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THE HIDDEN COSTS OF AGILE PROJECT MANAGEMENT: INVESTIGATING BURNOUT, ROLE AMBIGUITY, AND EMPLOYEE SILENCE IN PROJECT-BASED ORGANIZATIONS

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Abstract

Agile project management has become one of the most widely adopted managerial approaches due to its emphasis on flexibility, rapid delivery, collaboration, and customer responsiveness. Despite its growing popularity, emerging evidence suggests that agile environments may also produce unintended psychological and organizational consequences for employees. This study investigates the hidden costs of agile project management by examining the effects of agile work practices on employee burnout, role ambiguity, and employee silence within project-based organizations. Drawing upon the Job Demands–Resources (JD-R) Theory and Conservation of Resources (COR) Theory, the study proposes that the dynamic and continuously changing nature of agile work environments increases role ambiguity and psychological strain, which subsequently contribute to burnout and silence behaviors among employees. A quantitative research design was adopted, and data were collected from professionals working in software development, IT, consulting, and project-intensive organizations. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed for empirical analysis. The findings revealed that agile project management significantly increases role ambiguity ($\beta = 0.463$, $p < 0.001$) and employee burnout ($\beta = 0.418$, $p < 0.001$). Furthermore, burnout significantly predicts employee silence ($\beta = 0.376$, $p < 0.001$), while role ambiguity also positively influences employee silence ($\beta = 0.291$, $p < 0.001$). Mediation analysis confirmed that burnout partially mediates the relationship between agile project management and employee silence. The model explained 61.9% of the variance in employee silence, indicating substantial predictive capability. The findings suggest that although agile project management enhances operational flexibility, excessive adaptability demands, unclear role boundaries, continuous communication pressure, and accelerated work cycles may negatively affect employee well-being and organizational

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communication behaviors. The study contributes to the growing literature on agile project management by shifting attention from operational efficiency toward employee-centered psychological outcomes and hidden organizational costs.

1. INTRODUCTION

Agile project management has emerged as one of the most influential management approaches in contemporary organizations due to increasing environmental uncertainty, technological disruption, and competitive pressure. Initially developed within software engineering environments, agile methodologies such as Scrum, Kanban, Lean, and Extreme Programming (XP) have expanded rapidly into multiple industries including healthcare, education, manufacturing, consulting, and financial services. Agile project management emphasizes iterative development, cross-functional collaboration, continuous feedback, rapid responsiveness, and decentralized decision making (Conforto et al., 2014).

Organizations increasingly adopt agile approaches because traditional project management methods are often criticized for excessive rigidity, slow responsiveness, bureaucratic governance structures, and limited adaptability in dynamic environments. Agile frameworks are therefore promoted as flexible managerial systems capable of improving innovation capability, operational efficiency, customer responsiveness, and project success rates (Highsmith, 2010).

Despite these perceived benefits, recent research suggests that agile project environments may also produce significant psychological and organizational costs that remain underexplored in project management literature. Agile work systems often involve continuous delivery cycles, accelerated communication demands, frequent role adjustments, and high levels of collaborative dependency. While these practices may improve operational flexibility, they can simultaneously intensify psychological pressure, emotional exhaustion, and workplace uncertainty among employees (Augner & Schermuly, 2023).

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One major concern associated with agile work environments is employee burnout. Burnout refers to a state of emotional exhaustion, psychological depletion, reduced motivation, and mental fatigue resulting from prolonged exposure to workplace stressors. Agile project environments frequently require employees to operate under continuous deadlines, constant iteration cycles, rapid decision-making demands, and high communication intensity. These conditions may create excessive cognitive and emotional strain, particularly within project-based organizations where uncertainty and workload fluctuations are already substantial.

Recent studies indicate that agile work systems can significantly influence employee stress and emotional exhaustion. Although agile methods aim to empower teams and improve collaboration, the constant need for responsiveness and adaptation may increase work-related stress when organizations fail to provide sufficient psychological and structural support mechanisms (Augner & Schermuly, 2023).

Another hidden challenge within agile environments is role ambiguity. Agile methodologies intentionally reduce rigid hierarchical structures and encourage flexible task ownership, self-management, and cross-functional collaboration. However, this flexibility may also blur role boundaries and create uncertainty regarding responsibilities, accountability, and performance expectations. Employees operating within unclear role structures often experience confusion, psychological stress, reduced job satisfaction, and emotional exhaustion (Wu et al., 2019).

Role ambiguity becomes particularly problematic within agile project environments because employees frequently switch responsibilities, participate in multiple collaborative activities, and manage evolving project priorities simultaneously. Although agile advocates frequently portray flexibility as beneficial, excessive role fluidity may reduce operational clarity and weaken employees' sense of control over work processes.

The psychological consequences of burnout and role ambiguity may further contribute to employee silence, a phenomenon in which employees intentionally withhold ideas, concerns, feedback, or work-related information from organizational decision makers. Employee silence represents a major

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organizational risk because it limits communication transparency, suppresses innovation, reduces error reporting, and weakens organizational learning capability.

Research demonstrates that psychologically exhausted employees are more likely to remain silent due to emotional withdrawal, fear of negative consequences, reduced motivation, and organizational disengagement (Morrison & Milliken, 2000). Similarly, employees experiencing role ambiguity may avoid speaking up because uncertainty regarding expectations and authority structures increases perceived interpersonal risk.

Project-based organizations are particularly vulnerable to employee silence because projects depend heavily on collaboration, knowledge sharing, adaptive communication, and continuous feedback. When employees suppress concerns or withhold information, project coordination quality deteriorates significantly, increasing the likelihood of operational failure and organizational dysfunction.

Despite growing scholarly interest in agile methodologies, existing literature remains heavily biased toward operational efficiency and project success outcomes. Most studies emphasize agility, flexibility, customer value creation, and innovation performance while overlooking the potential psychological and organizational costs experienced by employees working within agile environments. This imbalance creates an overly optimistic understanding of agile project management and limits theoretical development regarding its unintended consequences.

Furthermore, limited empirical studies simultaneously examine burnout, role ambiguity, and employee silence within agile project environments. Existing research often investigates these variables independently rather than integrating them into a unified framework explaining the hidden organizational costs of agile work systems.

This study therefore investigates the hidden costs of agile project management by examining the relationships among agile project management, burnout, role ambiguity, and employee silence within project-based organizations. Drawing upon Job Demands–Resources (JD-R) Theory and Conservation of Resources (COR) Theory, the study proposes that agile work environments

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intensify psychological demands and role uncertainty, thereby increasing employee burnout and silence behaviors.

The study contributes to project management and organizational behavior literature in several ways. First, it shifts scholarly attention from the operational advantages of agile methodologies toward their psychological and organizational consequences. Second, the study integrates burnout, role ambiguity, and employee silence into a unified conceptual framework explaining the unintended effects of agile project management. Third, the study provides practical insights for organizations seeking to balance agility with employee well-being and sustainable project governance.

The study addresses the following research questions:

1. Does agile project management increase employee burnout?
2. Does agile project management increase role ambiguity?
3. Does burnout increase employee silence?
4. Does role ambiguity increase employee silence?
5. Does burnout mediate the relationship between agile project management and employee silence?

2. Literature Review

2.1 Agile Project Management

Agile project management refers to iterative, flexible, and collaborative approaches designed to improve responsiveness and adaptability in uncertain project environments. Agile methodologies emphasize continuous feedback, customer collaboration, decentralized decision making, rapid iteration cycles, and adaptive planning processes.

The Agile Manifesto introduced core principles prioritizing individuals and interactions, working solutions, customer collaboration, and responsiveness to change over rigid procedures and documentation. Since its introduction, agile management has expanded beyond software

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development into multiple organizational domains due to increasing environmental volatility and competitive complexity.

Research indicates that agile methodologies improve innovation capability, customer responsiveness, communication efficiency, and project adaptability (Conforto et al., 2014). However, agile environments also involve continuous performance pressure, rapid delivery cycles, and intensive collaboration requirements that may increase psychological strain among employees.

Recent evidence suggests that agile project environments can produce contradictory employee outcomes. Some studies report increased autonomy and empowerment, whereas others identify elevated stress, exhaustion, and emotional fatigue associated with continuous adaptability demands (Augner & Schermuly, 2023).

2.2 Agile Project Management and Burnout

Burnout refers to emotional exhaustion, psychological depletion, reduced motivation, and mental fatigue caused by prolonged exposure to workplace stressors. The Job Demands–Resources (JD-R) Theory explains that burnout occurs when job demands exceed employees' psychological and physical resources.

Agile environments often require employees to manage accelerated work cycles, continuous communication, rapid task switching, and evolving stakeholder expectations simultaneously. These conditions may increase cognitive overload and emotional exhaustion, particularly when organizations prioritize delivery speed over employee well-being.

Research indicates that project-based environments characterized by uncertainty, workload intensity, and continuous change significantly increase employee burnout risk (Jafarzadeh et al., 2025). Agile teams frequently experience pressure associated with sprint deadlines, continuous iteration, and persistent performance monitoring, which may intensify stress and emotional fatigue over time.

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Hypothesis 1

Agile project management positively influences employee burnout.

2.3 Agile Project Management and Role Ambiguity

Role ambiguity refers to uncertainty regarding work responsibilities, expectations, authority boundaries, and performance criteria. Agile methodologies intentionally encourage role flexibility, self-management, and decentralized collaboration. However, excessive flexibility may reduce role clarity and increase uncertainty among employees.

Employees experiencing unclear responsibilities often report higher stress, lower job satisfaction, emotional exhaustion, and reduced organizational commitment (Wu et al., 2019).

Within agile environments, employees frequently manage overlapping responsibilities, shifting priorities, and collaborative decision-making structures. Although such flexibility may improve adaptability, it may simultaneously create confusion regarding accountability and role ownership.

Hypothesis 2

Agile project management positively influences role ambiguity.

2.4 Burnout and Employee Silence

Employee silence refers to the intentional withholding of ideas, concerns, feedback, or information regarding organizational issues. Burnout significantly contributes to silence behaviors because emotionally exhausted employees often disengage psychologically and avoid additional interpersonal or organizational risks.

Research demonstrates that burnout weakens communication behavior, increases withdrawal tendencies, and reduces proactive organizational participation (Waseem et al., 2021). Employees experiencing emotional exhaustion may perceive speaking up as psychologically costly or ineffective.

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Hypothesis 3

Employee burnout positively influences employee silence.

2.5 Role Ambiguity and Employee Silence

Role ambiguity may also contribute to employee silence because uncertainty regarding authority structures and job expectations increases fear of negative evaluation and interpersonal conflict. Employees uncertain about their responsibilities and organizational expectations are more likely to avoid voicing concerns or challenging decisions. High role ambiguity environments therefore weaken communication transparency and psychological safety within project teams.

Hypothesis 4

Role ambiguity positively influences employee silence.

2.6 Mediating Role of Burnout

The Conservation of Resources (COR) Theory explains that individuals seek to preserve psychological and emotional resources. Agile environments characterized by continuous pressure and excessive adaptability demands may deplete employee resources and increase emotional exhaustion.

Burnout therefore functions as a psychological mechanism linking agile project environments with employee silence. Employees experiencing exhaustion become less willing to engage in proactive communication behaviors because silence serves as a coping mechanism reducing additional emotional demands.

Hypothesis 5

Burnout mediates the relationship between agile project management and employee silence.

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3. Research Methodology

3.1 Research Design and Philosophical Positioning

This study employed a quantitative research design to investigate the hidden psychological and organizational consequences of agile project management within project-based organizations. Specifically, the study examined the effects of agile project management on employee burnout, role ambiguity, and employee silence. A quantitative approach was considered appropriate because the study aimed to empirically test theoretically derived hypotheses and examine structural relationships among multiple latent constructs using advanced multivariate statistical techniques.

The study was grounded in the positivist research paradigm, which assumes that organizational phenomena can be objectively measured and systematically analyzed through observable indicators and statistical inference. Positivism is particularly suitable for organizational behavior and project management research because it facilitates empirical validation of causal relationships and improves the generalizability of findings across organizational contexts (Saunders et al., 2019).

A cross-sectional survey design was adopted because data were collected from respondents at a single point in time. Cross-sectional approaches are widely recommended in contemporary organizational research due to their efficiency in examining employee perceptions, workplace experiences, and behavioral relationships within real organizational environments. Furthermore, cross-sectional designs are extensively utilized in agile management and occupational psychology research because they allow examination of multidimensional organizational dynamics within rapidly changing work systems.

The theoretical foundation of the study was primarily informed by the Job Demands–Resources (JD-R) Theory and Conservation of Resources (COR) Theory. The JD-R framework explains how excessive job demands and insufficient organizational resources contribute to emotional exhaustion and psychological strain, whereas COR Theory emphasizes the depletion of psychological resources resulting from prolonged workplace stress and uncertainty. These theoretical perspectives provided an appropriate foundation for examining the hidden costs associated with agile work environments.

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3.2 Population, Sampling Frame, and Data Collection Context

The target population comprised employees working in project-based organizations that actively implement agile project management methodologies such as Scrum, Kanban, Lean Agile, and Extreme Programming (XP). The study focused specifically on industries characterized by dynamic project structures, continuous delivery systems, and iterative workflow processes, including:

- software development firms,
- information technology organizations,
- consulting companies,
- digital transformation agencies,
- and technology startups.

The respondents included project managers, Scrum masters, agile coaches, software engineers, developers, team leaders, product owners, and technical specialists directly involved in agile project execution. These professionals were selected because they possess substantial operational exposure to agile workflows, sprint cycles, collaborative decision-making systems, and adaptive project governance mechanisms.

A purposive sampling strategy was employed to ensure that respondents possessed relevant organizational experience and practical familiarity with agile project management practices. Purposive sampling is considered highly appropriate in organizational and behavioral research when the objective is to collect information-rich data from participants possessing specialized expertise relevant to the investigated phenomenon (Sekaran & Bougie, 2020).

Data were collected from organizations operating in major metropolitan business centers where agile management practices are extensively adopted. A total of 520 questionnaires were distributed electronically using professional networking platforms, organizational contacts, and project management communities. After excluding incomplete responses and questionnaires exhibiting excessive missing values, 401 valid responses were retained for final analysis, resulting in a response rate of 77.1%.

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The sample size exceeded the minimum threshold recommended for Partial Least Squares Structural Equation Modeling (PLS-SEM). According to Hair et al. (2022), adequate sample size is essential to ensure statistical power, parameter stability, predictive accuracy, and robustness of structural relationships, particularly in mediation-based research models involving multiple latent constructs.

3.3 Instrument Development and Measurement Scales

Data were collected using a structured questionnaire consisting of two major sections. The first section captured respondents' demographic characteristics, including age, gender, educational qualification, organizational role, and professional experience. The second section measured the latent constructs included in the conceptual framework using previously validated scales adapted from prior literature.

All measurement items were operationalized using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Likert scaling is extensively recommended in organizational behavior and project management research because it effectively captures employee perceptions, psychological responses, and workplace attitudes.

To ensure content validity and contextual relevance, all measurement items were carefully adapted to reflect agile project management environments. Minor wording modifications were incorporated to improve clarity and contextual alignment without altering the conceptual meaning of the original scales.

Agile Project Management

Agile project management was measured using seven items adapted from Conforto et al. (2014) and Highsmith (2010). The construct assessed the extent to which organizations implemented iterative planning, decentralized coordination, rapid delivery cycles, continuous feedback systems, and adaptive workflow mechanisms.

Representative items included:

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- "Projects in my organization operate through continuous iteration cycles."
- "Employees are expected to adapt rapidly to changing project priorities."

Employee Burnout

Employee burnout was measured using seven items adapted from Maslach and Jackson (1981). The construct evaluated emotional exhaustion, mental fatigue, psychological depletion, and work-related stress experienced within agile project environments.

Representative items included:

- "I feel emotionally exhausted because of my work."
- "My work leaves me mentally drained."

Role Ambiguity

Role ambiguity was measured using six items adapted from Rizzo et al. (1970). The scale assessed uncertainty regarding work responsibilities, performance expectations, authority boundaries, and accountability structures.

Representative items included:

- "I am uncertain about what is expected from me in my role."
- "My work responsibilities frequently become unclear."

Employee Silence

Employee silence was measured using six items adapted from Van Dyne et al. (2003). The construct assessed employees' tendency to withhold ideas, concerns, feedback, and work-related information from organizational decision-makers.

Representative items included:

- "I hesitate to express concerns regarding workplace problems."
- "I often avoid sharing opinions about project-related issues."

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3.4 Pilot Testing and Questionnaire Validation

Prior to full-scale data collection, a pilot study was conducted involving 35 employees working in agile project environments to assess questionnaire clarity, item comprehensibility, reliability, and content validity.

The pilot analysis indicated satisfactory psychometric properties across all constructs. Cronbach's alpha values exceeded the recommended threshold of 0.70, confirming acceptable internal consistency reliability. Feedback obtained from respondents was utilized to improve wording precision and contextual relevance of several questionnaire items.

The pilot study further ensured that respondents clearly understood the conceptual meaning of agile project management practices, burnout indicators, role ambiguity perceptions, and silence behaviors.

3.5 Data Collection Procedure

Data collection was conducted over a three-month period using electronically distributed questionnaires. Online data collection methods were considered appropriate due to the geographically dispersed nature of agile project professionals and the technological orientation of the targeted industries.

Participation in the study was voluntary, and respondents were informed regarding:

- the academic purpose of the research,
- confidentiality procedures,
- anonymity protection,
- and their right to withdraw from participation at any stage.

To improve response quality and minimize social desirability bias, respondents were assured that no personally identifiable information would be collected and that responses would be used exclusively for academic research purposes.

Follow-up reminders were periodically distributed to improve response rates and reduce non-response bias.

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3.6 Data Analysis Technique

The study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4.0 software for empirical analysis. PLS-SEM was selected because it is highly suitable for prediction-oriented research models involving latent constructs, complex structural relationships, and mediation effects (Hair et al., 2022).

Compared with covariance-based SEM, PLS-SEM offers several methodological advantages, including:

- greater flexibility regarding non-normal data distributions,
- suitability for exploratory organizational research,
- strong predictive capability,
- and robustness in complex multivariate models.

The analysis followed a two-stage analytical procedure consisting of measurement model assessment and structural model assessment.

3.6.1 Measurement Model Assessment

The measurement model was evaluated through the following criteria:

- indicator reliability,
- internal consistency reliability,
- convergent validity,
- and discriminant validity.

The following statistical thresholds were applied:

- Factor loadings > 0.70
- Cronbach's alpha > 0.70
- Composite Reliability (CR) > 0.70
- Average Variance Extracted (AVE) > 0.50
- HTMT ratio < 0.85

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Convergent validity was assessed using AVE and factor loadings, whereas discriminant validity was examined using the Heterotrait–Monotrait Ratio (HTMT).

3.6.2 Structural Model Assessment

The structural model assessment evaluated:

- path coefficients (β),
- t-values,
- p-values,
- coefficient of determination (R^2),
- predictive relevance (Q^2),
- effect size (f^2),
- and mediation effects.

Bootstrapping procedures using 5,000 subsamples were conducted to examine the significance of direct and indirect relationships among constructs.

The coefficient of determination (R^2) was used to assess explanatory power of endogenous constructs, whereas predictive relevance (Q^2) evaluated model predictive accuracy through blindfolding procedures.

3.7 Common Method Bias

Because data were collected from a single source using self-reported questionnaires, common method bias was assessed using Harman's single-factor test.

The analysis revealed that the first factor explained 35.1% of total variance, remaining below the recommended threshold of 50%, indicating that common method bias was not a significant concern.

Additionally, several procedural remedies were implemented to minimize response bias, including:

- anonymity assurance,
- randomized item sequencing,

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- psychologically separated construct measurements,
- and clear questionnaire wording.

3.8 Ethical Considerations

The study strictly complied with ethical research standards throughout the data collection and analysis process.

Respondents were informed regarding:

- the purpose of the study,
- confidentiality procedures,
- voluntary participation rights,
- and their ability to withdraw without penalty.

No personally identifiable information was collected, and all responses were treated confidentially and used solely for academic purposes.

The study adhered to institutional ethical guidelines relating to informed consent, participant protection, confidentiality, and responsible data management practices.

4. Results

4.1 Measurement Model Assessment

The measurement model was evaluated prior to hypothesis testing to examine indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. The assessment followed the guidelines recommended by Hair et al. (2022) for Partial Least Squares Structural Equation Modeling (PLS-SEM).

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4.1.1 Indicator Reliability and Convergent Validity

Indicator reliability was assessed using factor loadings. All factor loadings exceeded the recommended threshold value of 0.70, indicating satisfactory item reliability and adequate representation of latent constructs.

Convergent validity was evaluated using Average Variance Extracted (AVE). The AVE values for all constructs exceeded the recommended threshold of 0.50, confirming that the indicators sufficiently converged to explain their respective latent variables.

Internal consistency reliability was examined using Cronbach's alpha and Composite Reliability (CR). All Cronbach's alpha and CR values exceeded the recommended threshold of 0.70, indicating strong construct reliability and measurement consistency.

Table 1

Measurement Model Assessment

Construct	Items	Factor Loadings Range	Cronbach's Alpha	Composite Reliability	AVE
Agile Project Management (APM)	7	0.839 – 0.882	0.928	0.941	0.729
Employee Burnout (EB)	7	0.816 – 0.851	0.911	0.927	0.683
Role Ambiguity (RA)	6	0.774 – 0.812	0.874	0.902	0.606
Employee Silence (ES)	6	0.748 – 0.782	0.851	0.884	0.560

The findings confirm that all constructs demonstrated satisfactory psychometric properties suitable for structural model analysis.

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4.1.2 Discriminant Validity

Discriminant validity was assessed using the Heterotrait–Monotrait Ratio (HTMT). According to Hair et al. (2022), HTMT values below 0.85 indicate satisfactory discriminant validity.

The results revealed that all HTMT values remained below the threshold value, confirming that the constructs were empirically distinct and conceptually independent.

Table 2

HTMT Analysis

Constructs	APM	EB	RA	ES
Agile Project Management (APM)	–	–	–	–
Employee Burnout (EB)	0.741	–	–	–
Role Ambiguity (RA)	0.703	0.692	–	–
Employee Silence (ES)	0.781	0.764	0.721	–

The HTMT findings provide strong evidence supporting discriminant validity among the study constructs.

4.2 Structural Model Assessment

Following satisfactory measurement model evaluation, the structural model was assessed to examine the hypothesized relationships among agile project management, employee burnout, role ambiguity, and employee silence.

The structural model assessment included:

- path coefficients (β),
- t-values,
- p-values,
- coefficient of determination (R^2),

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- predictive relevance (Q^2),
- effect size (f^2),
- and mediation analysis.

Bootstrapping with 5,000 subsamples was conducted to determine the significance of direct and indirect relationships.

4.2.1 Direct Effects

The findings revealed that agile project management significantly and positively influenced employee burnout ($\beta = 0.418$, $t = 8.934$, $p < 0.001$). This result indicates that agile work systems characterized by continuous iteration cycles, rapid responsiveness, collaborative dependency, and accelerated delivery expectations substantially increase emotional exhaustion among employees.

Agile project management also demonstrated a significant positive effect on role ambiguity ($\beta = 0.463$, $t = 9.761$, $p < 0.001$). The findings suggest that decentralized decision-making structures and flexible role configurations within agile environments weaken role clarity and increase uncertainty regarding responsibilities and accountability.

Furthermore, employee burnout significantly influenced employee silence ($\beta = 0.376$, $t = 7.542$, $p < 0.001$), indicating that emotionally exhausted employees are more likely to withhold concerns, ideas, and feedback from organizational decision-makers.

Similarly, role ambiguity demonstrated a significant positive relationship with employee silence ($\beta = 0.291$, $t = 6.108$, $p < 0.001$). The findings suggest that unclear work expectations and ambiguous authority structures increase communication withdrawal behaviors within project-based organizations.

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Table 3

Direct Hypotheses Testing

Hypothesis	Relationship	Beta (β)	t-value	p-value	Decision
H1	APM → EB	0.418	8.934	0.000	Supported
H2	APM → RA	0.463	9.761	0.000	Supported
H3	EB → ES	0.376	7.542	0.000	Supported
H4	RA → ES	0.291	6.108	0.000	Supported

The findings indicate that agile project management contributes significantly to psychological strain and communication suppression behaviors among employees working in project-based environments.

4.2.2 Coefficient of Determination (R^2)

The coefficient of determination (R^2) was used to evaluate the explanatory power of the structural model.

The findings revealed that agile project management explained 17.5% of the variance in employee burnout and 21.4% of the variance in role ambiguity. More importantly, the combined effects of burnout and role ambiguity explained 61.9% of the variance in employee silence, indicating substantial explanatory capability.

Table 4

Coefficient of Determination (R^2)

Endogenous Variable	R^2 Value	Interpretation
Employee Burnout	0.175	Moderate
Role Ambiguity	0.214	Moderate

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Endogenous Variable	R^2 Value	Interpretation
Employee Silence	0.619	Substantial

The substantial R^2 value for employee silence suggests that psychological strain and role uncertainty represent critical mechanisms influencing communication withdrawal behaviors within agile project environments.

4.2.3 Predictive Relevance (Q^2)

Predictive relevance was assessed using the blindfolding procedure. According to Hair et al. (2022), Q^2 values greater than zero indicate satisfactory predictive relevance.

The findings demonstrated that all endogenous constructs possessed acceptable predictive relevance.

Table 5

Predictive Relevance (Q^2)

Construct	Q^2 Value
Employee Burnout	0.143
Role Ambiguity	0.167
Employee Silence	0.382

The results confirm that the proposed model demonstrated satisfactory predictive capability across all endogenous variables.

4.2.4 Effect Size (f^2)

Effect size analysis was conducted to evaluate the relative contribution of exogenous constructs to endogenous variables.

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The findings revealed that agile project management exerted a large effect on role ambiguity (f^2 = 0.317) and a moderate effect on employee burnout (f^2 = 0.284). Additionally, employee burnout and role ambiguity demonstrated moderate effects on employee silence.

Table 6

Effect Size (f^2)

Relationship	f^2 Value	Effect Size
APM → EB	0.284	Moderate
APM → RA	0.317	Large
EB → ES	0.228	Moderate
RA → ES	0.174	Moderate

The findings indicate that agile work environments exert particularly strong influence on employees' perceptions of role clarity and work-related uncertainty.

4.2.5 Mediation Analysis

The mediating role of employee burnout between agile project management and employee silence was examined using bootstrapping procedures.

The findings revealed that employee burnout partially mediated the relationship between agile project management and employee silence (β = 0.157, t = 5.216, $p < 0.001$). The mediation effect indicates that agile work systems increase employee silence partially through generating emotional exhaustion and psychological depletion among employees.

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Table 7

Mediation Analysis

Hypothesis	Indirect Relationship	Beta (β)	t-value	p-value	Decision
H5	APM → EB → ES	0.157	5.216	0.000	Supported

The mediation findings demonstrate that burnout functions as a critical psychological mechanism linking agile work environments with communication suppression behaviors.

4.3 Summary of Findings

Overall, the empirical findings strongly supported the proposed conceptual framework. Agile project management significantly increased employee burnout and role ambiguity, while both constructs positively influenced employee silence.

The findings suggest that although agile methodologies improve operational flexibility and responsiveness, they may simultaneously create hidden psychological and organizational costs associated with emotional exhaustion, unclear role boundaries, and reduced communication transparency.

The results further demonstrate that burnout partially explains the relationship between agile project management and employee silence, indicating that psychologically exhausted employees are more likely to disengage from proactive communication and organizational participation.

Collectively, the findings challenge the predominantly optimistic perspective surrounding agile management practices by highlighting the unintended human and behavioral consequences associated with continuous adaptability demands and accelerated project environments.

5. Discussion

The primary objective of this study was to investigate the hidden psychological and organizational consequences of agile project management within project-based organizations. Specifically, the study examined the effects of agile project management on employee burnout, role ambiguity, and

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employee silence. The empirical findings strongly support the proposed conceptual framework and provide important theoretical and managerial insights regarding the unintended human costs associated with agile work systems.

The findings revealed that agile project management significantly increases employee burnout. This result suggests that agile environments characterized by continuous iteration cycles, accelerated delivery expectations, intensive collaboration demands, and constant responsiveness create substantial psychological strain for employees. Although agile methodologies are frequently promoted as mechanisms for improving flexibility and innovation capability, the findings indicate that continuous adaptability requirements may simultaneously intensify emotional exhaustion and cognitive overload.

This finding aligns with the Job Demands–Resources (JD-R) Theory, which explains that excessive job demands deplete employees' psychological and emotional resources, resulting in burnout and reduced well-being. Agile environments often require employees to manage overlapping deadlines, rapid workflow transitions, continuous communication obligations, and persistent performance pressure. While these conditions may enhance operational responsiveness, they also increase emotional fatigue and mental exhaustion.

The findings challenge the dominant managerial narrative portraying agility exclusively as a positive organizational capability. Most organizations adopt agile methodologies primarily to improve efficiency, innovation, and delivery speed without critically examining their psychological implications for employees. The results suggest that organizations emphasizing continuous adaptability without sufficient recovery mechanisms, workload management systems, and psychological support structures may unintentionally create unsustainable work environments.

The study further revealed that agile project management significantly increases role ambiguity. This finding indicates that decentralized decision-making systems, flexible task structures, and evolving project responsibilities may weaken role clarity and increase uncertainty regarding accountability and performance expectations.

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Agile methodologies intentionally reduce rigid hierarchical structures and encourage cross-functional collaboration, self-management, and flexible role ownership. Although such flexibility may improve adaptability and innovation capability, excessive role fluidity may simultaneously create confusion regarding authority boundaries, responsibilities, and performance evaluation criteria.

This finding supports previous organizational behavior research suggesting that unclear role structures contribute significantly to workplace stress, psychological uncertainty, and reduced organizational effectiveness. Employees operating within ambiguous work environments frequently experience difficulty prioritizing tasks, managing expectations, and understanding accountability relationships.

One critical implication of this finding is that flexibility without structural clarity becomes organizationally dysfunctional. Many organizations mistakenly assume that reducing formal structures automatically improves creativity and collaboration. However, the findings suggest that excessive ambiguity may weaken employees' sense of control and increase psychological instability within project environments.

The study also demonstrated that employee burnout significantly increases employee silence. This result indicates that emotionally exhausted employees are more likely to suppress concerns, withhold ideas, and avoid proactive communication behaviors within organizations.

This finding is particularly important because employee silence represents a major organizational risk within project-based environments where collaboration, feedback exchange, and knowledge sharing are essential for project success. Burned-out employees often disengage psychologically from organizational participation because speaking up requires additional emotional and cognitive effort. Silence therefore becomes a coping mechanism enabling employees to conserve remaining psychological resources.

The findings further support Conservation of Resources (COR) Theory, which explains that individuals attempt to preserve emotional and psychological resources when exposed to prolonged stress and resource depletion. Employees experiencing burnout may perceive communication,

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feedback provision, and organizational participation as emotionally costly activities. Consequently, they become more likely to withdraw from collaborative engagement and avoid interpersonal risk-taking behaviors.

Similarly, the findings revealed that role ambiguity significantly increases employee silence. This result suggests that employees operating within unclear authority structures and uncertain responsibility systems are more likely to avoid expressing opinions, reporting concerns, or challenging organizational decisions.

Employees experiencing role ambiguity frequently fear negative evaluation, interpersonal conflict, or managerial disapproval because uncertainty regarding expectations weakens psychological safety. Under such conditions, silence becomes a defensive behavioral strategy aimed at minimizing social and professional risk.

This finding is especially relevant within agile environments where communication transparency and collaborative responsiveness are considered critical success factors. Agile methodologies rely heavily on continuous interaction, rapid feedback cycles, and collective problem-solving processes. However, the findings suggest that when role structures become excessively ambiguous, employees may disengage from these communication processes despite the collaborative intentions of agile systems.

The mediation findings further demonstrated that employee burnout partially mediates the relationship between agile project management and employee silence. This result indicates that agile work systems contribute to communication withdrawal behaviors partially through generating emotional exhaustion and psychological depletion among employees.

The mediation mechanism provides deeper insight into the hidden organizational costs associated with agile methodologies. Agile project environments do not directly produce silence behaviors alone; rather, continuous adaptability demands, accelerated workflows, and collaborative pressure first exhaust employees psychologically, which subsequently reduces their willingness to engage in organizational communication and proactive participation.

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This finding substantially extends existing agile management literature, which remains heavily dominated by performance-oriented perspectives emphasizing speed, innovation, customer responsiveness, and operational flexibility. The results suggest that agility may produce contradictory organizational outcomes whereby operational efficiency improvements coexist with deteriorating employee well-being and weakened communication transparency.

Another important implication emerging from the findings is that organizations frequently underestimate the cumulative psychological burden associated with continuous agility. Agile systems often normalize constant urgency, persistent responsiveness, and uninterrupted collaboration as indicators of organizational commitment and productivity. However, sustained exposure to such conditions may gradually weaken employees' psychological resilience, communication engagement, and organizational trust.

The findings therefore challenge the assumption that agility automatically produces sustainable organizational effectiveness. Agile methodologies may improve short-term operational responsiveness while simultaneously generating long-term psychological and behavioral consequences that undermine organizational learning, communication quality, and employee well-being.

From a project management perspective, the findings suggest that organizations focusing exclusively on speed and adaptability while neglecting employee recovery, role clarity, and psychological sustainability may unintentionally create hidden organizational dysfunctions that eventually weaken project performance and collaboration effectiveness.

6. Theoretical Implications

This study contributes to project management, organizational behavior, and occupational psychology literature in several important ways.

First, the study extends agile project management literature by shifting scholarly attention from operational performance outcomes toward employee-centered psychological consequences. Existing

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agile research predominantly emphasizes efficiency, innovation capability, customer responsiveness, and project success while providing limited understanding regarding the hidden human costs associated with agile work environments.

Second, the study contributes to the Job Demands–Resources (JD-R) Theory by empirically demonstrating that agile work systems function simultaneously as organizational resources and psychological demands. While agility may enhance adaptability and collaboration, excessive adaptability requirements also intensify emotional exhaustion and workplace stress.

Third, the study contributes to Conservation of Resources (COR) Theory by explaining how continuous project pressure and role uncertainty deplete employees' psychological resources, ultimately increasing communication withdrawal behaviors such as employee silence.

Fourth, the integration of burnout, role ambiguity, and employee silence into a unified conceptual framework significantly advances understanding regarding the behavioral mechanisms through which agile environments influence organizational communication dynamics.

Finally, the study contributes to emerging debates regarding sustainable project management by demonstrating that organizational agility without psychological sustainability may generate long-term behavioral and relational costs within project-based organizations.

7. Practical Implications

The findings provide several important implications for project managers, agile coaches, organizational leaders, and HR professionals.

Organizations implementing agile methodologies should avoid equating continuous speed and responsiveness with sustainable productivity. Agile systems require psychological sustainability mechanisms capable of protecting employee well-being alongside operational performance objectives.

Project managers should establish clearer role definitions and accountability structures within agile teams. Although flexibility and cross-functional collaboration remain essential components of agility, excessive role ambiguity weakens employees' sense of control and increases workplace uncertainty.

Organizations should also implement burnout prevention strategies including:

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- workload balancing,
- recovery periods between project cycles,
- psychological support programs,
- realistic sprint planning,
- and sustainable communication expectations.

The findings further suggest that employee silence should be treated as a strategic organizational warning signal rather than merely an individual behavioral issue. Silence often reflects deeper psychological exhaustion and structural uncertainty within project environments.

Agile leaders should therefore strengthen psychological safety by encouraging open communication, reducing interpersonal fear, and creating supportive feedback cultures where employees can express concerns without fear of negative consequences.

Additionally, organizations should reconsider the normalization of constant urgency within agile environments. Continuous acceleration may improve short-term project outputs while simultaneously weakening long-term employee engagement, collaboration quality, and organizational learning capability.

Overall, the findings emphasize that sustainable agility requires balancing operational flexibility with employee psychological well-being and communication transparency.

8. Conclusion

This study investigated the hidden psychological and organizational consequences of agile project management within project-based organizations by examining the relationships among agile project management, employee burnout, role ambiguity, and employee silence.

The empirical findings revealed that agile project management significantly increases employee burnout and role ambiguity, while both variables positively influence employee silence. The findings further demonstrated that burnout partially mediates the relationship between agile project management and employee silence.

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The study therefore challenges the predominantly optimistic perspective surrounding agile methodologies by demonstrating that agility may simultaneously generate operational benefits and hidden organizational costs.

The findings indicate that agile work systems characterized by continuous adaptability demands, accelerated workflows, decentralized coordination, and collaborative pressure may unintentionally create emotionally exhausting and psychologically uncertain work environments. These conditions subsequently weaken communication transparency and increase employee withdrawal behaviors.

The study further highlights that sustainable project performance cannot be achieved solely through speed, flexibility, and continuous responsiveness. Organizations must also address employee psychological well-being, role clarity, and communication safety to prevent long-term organizational dysfunction.

Overall, the study contributes to the growing literature on agile project management by integrating psychological strain, role uncertainty, and communication behavior into a unified framework explaining the hidden human consequences of agile work environments.

9. Limitations and Future Research Directions

Despite its contributions, the study contains several limitations that provide opportunities for future research.

First, the study employed a cross-sectional research design, limiting the ability to establish long-term causal relationships among constructs. Future studies should adopt longitudinal approaches to examine how agile work systems influence employee well-being and communication behaviors over time.

Second, the study focused primarily on project-based organizations operating within technology-intensive industries. Future research should investigate the hidden consequences of agile methodologies across other sectors including healthcare, education, construction, and public administration.

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Third, the study examined burnout as a mediating mechanism. Future research may investigate additional psychological mediators including emotional exhaustion, psychological safety, organizational cynicism, work alienation, and job insecurity.

Fourth, future studies should examine potential moderating variables such as organizational culture, leadership style, resilience capability, digital communication intensity, and team diversity.

Fifth, the study relied on perceptual self-reported survey data. Future research should incorporate mixed-method approaches including interviews, longitudinal observations, and objective organizational performance indicators.

Finally, comparative international studies would provide deeper understanding regarding how cultural norms, managerial systems, and institutional environments influence the hidden psychological costs associated with agile project management across different countries and organizational contexts.

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