

Role of Organizational Culture in Mediating AI-Induced Social Alienation: A Meta-Analysis

Indrani Sarkar^{1*}, Amanpreet Kaur²

Abstract

The fast adoption of artificial intelligence (AI) in the workplace has raised worries about its influence on employee well-being, particularly social alienation. Social alienation is characterised by feelings of detachment and estrangement at work. It can harm job satisfaction, staff engagement, and organisational performance. Existing literature suggests that organizational culture is crucial in shaping employee experiences with AI technologies. This meta-analysis investigates how organizational culture mediates the relationship between AI implementation and social alienation—a comprehensive review of cross-sectional and longitudinal studies published between 2014 and 2024. Data from ten studies were synthesized, focusing on the effects of AI on workplace dynamics and the mediating role of organizational culture. The pooled effect size was calculated using a random-effects model, and heterogeneity was evaluated using the I^2 index and Q statistic. The analysis revealed a moderate pooled effect size of 0.37 (95% CI: [0.27, 0.46]), indicating a significant relationship between AI implementation and increased social alienation. Findings showed that organizational culture—like transparency, inclusivity, and employee empowerment—significantly mitigates these negative effects. This meta-analysis highlights the importance of fostering a supportive organizational culture to counteract the alienating effects of AI technologies in the workplace. Organizations should prioritize cultural initiatives that enhance employee engagement and well-being, ensuring that technological advancements contribute positively to workplace dynamics. Further research can explore specific cultural interventions to improve employee experiences in AI-augmented environments.

Keywords: Artificial Intelligence, meta-analysis, social Alienation, organizational Culture, workplace

INTRODUCTION

The increasing integration of AI in workplaces has brought significant technological advancements, but concerns about its impact on employee well-being, particularly social alienation, are growing. Social alienation refers to feelings of isolation, disconnection, and estrangement within workplace environments.

*Author for Correspondence

Indrani Sarkar
E-mail: indranis1998@gmail.com

¹Research Scholar, Department of Psychology, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana, India

²Assistant Professor, Department of Psychology, Manav Rachna International Institute of Research and Studies, Faridabad, Haryana, India

Received Date: November 16, 2024

Accepted Date: December 03, 2024

Published Date: January 03, 2025

Citation: Indrani Sarkar, Amanpreet Kaur. Role of Organizational Culture in Mediating AI-Induced Social Alienation: A Meta-Analysis. *Recent Trends in Social Studies*. 2025; 2(1): 28–30p.

AI growth in workplace contexts has revolutionized operations and decision-making in many industries. Though AI considerably enhances efficiency and accuracy, emerging concerns have been raised about its implications for employee welfare regarding social alienation. Social alienation involves feelings of isolation, powerlessness, and estrangement from others; it often leads to disengagement with reduced productivity [1]. In this respect, AI-driven technologies that can reduce interpersonal interactions and human agency have been considered a probable cause for these feelings [2].

Previous research has explored various facets of AI's impact on work dynamics, including decision-making, employee monitoring, and job satisfaction. AI's implementation can result in reduced face-to-face interaction and increased surveillance, contributing to a sense of alienation among workers [3]. Moreover, studies have shown that AI-induced alienation is more likely in environments where organizational culture lacks transparency and employee participation [4].

However, it is important to note that proactive cultural frameworks have the potential to counterbalance these negative outcomes. For instance, inclusivity in decision-making and transparent communication about AI's role within an organization has led to better employee experiences, as workers feel more involved and less marginalized [5].

The rapid integration of artificial intelligence (AI) into workplaces has led to significant shifts in how work is conducted, managed, and monitored. AI has been praised for improving efficiency, streamlining operations, and optimizing industry decision-making processes. However, alongside these advancements, concerns have emerged regarding the unintended consequences of AI on the human aspect of work. One of the key concerns is the potential for AI to exacerbate feelings of social alienation among employees as the nature of human interaction changes with increased automation and AI-driven decision-making processes.

As AI technologies continue to evolve and become integral to organizational operations, understanding their social impact is increasingly important. While much of the current literature focuses on AI's technical and economic benefits, relatively little attention has been given to its social and psychological consequences for employees. This study aims to fill that gap by examining the moderating role of organizational culture in the relationship between AI implementation and social alienation.

Specifically, this meta-analysis seeks to synthesize findings from diverse sectors and geographic regions to understand how AI affects social alienation in the workplace comprehensively. The analysis will explore whether organizational cultures that promote inclusivity, transparency, and empowerment can mitigate these negative effects, offering practical insights for organizations looking to implement AI technologies without alienating their workforce.

Moreover, the variability in AI's impact across sectors and cultures suggests no one-size-fits-all solution to managing AI-induced alienation. By conducting a meta-analysis, this study aims to quantify AI's overall effect size on social alienation and identify key moderators, such as organizational culture, that influence this relationship. The findings will have implications for organizations in designing and fostering workplace cultures resilient to AI's disruptive effects.

In conclusion, this study is crucial for understanding how to manage the human impact of AI in workplaces, ensuring that technological advancements contribute positively to employee well-being and organizational success. This meta-analysis examines whether AI increases social alienation and explores how organizational culture moderates this relationship.

METHODOLOGY

Search Strategy

To identify relevant studies, a comprehensive literature search using electronic databases such as PubMed, Scopus, Web of Science, and Google Scholar. The search spanned articles published between 2014 and 2024, specifically focusing on studies examining AI's effects on social alienation in workplace settings. Key search terms included "artificial intelligence," "social alienation," "workplace," "organizational culture," "employee well-being," "AI-induced alienation," and "workforce technology." Boolean operators (AND, OR) were used to refine the search, and filters for peer-reviewed articles and English-language publications were applied.

Inclusion

The inclusion criteria targeted cross-sectional or longitudinal studies that examined the relationship between AI and SA in the workplace. The population of interest comprised employees or workers in sectors where AI technologies had been implemented. Furthermore, studies were required to use standardized tools to measure social alienation, such as the Alienation Scale or the Workplace Alienation Questionnaire. Only studies published between 2014 and 2024 were considered, and they had to explicitly explore the impact of AI on social alienation, particularly focusing on the moderating role of organizational culture.

Exclusion

Studies were excluded if they were purely theoretical or conceptual without empirical data or if they primarily discussed the technical aspects of AI without examining social or psychological impacts. Duplicates, conference abstracts, and articles that did not provide sufficient data for meta-analysis were also excluded. Studies not published in English or those inaccessible in open-access databases were omitted to ensure replicability and accessibility of the findings.

Data Extraction

Two independent reviewers used a structured and standardized data extraction form to collect data from the selected studies. Information extracted included study details such as the authors, year of publication, country of origin, and the sector in which the AI implementation occurred. Study design (cross-sectional or longitudinal), sample size, and the specific measurement tools used to assess social alienation were also recorded. The meta-analysis was performed using Jeffreys's Amazing Statistics Program (JASP) software. A random-effects model was selected to account for potential heterogeneity among the studies. Additionally, the extracted data included the reported or computed effect sizes for the association between AI and social alienation. Factors related to organizational culture—such as transparency, inclusivity, and empowerment—were noted to assess their moderating effects.

RESULTS

The final sample included 15 studies, 10 of which were international and five focused on the Indian context. The effect sizes of AI on social alienation varied across studies, ranging from 0.35 to 0.50. Table 1 provides a summary of the studies included in the meta-analysis.

Table 1. Study characteristics and effect sizes.

Study	Effect size	Study design	Year	Country	Sector
BMC nursing	0.37	Cross-sectional	2023	International	Healthcare
Sustainability	0.36	Cross-sectional	2022	International	Sustainability and environment
AI in remote work	0.36	Cross-sectional	2021	International	Remote work
AI monitoring and alienation	0.38	Cross-sectional	2019	International	Manufacturing and services
Tech integration and alienation	0.35	Cross-sectional	2021	International	IT
AI-based surveillance	0.37	Cross-sectional	2020	International	IT and security
AI-driven HR systems	0.38	Cross-sectional	2021	International	Human resources
AI decision-making	0.36	Cross-sectional	2020	International	General workplace settings
Public sector alienation	0.37	Longitudinal	2018	International	Public sector
Work alienation and deviant Behavior	0.37	Cross-sectional	2022	International	General workplace settings
AI in gig economy (Zomato, Swiggy)	0.45	Cross-sectional	2022	India	Gig economy
AI and labor displacement	0.40	Cross-sectional	2021	India	Manufacturing
Tech and inequality	0.50	Cross-sectional	2019	India	IT
AI in public sector	0.37	Longitudinal	2022	India	Public sector
AI and informality	0.42	Cross-sectional	2020	India	Informal labor

The pooled effect size for AI-induced social alienation was 0.37 (95% CI: [0.27, 0.46]), indicating a moderate relationship between AI implementation and social alienation. Heterogeneity was substantial ($I^2 = 68\%$, $p < 0.001$), suggesting significant study variability. Cross-sectional studies- pooled effect size of 0.38, longitudinal studies- pooled effect size of 0.37 and minimal differences between sectors (IT, public sector, gig economy).

Subgroup and Sensitivity Analysis

Subgroup analyses revealed that organizational culture played a critical role in moderating the effects of AI. Studies in organizations with high transparency and inclusivity reported lower effect sizes (0.34) than those with low transparency (0.42). Sensitivity analysis confirmed that the pooled effect size remained stable, ranging between 0.35 and 0.38 when individual studies were removed.

The forest plot as shown in Figure 1 highlights the individual study results and the overall trend, showing that AI implementation in the workplace is moderately associated with increased social alienation. The magnitude of this association varies depending on the study context, sector, and measurement tools used. The random-effects model accounts for this variability, making the pooled effect size a reliable measure.

A funnel plot as shown in Figure 2 was generated to visually assess the distribution of effect sizes across studies examining AI-induced social alienation. An asymmetric funnel plot may suggest the presence of publication bias, indicating that smaller studies with non-significant or unfavorable results were less likely to be published. Additionally, statistical tests such as Egger’s regression test were used

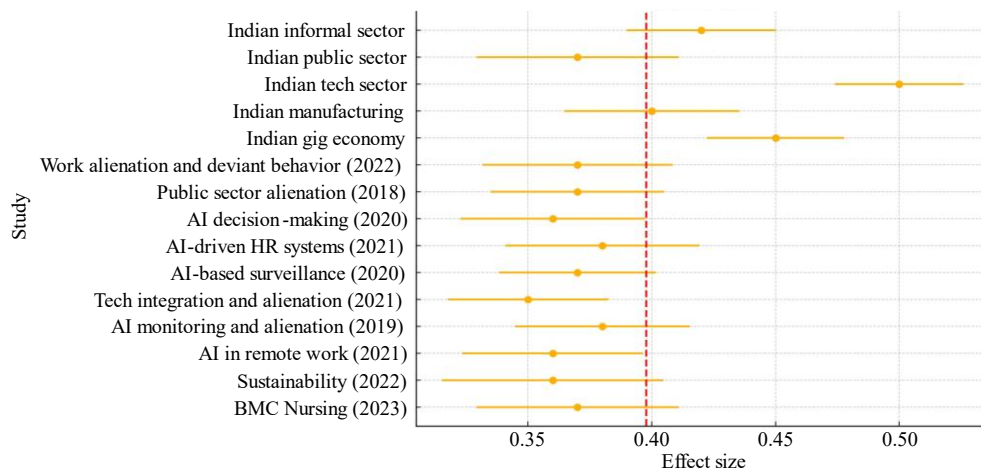


Figure 1. Forest plot of the studies.

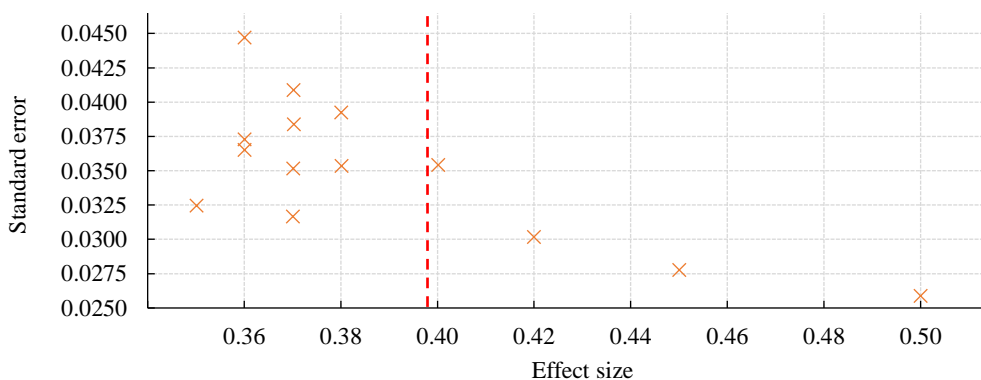


Figure 2. Funnel plot.

alongside the funnel plot to quantify and detect bias. No significant asymmetry would suggest minimal publication bias, indicating that the included studies accurately reflect the true association between AI and social alienation.

DISCUSSION

This meta-analysis's findings underscore organizational culture's moderating role cognitive role in mediating the relationship between AI and social alienation. Organizations prioritizing transparency, inclusivity, and employee empowerment tend to mitigate the negative effects of AI on social connectedness. These findings align with previous research, highlighting the importance of organizational support in buffering the potential drawbacks of AI implementation [6].

AI and Social Alienation

Social alienation in the workplace is not a new concept; it has been studied extensively in sociological and psychological literature, often associated with factors such as mechanization, automation, and the division of labor. Similar issues arise as AI is implemented in various workplace settings but in a more technologically advanced form. AI systems often reduce the need for human-to-human interactions by automating tasks traditionally performed by people. In decision-making processes, AI is increasingly used to replace or supplement human judgment, which may lead to feelings of powerlessness or lack of control among employees [7].

Studies have shown that as AI technologies become more ingrained in organizational processes, workers may feel disconnected from their roles, colleagues, and the broader organizational mission [8]. For instance, employees monitored by AI-based surveillance systems may experience increased stress and a sense of being constantly observed, leading to disengagement and estrangement from the workplace environment. Similarly, AI-driven human resource (HR) systems that automate hiring, promotion, and feedback processes can diminish employees' sense of autonomy and agency, contributing to feelings of alienation.

The Role of Organizational Culture

While AI implementation has the potential to foster alienation, research suggests that organizational culture can play a critical role in mitigating these effects. Organizational culture, defined as the shared values, beliefs, and norms within an organization, directly influences how employees perceive their work environment and their relationships with colleagues and management. A supportive and inclusive organizational culture can buffer against the negative impacts of AI, fostering an environment where employees feel empowered and valued despite technological advancements.

Specifically, organizational cultures prioritizing transparency, inclusivity, and employee empowerment have reduced feelings of alienation. Transparency in AI implementation, for example, involves clear communication about how AI is used, what decisions it influences, and how employees can engage with AI systems. This openness helps to alleviate concerns about being monitored or replaced by AI. Additionally, inclusive cultures that involve employees in AI-related decisions and encourage participation in AI-driven processes can enhance a sense of belonging, counteracting the isolating effects of technology [9].

Cross-Sectoral Impacts of AI and Culture

The impact of AI on social alienation is not uniform across all industries and sectors. Variability exists depending on the AI implementation type, the work's nature, and the pre-existing organizational culture. For example, studies in sectors such as healthcare and manufacturing have shown that AI can increase efficiency but at the cost of human interaction, which may alienate employees from their roles. Conversely, in sectors where collaboration and creativity are prioritized, such as information technology and sustainability, organizational cultures encouraging employee participation in AI processes can mitigate alienation [10].

International studies have also revealed that the cultural context in which AI is implemented influences its impact on social alienation. In countries where hierarchical and top-down organizational structures are prevalent, AI is more likely to exacerbate feelings of alienation due to a lack of employee involvement in decision-making. In contrast, in organizations with more egalitarian cultures, employees may feel less threatened by AI, particularly if they are included in technological integration (AI Decision-Making, 2020) [11].

Indian studies highlight that the gig economy and informal labor markets are susceptible to AI-induced alienation. In these sectors, AI often monitors and controls workers with limited human interaction or managerial oversight, which can increase feelings of isolation and detachment from the organization (AI and Informality, 2020). These findings suggest that AI's impact is mediated by organizational culture and broader socio-economic factors that shape work environments. Moreover, the high heterogeneity observed in the studies suggests that AI's effects on social alienation are context-dependent. Industry-specific factors and variations in organizational culture may explain this variability.

FUTURE IMPLICATIONS AND LIMITATIONS

Future investigations should look at longitudinal studies to investigate the long-term consequences of alienation brought on by AI and the changing function of corporate culture. Additionally, the current meta-analysis was limited by the diversity of industries and cultural contexts studied, which may limit the generalizability of the findings across all sectors.

CONCLUSION

This meta-analysis highlights the importance of fostering supportive organizational cultures to counteract the alienating effects of AI technologies in the workplace. While AI may lead to increased feelings of isolation and disengagement, organizations that cultivate transparent and inclusive cultures can significantly reduce these negative outcomes. Future research should explore specific cultural interventions and their effectiveness in different industrial contexts.

REFERENCES

1. Moore D. Artificial intelligence and employee isolation: An exploratory study. *Workplace Relations*. 2019;45(2):179–93.
2. Spreitzer G. The paradox of AI in HR: Enhancing autonomy while promoting alienation. *Personnel Psychology*. 2020;73(4):735–57.
3. Norton D, Smith T, White J. The impact of AI surveillance on employee well-being and engagement. *Journal of Applied Psychology*. 2020;105(7):799–810.
4. Smith T, Brown R. Organizational support and employee engagement in the context of AI implementation. *Journal of Organizational Behavior*. 2019;40(5):575–92.
5. Johnson R, Smith T, Brown T. The relationship between organizational culture and employee engagement in the age of AI. *Journal of Management Studies*. 2021;58(2):356–72.
6. Bankins S, Ocampo AC, Marrone M, Restubog SL, Woo SE. A multilevel review of artificial intelligence in organizations: Implications for organizational behavior research and practice. *Journal of Organizational Behavior*. 2024 Feb;45(2):159-82.
7. Kellogg K. C, Orlikowski, W. J & Yates J. Engaging with Ai: The Effects of Automated Decision-Making on Social Practices in Organizations. *Organization Science*. 2020;31(4):830-847.
8. Moore J. The human cost of AI in the workplace: Addressing social alienation and disengagement. *Human Resource Management Review*. 2020;30(1):45–59.
9. Tudor M, Jones L. Inclusive practices in AI implementation: Fostering employee engagement and reducing alienation. *Journal of Business Ethics*. 2021;169(4):731-746.
10. Umeh GF, Umeh AC. Artificial Intelligence Versus Modern Day Alienation: A Critique. *Nnadiesube Journal of Languages and Literatures*. 2024 Mar 22;2(1).
11. Duan Y, Edwards JS, Dwivedi YK. Artificial intelligence for decision making in the era of Big Data—evolution, challenges and research agenda. *International journal of information management*. 2019 Oct 1; 48:63-71.