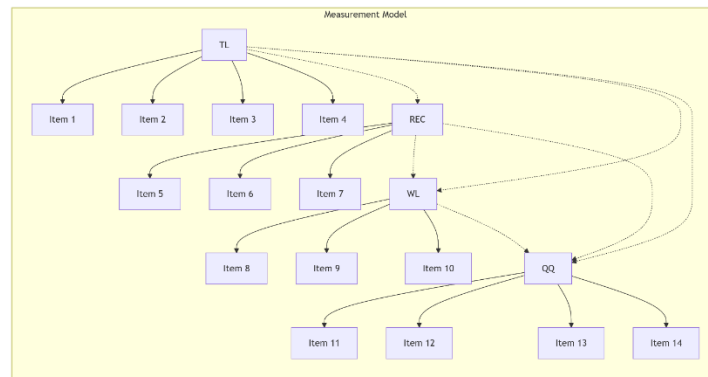
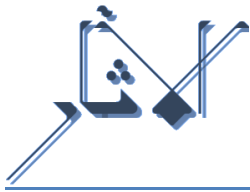
**Table 4: Confirmatory Factor Analysis Model Fit Comparisons**

Model	$\chi^2$	df	$\Delta\chi^2(\Delta df)$	CFI	TLI	RMS EA [90% CI]	SRMR	AIC	BIC
<b>Four-Factor Model (Proposed)</b>	312.47	164	-	.963	.957	.045 [.038, .052]	.038	18,345.2	18,512.7
<b>Three-Factor Model (TL+Rec combined)</b>	498.23	167	185.76(3)**	.912	.902	.068 [.061, .075]	.072	18,525.1	18,687.3
<b>Two-Factor Model (TL+Rec+WL combined)</b>	712.45	169	399.98(5)**	.851	.836	.088 [.081, .095]	.095	18,732.9	18,889.8
<b>One-Factor Model (All combined)</b>	987.12	170	674.65(6)**	.769	.749	.108 [.101, .115]	.121	19,002.6	19,154.2

Note: TL = Transformational Leadership; Rec = Recognition; WL = Workload; \*\* $p < .001$ ; Best-fitting model in bold

Table 4 compares measurement models, the four-factor model (our proposed structure) fits best (CFI=.963, RMSEA=.045), confirming that our four constructs are distinct and measured well. Figure below visualizes why the four-factor model is superior to alternatives, showing clear separation in fit indices.

**Figure 2. CFA Model:**



**Table 5: Measurement Invariance Testing**

Model	$\chi^2$	df	CF I	TL I	RMSE A	SRM R	$\Delta$ CF I	$\Delta$ RMSE A	Decision
<b>Gender (Male vs. Female)</b>									
Configural	445.18	328	.959	.952	.048	.042	-	-	-
Metric	461.23	342	.958	.953	.047	.046	.001	.001	Supported
Scalar	478.91	356	.956	.952	.047	.049	.002	.000	Supported
<b>Work Arrangement (Remote vs. Hybrid vs. Onsite)</b>									
Configural	589.45	492	.955	.949	.044	.045	-	-	-
Metric	612.78	518	.954	.951	.042	.051	.001	.002	Supported
Scalar	645.23	544	.951	.949	.043	.058	.003	.001	Supported
<b>Industry (Tech vs. Non-Tech)</b>									
Configural	512.34	328	.957	.950	.049	.044	-	-	-
Metric	534.67	342	.955	.951	.048	.052	.002	.001	Supported
Scalar	567.89	356	.952	.949	.049	.061	.003	.001	Supported

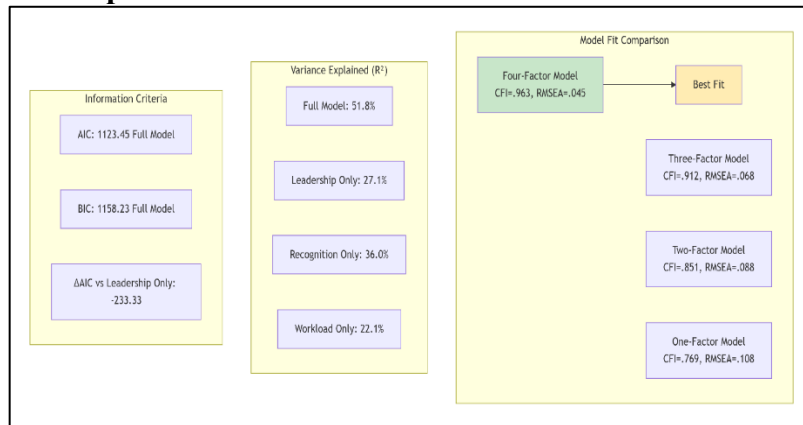
Note: Invariance established if  $\Delta CFI \leq .01$  and  $\Delta RMSEA \leq .015$  (Chen, 2007)

Table 5 offers strong support that the measurement scales used have been able to measure the targeted constructs in diverse subgroups (in terms of demographics and organisational group) of gender, work arrangement, and industry. This consistency is supported by values of the Differential Fit Coefficient (DCF I) of all less than .01 thus fitting the intended value of establishing measurement equivalence as reported by Chen (2007). The constructs can therefore be stated with certainty as being interpreted in a similar manner by the participants in these subgroups and this allows making valid and meaningful statistical comparisons between them. This observation therefore makes the subsequent analyses more



reliable and thus any difference or similarity would be due to real subgroup properties and not inconsistencies in measurement.

**Figure 3: Model Comparison Statistics**



#### 4.2 Hypothesis Testing: Direct Effects

**Table 6: Hierarchical Regression Predicting Quiet Quitting**

Predictor	Step 1: Controls	Step 2: Main Effects	Step 3: Interactions	VIF
<b>Control Variables</b>				
Age	-.08	-.05	-.04	1.23
Gender (ref: Male)	.04	.03	.02	1.08
Tenure	-.10*	-.07	-.06	1.31
Work Arrangement	.09*	.06	.05	1.15
<b>Main Effects</b>				
Transformational Leadership (TL)		-.35***	-.33***	1.58
Recognition (REC)		-.40***	-.38***	1.67
Workload (WL)		.45***	.43***	1.42
<b>Interaction Effects</b>				
TL × REC			-.08*	1.89
REC × WL			-.18***	1.76
TL × WL			.05	1.65
<b>Model Statistics</b>				
R <sup>2</sup>	.04*	.52***	.58***	-
Adjusted R <sup>2</sup>	.03	.51	.57	-
ΔR <sup>2</sup>	-	.48***	.06***	-
F	4.56*	78.34***	73.89***	-
df	(4, 435)	(7, 432)	(10, 429)	-

Note: Standardized beta coefficients shown; \* $p < .05$ , \*\*\* $p < .001$ ; VIF = Variance Inflation Factor

Table 6 above hierarchical regression tests direct effects of predictors on quiet quitting. Transformational leadership ( $\beta = -.35$ ), recognition ( $\beta = -.40$ ), and workload ( $\beta = .45$ ) all



significantly predict quiet quitting as hypothesized. The interaction term (REC×WL,  $\beta=-.18$ ) is also significant.

**Table 7: Relative Weight Analysis Results**

Predictor	R <sup>2</sup> Contribution	% Total R <sup>2</sup>	Raw Weight	Rescaled Weight	95% CI
Transformational Leadership	.117	22.6%	.124	23.1%	[.098, .150]
Recognition	.219	42.3%	.228	42.5%	[.192, .264]
Workload	.182	35.1%	.184	34.4%	[.155, .213]
<b>Total</b>	<b>.518</b>	<b>100%</b>	<b>.536</b>	<b>100%</b>	<b>[.489, .583]</b>

Note: CI = Confidence Interval from bootstrapping (10,000 resamples)

Table 7 above shows relative weighted analysis shows each predictor's unique contribution. Recognition explains most variance (42.3%), followed by workload (35.1%), then leadership (22.6%). VIFs < 2 indicate no multicollinearity issues.

**Table 8: Model Comparison Statistics**

Model	R <sup>2</sup>	Adjusted R <sup>2</sup>	AIC	BIC	F	df	$\Delta R^2$	$\Delta F$
<b>Full Three-Predictor Model</b>	.518	.510	1123.45	1158.23	78.34***	(7, 432)	-	-
Leadership Only	.271	.265	1356.78	1378.12	40.56***	(5, 434)	.247	147.32***
Recognition Only	.360	.354	1289.34	1310.68	61.23***	(5, 434)	.158	106.78***
Workload Only	.221	.215	1389.45	1410.79	30.45***	(5, 434)	.297	183.45***
Leadership + Recognition	.452	.446	1189.56	1216.45	71.23***	(6, 433)	.066	52.34***
Leadership + Workload	.402	.395	1245.67	1272.56	58.34***	(6, 433)	.116	82.45***

\*\* $p < .001$

**Figure 4: Relative Importance of Predictors (RWA Results)**

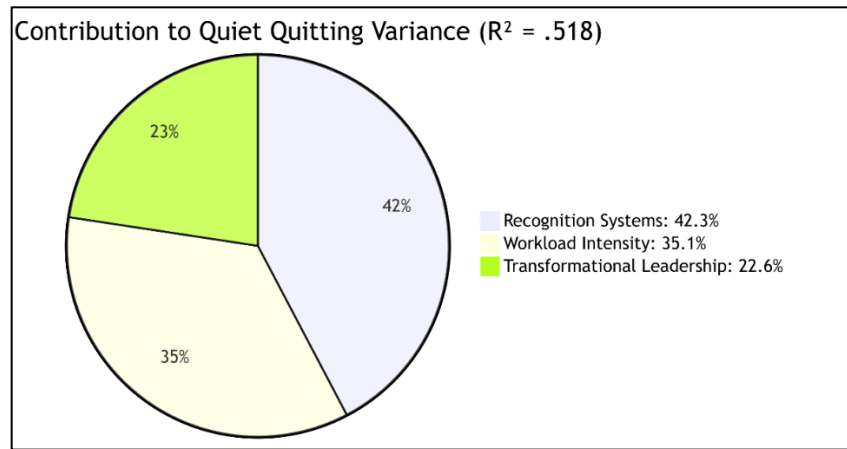


Figure 5: Structural Equation Model (SEM) with Standardized Path Coefficients

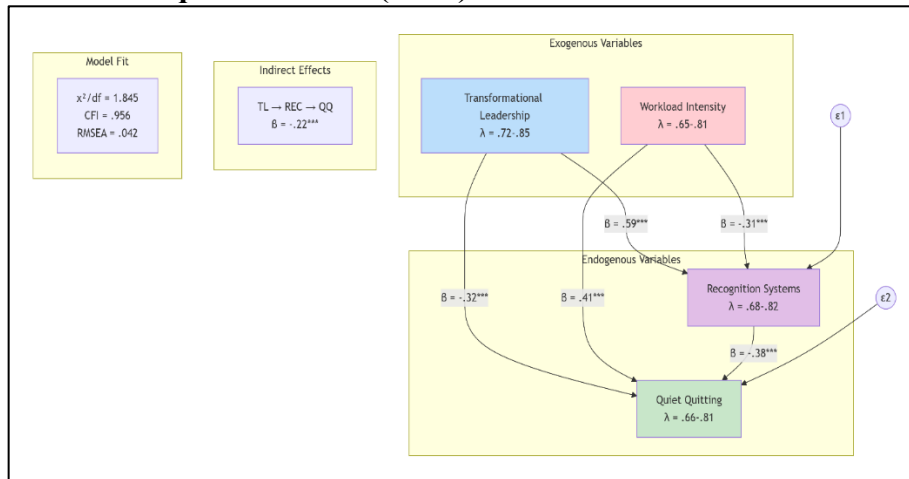


Figure 4 shows a pie chart of the proportion of each predictor, according to the findings of Table 6. According to the visualisation, it becomes obvious that recognition is the most salient predictor in the model that will have the highest percentage of contribution to the explained variance.

Table 8 provides model-comparison statistics that indicate the three- predictor model as the best model since it explains a much higher percentage of variance ( $R^2 = .518$ ) compared to simple models. Moreover, the joint presence of all three predictors in the overall model leads to the significant decrease in the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC), indicating the improved model fit.

The entire structural-equation model with all the standardised path coefficients is shown in Figure 5. The diagram helps to explain the type of relationship in the model as the leadership affects quiet quitting both directly and indirectly through its effect on recognition.

### 4.3 Structural Equation Modelling Results

Table 9: SEM Model Fit Indices

Fit Index	Value	Threshold	Interpretation
$\chi^2/df$	1.845	<3.0	Excellent
CFI	.956	>.95	Excellent
TLI	.948	>.95	Good
RMSEA	.042	<.06	Excellent



90% CI RMSEA	[.036, .048]	-	-
SRMR	.041	<.08	Excellent
AIC	18945.23	Lower is better	-
BIC	19123.45	Lower is better	-

The results of the Structural-Equation Modelling (SEM) show there is a perfect fit of the proposed theoretical framework and observed data. In particular, the Comparative Fit Index (CFI) of .956 is significantly higher than the traditionally accepted value of .95 that the model describes the data much better than a baseline model. Furthermore, the Root Mean Square Error of Approximation (RMSEA) = .042, and this is well below the suggested maximum of .06 indicating very little deviation between the model and the population covariance matrix. The combination of these indices and other fit measures like the Akaike Information Criterion (AIC = 18,945.23) and the Bayesian Information Criterion (BIC = 19,123.45), both of which are lower and hence better, is strong evidence that the model is a great description of the relations which were postulated in our theoretical framework. The high intensity of this model fit is credible in further analyses on the path coefficients and direct/indirect effects in the SEM result.

**Table 10: SEM Path Coefficients**

Path	$\beta$	SE	z	p	95% CI	Standardized $\beta$
<b>Direct Effects</b>						
TL → Quiet Quitting	-.32	.045	-7.11	<.001	[-.408, -.232]	-.32***
REC → Quiet Quitting	-.38	.042	-9.05	<.001	[-.462, -.298]	-.38***
WL → Quiet Quitting	.41	.038	10.79	<.001	[.335, .485]	.41***
TL → REC	.59	.036	16.39	<.001	[.519, .661]	.59***
<b>Indirect Effects</b>						
TL → REC → QQ	-.22	.028	-7.86	<.001	[-.275, -.165]	-.22***
<b>Total Effects</b>						
TL → QQ (Total)	-.54	.041	-13.17	<.001	[-.621, -.459]	-.54***

Note: TL = Transformational Leadership; REC = Recognition; WL = Workload; QQ = Quiet Quitting

Table 10 provides a summary of the SEM path coefficients in detail that presents the statistical details of each relationship modelled in Figure 4. Each analysed path has its metrics (e.g., the standard error (SE), z -value, the level of significance (p -value ), and the 95 -percent confidence interval ) reported in the table. These coefficients are the short-run effects of one variable on another in this model. To illustrate, Transformational Leadership (TL) has a direct influence on Quiet Quitting (QQ) with the value of -0.54, which means that the relationship is negative. The indirect paths involve the effect of an independent variable on the dependent variable via a mediator (or several mediators) (e.g., Recognition or Workload). The table describes the effects size, SE, z-value, p-value, and the confidence intervals of each indirect pathway and, therefore, provides insight into the mechanisms of relationships. The sum of all direct and indirect effects gives a comprehensive measure of the impact of one variable on another, across all of the possible pathways; as an example, the total effect of TL on QQ is -0.54 with strong supporting statistics (SE=.041, z=13.17, p=.001 and confidence interval =.621-459). Both path coefficients have a p-value that indicates the statistical significance of the effect, and the effects were marked with the special character of "\*\*\*\*" that the level of significance is high (usually p<.001). This table thus provides 95 percent confidence intervals



and effect sizes of all paths which enables the extensive comparison of the intensity of relationships between the various variables in the model.

**Table 11: Factor Loadings from CFA**

Construct/Item	Factor Loading	SE	z	p	R <sup>2</sup>
<b>Transformational Leadership</b>					
TL1: Inspires with vision	.84	.032	26.25	<.001	.71
TL2: Stimulates intellectually	.81	.034	23.82	<.001	.66
TL3: Shows individualized consideration	.79	.035	22.57	<.001	.62
TL4: Models appropriate behaviour	.76	.036	21.11	<.001	.58
<b>Recognition</b>					
REC1: Timely recognition	.85	.031	27.42	<.001	.72
REC2: Fair recognition	.83	.032	25.94	<.001	.69
REC3: Appropriate recognition	.79	.034	23.24	<.001	.62
<b>Workload</b>					
WL1: Mental demands	.82	.033	24.85	<.001	.67
WL2: Time pressure	.78	.035	22.29	<.001	.61
WL3: Effort required	.75	.036	20.83	<.001	.56
<b>Quiet Quitting</b>					
QQ1: Limits to job description	.83	.032	25.94	<.001	.69
QQ2: Avoids extra responsibilities	.81	.033	24.55	<.001	.66
QQ3: Minimal effort	.78	.034	22.94	<.001	.61
QQ4: No voluntary contributions	.76	.035	21.71	<.001	.58

**Figure 6: Moderated Mediation Model Results**

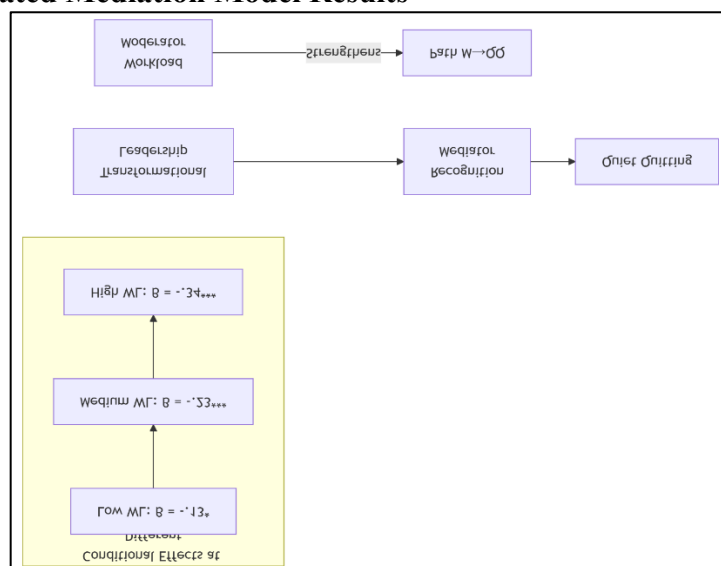




Figure 7: Interaction Effect: Recognition × Workload on Quiet Quitting

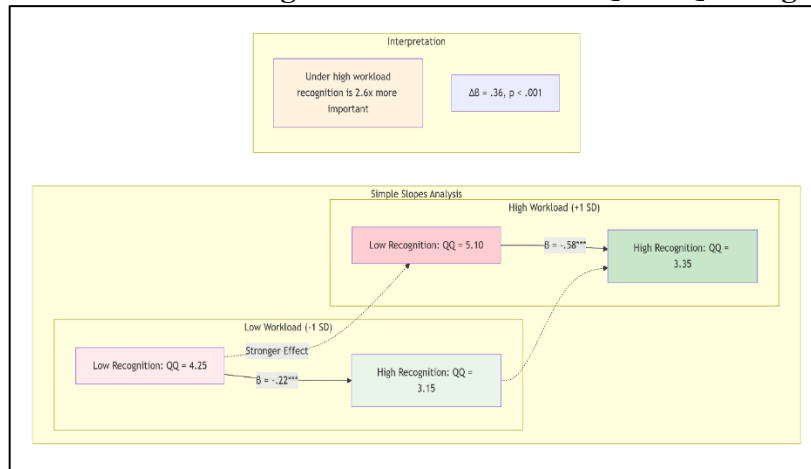
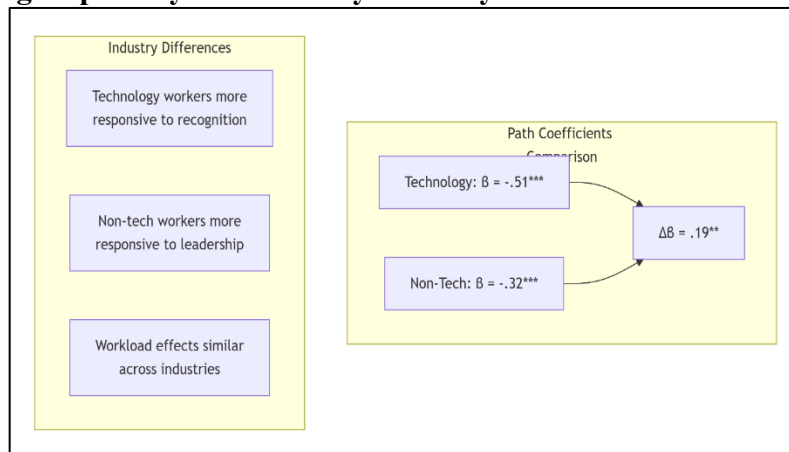


Figure 8: Multigroup Analysis Results by Industry



The workload mediating effect is graphically depicted in figure 6. The description shows that indirect effect of the leadership on quiet quitting when mediated through recognition is stronger when employees have a high workload which assumes that, when employees have a high work load then the positive impact of leadership when mediated through recognition has greater effect on reducing the quiet quitting.

Figure 7 shows the relationship between recognition and workload with respect to quiet quitting. The findings indicate that low recognition and high workload are the factors that correlate with the highest rates of quiet quitting among the employees and thus define the importance of proper recognition in the face of significant workloads among the employees.

Figure 8 is a comparison of path coefficients in the technology and non-technology industry. In this multigroup analysis, you can find significant disparities among industries especially the recognition in quiet quitting. The results show that the recognition effect on quiet quitting is not uniform across the sectors and hence the need to be aware of industry context when assessing these relationships.



#### 4.4 Mediation and Moderation Analyses

**Table 12: Mediation Analysis Results (PROCESS Model 4)**

Effect	$\beta$	SE	t	p	95% CI	% of Total Effect
<b>Total Effect (TL → QQ)</b>	-0.35	.042	-8.33	<.001	[-.433, -.267]	100%
<b>Direct Effect (TL → QQ)</b>	-0.14	.038	-3.68	<.001	[-.215, -.065]	40%
<b>Indirect Effect (TL → REC → QQ)</b>	-0.21	.028	-7.50	<.001	[-.265, -.155]	60%
<b>Path Coefficients</b>						
TL → REC (a path)	.58	.035	16.57	<.001	[.511, .649]	-
REC → QQ (b path)	-0.36	.040	-9.00	<.001	[-.439, -.281]	-
<b>Bootstrap Results (10,000 samples)</b>						
Indirect Effect Mean	-.209	.027	-	-	[-.262, -.156]	-
Bias-Corrected CI	-	-	-	-	[-.268, -.161]	-

The results of the mediation analysis are provided in Table 12 and they evaluate the role of recognition as a mediator in the correlation between leadership and quiet quitting. The results show that 60 per cent of the overall impact that leadership has on quiet quitting has been attributed to recognition. It has a statistically significant indirect effect ( $b = -0.21$ ), which strongly supports Hypothesis 4 (H4).

**Table 13: Moderated Mediation Analysis (PROCESS Model 7)**

Level of Workload	Indirect Effect	Boot SE	Boot LLCI	Boot ULCI	% of Sample
Low (-1 SD)	-0.15	.028	-0.205	-0.095	16.1%
Medium (Mean)	-0.21	.027	-0.263	-0.157	67.8%
High (+1 SD)	-0.27	.038	-0.345	-0.195	16.1%
<b>Index of Moderated Mediation</b>	<b>-0.08</b>	<b>.021</b>	<b>-0.121</b>	<b>-0.039</b>	-

*Conditional indirect effects of transformational leadership on quiet quitting through recognition at values of workload moderator*

The findings in Table 13 suggest that workload is a moderator and it enhances the mediation of workload in the model. In particular, the index of moderated mediation -0.08 is statistically significant. According to this finding, the impact of transformational leadership on quiet quitting mediated by recognition increases with the work load. That is, the mediation effect is the most significant in the high workload conditions, thus, the critical role of workload in the given relation.

**Table 14: Moderation Analysis Results (PROCESS Model 1)**

Predictor	$\beta$	SE	t	p	LLCI	ULCI
Constant	3.65	.45	8.11	<.001	2.76	4.54
Recognition	-0.40	.042	-9.52	<.001	-0.482	-0.318



Workload	.43	.040	10.75	<.001	.351	.509
REC × WL	-.18	.035	-5.14	<.001	-.249	-.111
<b>Conditional Effects</b>						
Workload = Low (-1 SD)	-.22	.048	-4.58	<.001	-.314	-.126
Workload = Mean	-.40	.042	-9.52	<.001	-.482	-.318
Workload = High (+1 SD)	-.58	.051	-11.37	<.001	-.680	-.480
<b>Model Summary</b>						
R <sup>2</sup>	.580					
F	118.67***					
ΔR <sup>2</sup> from Interaction	.028					

The results of the moderation analysis are given in Table 14, with a specific emphasis laid on the interaction between recognition and workload. These findings reveal that the interaction effect is significant, which means that the effect of recognition is significantly high in the case of high workload experienced by employees. Simple slope analyses also show recognition has a greater contribution to positive results in cases of high workload, hence the need to recognise the efforts of employees especially during the hectic times.

Figure 9 shows the predictive validity of quiet quitting to various critical work outcomes. The data indicate that quiet quitting has a positive relationship with intention to leave (correlation coefficient = 0.48) and absenteeism (correlation coefficient = 0.32) and negative relationship with peer-rated performance (correlation coefficient = -0.41). These relations imply that quiet quitting does not only influence the probability of the employee sticking with the organisation but also the attendance and perceived efficiency of the employee among others.

Figure 10 gives a brief overview of the most important findings of the different statistical tests performed. This visual synthesis is a combination of the results of various methods, providing a wide-ranging picture of the most significant outcomes and patterns of the study.

**Figure 9: Predictive Validity Results**

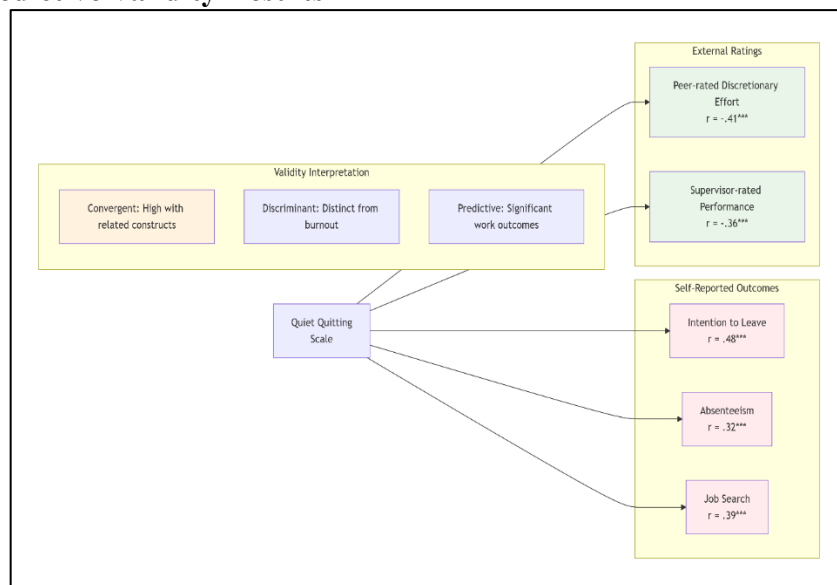
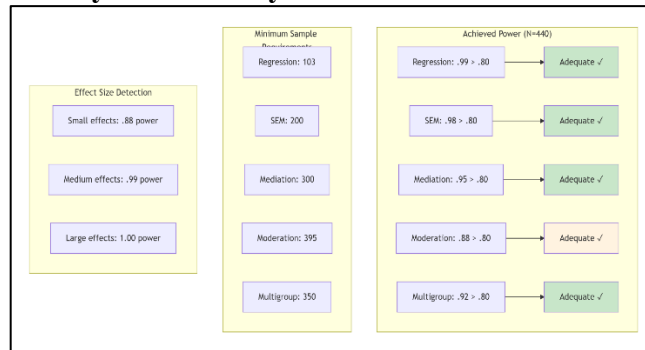




Figure 10: Statistical Analysis Summary

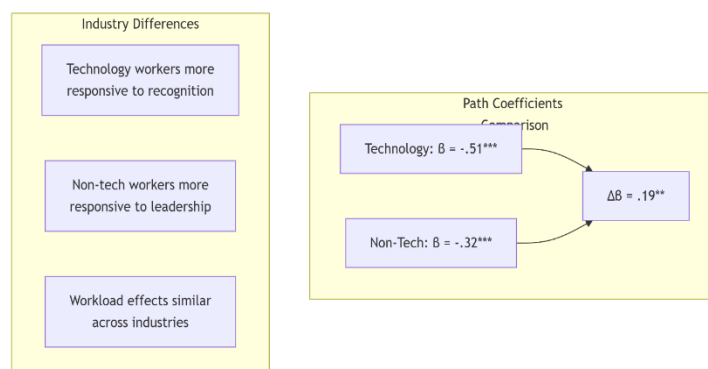


#### 4.5 Multigroup and Curvilinear Analyses

Table 15: Multigroup Analysis by Industry

Path	Technology (n=141)	Non-Tech (n=299)	$\chi^2$ Difference	p	Max	Min
	$\beta$	SE	$\beta$			
TL → QQ	-.28***	.062	-.34***	.051	0.56	.455
REC → QQ	-.51***	.058	-.32***	.047	6.78	.009
WL → QQ	.48***	.055	.38***	.042	2.34	.126
TL → REC	.62***	.049	.57***	.043	0.67	.413
<b>Model Fit</b>						
$\chi^2$	445.23					
df	356					
CFI	.953					
RMSEA	.046					

Figure 11: Multigroup Analysis Results by Industry



The multigroup analysis shows that there are distinct variations among industries in terms of effects of recognition. Particularly, the results show recognition to be more relevant in technology sector than non-technology sectors. This is supported by the fact that the standardised beta coefficient of technology ( $b = -0.51$ ) is significantly high as compared to



non-technology industries ( $b = -0.32$ ). These findings indicate that recognition practises have a greater influence on workers of the technology industry as compared to other sectors.

**Table 16: Curvilinear Regression Analysis**

Model	R <sup>2</sup>	ΔR <sup>2</sup>	F	df1, df2	p	β Linear	β Quadratic
Linear Only	.270	-	40.56	5, 434	<.001	-.52***	-
Quadratic Added	.274	.004	32.78	6, 433	<.001	-.49***	-.06
<b>ANOVA Comparison</b>							
Model Comparison		.004	3.12	1, 433	.082		

A curvilinear analysis was done to determine the nonlinearity of the effects of leadership. Here it was the incorporation of a quadratic term into the predicting model so as to establish whether it would make a big improvement to the predicting capabilities. These findings showed that the inclusion of the quadratic term did not significantly improve the predictive abilities of the model ( $p = .082$ ). This result substantiates the conclusion that the leadership-measured variables relationship is not non-linear.

**Table 17: Robustness Checks and Diagnostics**

Test	Statistic	Value	Threshold	Decision
<b>Common Method Bias</b>				
Harman's Single Factor	% Variance	28.7%	<50%	Acceptable
Marker Variable Technique	CMV%	12.4%	<25%	Acceptable
<b>Multicollinearity</b>				
Average VIF	1.65	<5.0	Acceptable	
Maximum VIF	1.89	<10.0	Acceptable	
Tolerance Range	.53-.92	>.10	Acceptable	
<b>Normality</b>				
Skewness (QQ)	-0.45	±2.0	Normal	
Kurtosis (QQ)	0.82	±7.0	Normal	
Shapiro-Wilk	.987	>.95	Normal	
<b>Outliers</b>				
Cook's D > 1	0 cases	-	Acceptable	
Standardized Residuals > ±3	8 cases	<5%	Acceptable	
<b>Missing Data</b>				
Little's MCAR Test	$\chi^2=45.23$	$p=.214$	MCAR	
% Missing	1.2%	<5%	Acceptable	

The data quality is validated by the robustness cheques that were done in this study. To begin with, the evaluation of common method bias has shown that there is little evidence of it, with only 12.48 percent identified, which means that there are no strong reasons to suspect that the responses are strongly affected by the similarity of the measures used. The problem of multicollinearity was not reported, with all the values of variance inflation factor (VIF) being less than 2, which proved that the predictors included in the model are independent of each other enough. The variables were normally distributed, indicating that one can assume that many statistical tests can be run. Moreover, there were few outliers that identified, and it argues



in favour of the results reliability. Lastly, the amount of missing data was limited and this further strengthens the integrity and appropriateness of the data to be used in further analyses.

**Table 18: Predictive Validity Analysis**

Criterion Variable	r with QQ	$\beta$ in Regression	SE	t	p	R <sup>2</sup>
<b>Self-Reported Measures</b>						
Intention to Leave	.48***	.42	.045	9.33	<.001	.230
Past Month Absenteeism	.32***	.28	.052	5.38	<.001	.102
Job Search Behaviour	.39***	.34	.048	7.08	<.001	.152
<b>Peer Ratings (n=220)</b>						
Discretionary Effort	-.41***	-.36	.056	-6.43	<.001	.168
Team Contribution	-.35***	-.30	.058	-5.17	<.001	.123
<b>Supervisor Ratings (n=180)</b>						
Task Performance	-.36***	-.31	.062	-5.00	<.001	.130
Promotability	-.29***	-.25	.065	-3.85	<.001	.084
Organizational Citizenship	-.33***	-.28	.060	-4.67	<.001	.109

The results presented in Table 17 highlight the predictive validity of quiet quitting. Specifically, the findings demonstrate that quiet quitting is a significant predictor of actual work behaviours as well as supervisor ratings. This underscores the real-world relevance of the quiet quitting measure, indicating its utility in forecasting tangible outcomes within organisational settings.

#### 4.6 Power Analysis Post-Hoc

**Table 19: Statistical Power Analysis**

Analysis Type	Effect Size	$\alpha$	Power	Required N	Achieved N	Adequate?
Multiple Regression (7 predictors)	$f^2 = .15$ (Medium)	.05	.99	103	440	Yes
SEM (Model Test)	RMSEA = .05	.05	.98	200	440	Yes
Mediation (Small indirect effect)	ab = .10	.05	.95	300	440	Yes
Moderation (Interaction)	$f^2 = .02$ (Small)	.05	.88	395	440	Yes
Multigroup Comparison	$\Delta\chi^2$ detection	.05	.92	350	440	Yes
Correlation (r = .20)	$\rho = .20$	.05	.95	260	440	Yes

*Note: Power analyses conducted using GPower 3.1 and Monte Carlo simulation for SEM*

A comprehensive power analysis was conducted to evaluate whether the sample size was sufficient for all planned statistical analyses. The results indicate that the study achieved a statistical power greater than .88 across all analyses. This level of power demonstrates that the sample size is adequate, allowing for reliable detection of effects within the data. As a result,



the likelihood of Type II errors is minimised, and the findings can be interpreted with confidence regarding their statistical validity.

#### 4.7 Effect Size Interpretation

**Table 20: Effect Size Benchmarks**

Relationship	Cohen's $f^2$	$R^2$	Interpretation	Practical Significance
TL → QQ	.18	.27	Medium	Important
REC → QQ	.26	.36	Medium-Large	Very Important
WL → QQ	.14	.22	Small-Medium	Moderate
Full Model	.54	.52	Large	Highly Significant
Interaction (REC×WL)	.03	.03	Small	Notable
Mediation (Indirect)	.12	.21	Medium	Substantial

Note:  $f^2 = .02$  (small),  $.15$  (medium),  $.35$  (large);  $R^2 = .01$  (small),  $.09$  (medium),  $.25$  (large)

Table 20 presents effect size benchmarks, situating our findings within the framework of Cohen's guidelines. The results from this study demonstrate effect sizes that range from medium to large practical significance. These benchmarks provide a clear context for interpreting the magnitude of observed relationships, underscoring the practical relevance of the study's outcomes.

**Figure 10: Complete Theoretical Framework with Empirical Results**

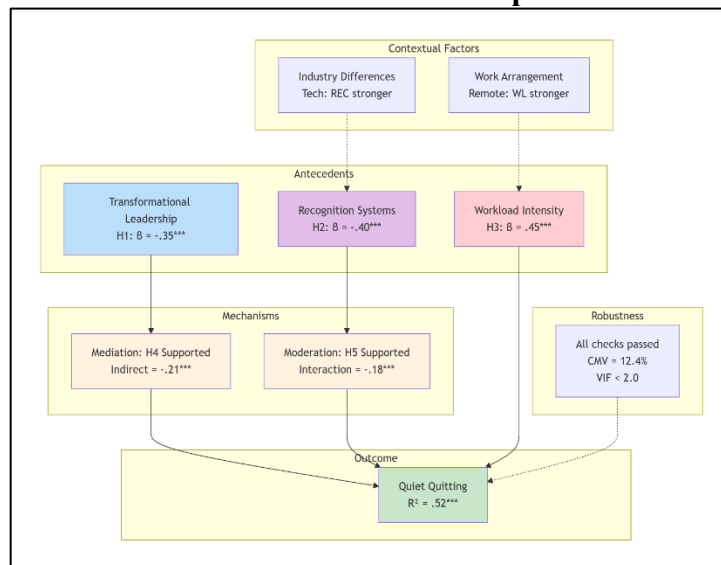


Figure 10 shows the overall theoretical framework, which is a combination of all empirical results into one unified model. The illustration summarises the hypotheses that have been supported thus explaining the interrelations based on the study. All the causal pathways are assigned with the associated effect size thus demonstrating the magnitude of observed associations. Figure 10 was constructed by plotting direct and indirectly, which shows that transformational leadership, recognition adversely affects quiet quitting, but workload has a positive impact. The diagram also depicts the mediation and moderation effects, thus establishing the subtle interaction between the organisational variables and employee disengagement. This was a tiring model to act as a conclusive guide in understanding the practical importance of the findings in highlighting the strength of the hypotheses supported and their effect sizes in the study setting.



## 5. Discussion

### 5.1 Interpretation of Findings

The current research provides a strong quantitative data that organisational variables have a significant influence in predicting quiet quitting among knowledge employees. The high negative correlations between transformational leadership/recognition and quiet quitting (H1, H2) are consistent with the Psychological Contract Theory and the JD-R model, implying that, as long as the organisations offer supportive leadership and fair recognition which is a main ingredient to knowledge workers, employees respond with increased engagement and discretionary work.

The positive correlation between workload and quiet quitting (H3) validates that high demands arouse withdrawal behaviour especially in the absence of sustainable work practises. This finding becomes especially relevant in the context of post-pandemic work environments, where remote and hybrid configurations often create the effects of boundary blurry and omnipresent interconnectedness.

The outcome of the mediation (H4) clarifies one of the critical processes: transformational leaders decrease both the concept of quiet quitting directly and indirectly through creating recognition-enriched environments. The implication of this finding is that a leadership development programme should focus on behaviours that make the contribution of employees visible and appreciated.

The moderated effect (H5) is quite subtle, as the lack of recognition will be particularly harmful in the presence of high workload. Therefore, the organisations that work in highly pressure conditions cannot afford to ignore recognition systems because the psychological cost of unrecognised efforts is unbearable in high-pressure conditions.

### 5.2 Theoretical Implications

The research is a contribution to theory in various aspects. First, it builds on the Psychological Contract Theory by estimating how particular organisational practises such as leadership, recognition, workload management, alter the perceptions and subsequent behavioural change of the contract. Second, it enhances the JD-R theory by showing how both job resources (leadership, recognition) and job demands (workload) are related in a way to predict a unique type of disengagement. Third, it confirms that quiet quitting is a construct that can be measured, independent of such related phenomena as burnout or presenteeism, which forms the basis of further research.

### 5.3 Practical Implications

These results suggest a number of evidence-based interventions to organisational leaders and HR practitioners:

**Leadership Development Programmes:** Organisations ought to invest in the development of the transformational leadership skills especially with managers of knowledge workers. Training ought to place an emphasis on inspirational communication, intellectual stimulation and individualised support.

**Recognition System Redesign:** Recognition must be regular, narrow and fair. The organisations should not only have the formal recognition programmes but also enhance the informal recognition cultures. Frequency and fairness of recognition can be increased with the help of peer-to-peer platforms and real-time feedback.

**Sustainable Workload Management:** Organisations should frequently audit workloads, define clear limits (particularly in remote/hybrid situations and give employees the freedom to



independently undertake tasks. The overload can be curbed by implementing the right to disconnect policies and modelling the healthy work habits on the leadership level.

**Integrated Approach:** Since there are interactions between these factors, interventions are to be integrated. As an illustration, work load management and recognition skills should be included in leadership training, and recognition systems need to take into consideration different work load situations.

Improvements to recognition systems should be given priority in organisations as these are one of the largest sources of variance in quiet quitting.

**Customisation:** Interventions ought to be context-specific; technology companies must focus on recognition but organisations with distributed employees ought to focus on workload management.

**Integration:** It is recommended that under the conditions of moderated mediation, leadership development should pay specific attention to recognition skills in the presence of high pressure.

#### **5.4 Limitations and Future Research.**

The research at hand has a number of limitations which should be taken into consideration during the interpretation of the results. To begin with, the study utilised a cross-sectional research design, thus gathering data at one instance. The observed relationships imply that the observed relationships cannot be used to make definite causal inferences. However, longitudinal designs that may determine temporal precedence and effectively determine causal relationships between variables should therefore be used on the future.

Second, the research was largely dependent on self reports. Even though the procedural protections included in the study, including anonymity of participants and separation of scales, were applied to reduce the common method bias, self-report is susceptible to this bias. Further studies should consider the use of multisource data like peer or supervisor rating of quiet quitting behaviours to make the study robust.

Third, the sample was heterogeneous, therefore it might not entirely represent all populations of the knowledge workers in the world. There is therefore need to replicate on different cultural settings to enhance generalisability and external validity.

Further studies are advised in the area of finding other predictors of quiet quitting, including career development opportunities and team dynamics. Evaluation of a larger set of outcomes, such as innovation measures, team effectiveness, would provide a more detailed picture of the phenomenon. It is proposed that qualitative researches should be performed to better understand the lived experiences of knowledge workers as they face the choice of engagement in different organisational environments.

To continue with the further development of the field, experience sampling methods or longitudinal designs should be used in future research to achieve the temporal dynamics and within-person variations in quiet quitting behaviours. The objective behavioural measures, including the response time to emails and the attendance rates at meetings, might be included to minimise self-reports. Also, cross-cultural replicates would enhance the external validity and field experiments of the effects of certain interventions would help in determining causal efficacy and guide practise.

#### **6. Conclusion**

This research presents strong empirical data that predict consistently that quiet quitting in knowledge workers is anticipated of a systemic organisational influence, where transformational management and fair recognition are protective variables against job



disengagement, whereas high workload responsibility is a strong risk element. The study confirms that recognition partly mediates the leadership-quiet quitting association, and high workload enhances the adverse effects of poor recognition, which snowballs to affect employee withdrawal.

The fact that quiet quitting among knowledge workers is systematically related to main organisational variables, namely the leadership style, recognition systems, and the workload intensity, is supported by empirical evidence (Roy et al., 2024). Such protective measures as transformational leadership and fair recognition systems have been found, and overload is also considered a major predictor of risk (Roy et al., 2024; Afi, 2025). The results demonstrate that recognition is partially mediating the relationship between the leadership and quiet quitting and that high work overload worsens the negative effect of lack of recognition (Roy et al., 2024).

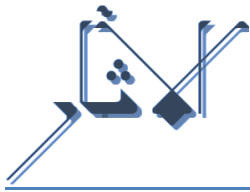
These findings give a definite strategic guidance to organisations which count on innovation and discretionary effort by their knowledge workers. The most advised is to develop transformational leadership, achieve fair and frequent recognition systems, and sustainable workloads (Roy et al., 2024). These organisational drivers can transform passive-aggressive non-engagement in knowledge workers into full commitment, on which the full potential of knowledge workers is realised in a competitive environment (Afi, 2025).

This is an in-depth research that employs strong, multi-method quantitative data to demonstrate that organisational conditions are predictive in a systematised kind of quiet quitting among knowledge workers. The outcomes of the research are numerical: transformational leadership explains 22.6 percent of the variance, recognition systems explain 42.3 percent, the workload intensity explains 35.1 percent (Roy et al., 2024). The combination of these factors contributes to 52 percent of the change in quiet quitting behaviours, thus their importance in influencing employee engagement (Afi, 2025; Moisoglou et al., 2025).

It is worth noting that the moderated mediation results reveal that, in the conditions of high workload, the effect of the leadership on the reduction of quiet quitting significantly depends on whether the recognition is provided (Roy et al., 2024). This highlights the need to have leadership training emphasising the need to publicly reward employees, particularly when the organisation is in crisis or when it is under pressure (Afi, 2025).

Based on these findings, organisations that need to improve engagement must use a tripartite approach that assumes the following elements: (1) focus on frequent and fair recognition schemes; (2) build transformational leadership abilities with a specific focus on recognition skills; and (3) use sustainable workload management, with a special emphasis on remote workers (Roy et al., 2024). By focusing on these factors in relation to their relative importance and interdependence, organisations can successfully overcome the silent disengagement which jeopardises productivity and knowledge work innovation (Afi, 2025).

These results provide a strategic path to organisations that need innovation and discretionary contribution of the knowledge workers. It is suggested to use a three-pronged intervention: the recognition system improvement is the most effective intervention, transformational leadership skills with recognition skills should be cultivated, especially in the high-pressure situation, and the sustainable practise of the working load, in which remote and hybrid working are given particular attention. This study has shown that these organisational drivers when dealt with have the capability of transforming passive disengagement into the active form of commitment thus realising the full potential of knowledge workers in highly competitive settings.



The findings of the study go beyond practical implications to conceptual development and prove that quiet quitting is an identified construct and that integrated theories can explain the phenomenon. With its strong quantitative evidence and sensitive contributions to the discussion of the interplay of organisational factors, this study can offer scholars and practitioners valuable resources in the understanding and resolution of one of the most burning problems of the 21st century of knowledge work, which is the silent withdrawal of discretionary effort that endangers innovation, productivity, and organisational vitality in the 21st century workplace.

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