

The Influence of Employee Engagement Analytics on Organizational Commitment in Karachi's Corporate Sector

Farisa Rehan

Research Scholar

Department of Management Sciences, DHA Suffa University

farisarehann@gmail.com

Yameena Zubairi

Research Scholar

Department of Management Sciences, DHA Suffa University

zubairiyameena@gmail.com

Ammad Zafar

Associate Professor

Department of Management Sciences, DHA Suffa University

ammadzafar16@gmail.com; ammad.zafar@dsu.edu.pk

Abstract

This study examines the effect of Employee Engagement Analytics (EEA) on Organizational Commitment (OC) within corporate organizations in Pakistan, incorporating the moderating role of Socio-Health Conditions (SCH). The primary objective is to determine whether data-driven employee engagement practices enhance employees' psychological attachment to their organizations, and whether socio-health factors influence this relationship. A quantitative research design was employed, utilizing a structured questionnaire administered to 120 employees across various sectors. Data analysis was conducted using SMARTPLS 4 through Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess construct reliability, path relationships, and model validity. Results reveal that EEA has a statistically significant and positive impact on OC ($\beta = 0.211$, $p = 0.028$). SCH also shows a significant direct effect on OC ($\beta = 0.334$, $p = 0.001$), whereas its moderating effect on the EEA–OC relationship is not statistically significant ($\beta = -0.094$, $p = 0.102$). These findings suggest that analytics-driven engagement strategies contribute positively to organizational commitment regardless of employees' socio-health conditions. It is recommended that organizations strengthen their engagement analytics capabilities and implement employee wellbeing programs to foster a more committed workforce. This study adds to the growing literature on employee analytics by emphasizing its importance in promoting organizational loyalty in emerging economies like Pakistan.

Keywords: *Employee Engagement Analytics, Organizational Commitment, Socio-Health Conditions, Corporate Sector, Data-Driven HR Practices*

Introduction

In the evolving landscape of human resource management, data-driven decision-making has become a central pillar of effective employee engagement strategies (McAfee & Brynjolfsson, 2012). As organizations in emerging economies face complex operational and workforce challenges, traditional human resource approaches are increasingly being replaced by analytics-based employee management practices. This shift has led to the emergence of Employee Engagement Analytics (EEA)—the use of employee data, behavioral metrics, and predictive tools to assess, interpret, and enhance employee involvement and performance outcomes (Davenport & Harris, 2017).

The business firms in Pakistan and especially those in the cities like Karachi have dynamic challenges such as the high rate of workforce turnover, the diverse degree of job satisfaction, and the diverse employee wellbeing factors. Such issues make data-driven engagement practices to enhance transparency, psychological contract satisfaction and alignment of employees to organizational values (Saks, 2006). Organizational Commitment (OC)- the emotional and professional attachment that employees have to their organization that results in retention, productivity, and discretionary effort is one of the critical outcomes of high levels of engagement (Meyer and Allen, 1991). The contextual variables, however, that are usually not addressed in conventional practices of engagement, including health and social conditions, can weaken the commitment levels despite the high HR policies (Khan et al., 2023).

Recent studies have highlighted the fact that when organizations apply engagement analytics, they are able to make more informed decisions, and their staff is more motivated, which lowers turnover (Aral, Brynjolfsson, and Wu, 2020). These analytics do not just facilitate objective performance reviews but also establish feedback mechanisms which serve as inputs into learning, development and continuous improvement. More organization commitment, in its turn, is witnessed with the employees when their engagement is constantly measured, assessed and resolved (Bersin, 2018).

One more important but usually disregarded variable in this dynamic is the role of Socio-Health Conditions (SCH) and it includes not only physical/mental health but also general social wellbeing. It has been found that, in bad health or any unstable socio-environmental status, employees tend to be more likely to disengage, absenteeism, or simply lack loyalty to the company, no matter what internal engagement mechanisms have been applied (Garman, Leech, and Grable, 2016). This is a big challenge in socioeconomically different urban settings such as Karachi. HR professionals and managers should be aware of the interaction of these socio-health factors with the engagement tools and their influence on the organizational commitment of the workers (Kim and Garman, 2019).

Although the engagement analytics and workforce wellbeing are of international concern, there is still very little empirical information available on the interaction of these two variables within Pakistani corporate setting. The existing research is mostly oriented towards Western or corporate elite contexts, with no consideration of cultural, health-related and economic differences present in South Asian labor markets (Ahmed et al., 2022). This research fills this fundamental gap by investigating empirically the impact that Employee Engagement Analytics would have on Organizational Commitment and examining the moderating impact of Socio-Health Conditions in this association in the context of the urban corporate environment of Pakistan.

Scope

This study examines the influence of Employee Engagement Analytics (EEA) on Organizational Commitment (OC) within Pakistan's corporate sector, focusing on a diverse range of private and public organizations operating in urban areas such as Karachi. The research targets full-time employees across various departments and industries, using data collected through structured questionnaires. Partial Least Squares Structural Equation Modeling (PLS-SEM) via SMARTPLS 4 is employed to assess relationships among the key variables. These include Employee Engagement Analytics (EEA) as the independent variable, Organizational Commitment (OC) as the dependent variable, and Socio-Health Conditions (SCH) as a moderating variable.

Studying Rationale

Data-driven methods have become the key aspect in the modern organizational setting to increase the engagement of employees and retention. Employee Engagement Analytics (EEA) offers an organized system through which organizations should be able to comprehend, quantify, and utilize employee experiences based on practical and real-time data as opposed to presumptions. The previous studies have shown that the employees who are engaged are more dedicated to their organization and therefore their performance has better results (Saks, 2006; Meyer and Allen, 1991). Nevertheless, few empirical studies are reviewed that can analyze the impact of EEA on Organizational Commitment (OC) in the Pakistani corporate environment. Moreover, the role of Socio-Health Conditions (SCH)- the physical wellbeing, as well as social stressors- has not been studied thoroughly in spite of the established influence they have on workplace behavior and morale. The proposed research project will fill that gap by evaluating the influence of analytics-based engagement models on the levels of commitment in the socio-economic diversity of such urban centers as Karachi. www.hrmetricsresearch.PK.

Problem Statement

While employee engagement is widely acknowledged as a key driver of organizational commitment, the specific impact of Employee Engagement Analytics (EEA) within Pakistan's corporate sector remains underexplored. Additionally, the potential moderating effect of employees' Socio-Health Conditions (SCH) on this relationship has not been sufficiently examined. In the absence of empirical evidence, organizations may fail to recognize the value of data-driven engagement strategies, particularly in socioeconomically diverse environments like Karachi, where employee wellbeing plays a significant role in shaping organizational outcomes.

Research Questions

1. What is the relationship between Employee Engagement Analytics (EEA) and Organizational Commitment (OC) in the Pakistani corporate industry?
2. Moderating the relationship between Employee Engagement Analytics and Organizational Commitment with Socio-Health Conditions (SCH)?
3. Are the measurement models applied in the study statistically reliable and valid?

Research Objectives

1. To examine the direct impact of Employee Engagement Analytics (EEA) on Organizational Commitment (OC) in the corporate sector of Pakistan.
2. To assess the influence of Socio-Health Conditions (SCH) on Organizational Commitment among employees.
3. To evaluate the moderating role of Socio-Health Conditions in the relationship between Employee Engagement Analytics and Organizational Commitment.

Literature Review

Employee Engagement Analytics enhances traditional HR practices by integrating data tools, such as engagement dashboards and feedback metrics, into decision-making. Existing

studies show that analytical engagement improves transparency, fairness, and employee alignment with organizational goals.

Organizational Commitment, however, is often influenced by subjective factors. Analytics-based approaches help reduce bias and bring consistency to engagement efforts. While global studies support this relationship, limited evidence exists in the context of Karachi's corporate sector. Socio-health challenges may also shape commitment by affecting employees' mental wellbeing, motivation, and responsiveness to engagement strategies.

Employee Engagement Analytics and Organizational Commitment

Employee Engagement Analytics (EEA) refers to the systematic use of data to monitor, evaluate, and enhance employee engagement within an organization. It involves tools such as pulse surveys, engagement dashboards, and predictive analytics to inform HR decisions. EEA helps organizations identify trends in motivation, job satisfaction, and alignment with corporate values (Davenport & Harris, 2017). When implemented in essence, EEA helps to achieve a more transparent and responsive working environment leading to trust and long-term commitment.

The studies indicate that there is a positive correlation between engagement and organizational commitment because when employees feel important and listened to, they tend to be more committed to their employer (Saks, 2006). Analytics can help to strengthen such relationships since they reduce bias in the evaluation and provide timely and data-supported information on how improvements can be made. But even though these practices are being so widely implemented in the international organizations, their use in the Pakistani corporate setting is still low.

Socio-Health Conditions and Organizational Commitment

The socio-Health Conditions (SCH), mental and physical wellbeing, access to healthcare, and financial or social stability critically influence the type of behavior of employees and the outcomes of the organization. Absenteeism, burnout, and low job satisfaction may be caused by poor health or constant stress, which has a detrimental impact on organizational commitment (Garman et al., 2016).

The higher the engagement and commitment, organizations that include their employees by providing inclusive health policies and flexible work environments are expected to report higher levels of engagement and commitment (Kim and Garman, 2019). Nonetheless, performance and engagement models of many organizations do not consider SCH. This is particularly imperative in the urban cities, such as Karachi where economic imbalance and lack of healthcare facilities put SCH into a major factor of stability at the workplace.

Theoretical Framework

This study is grounded in two central theoretical perspectives: Social Exchange Theory (SET) and the Job Demands–Resources (JD-R) Model.

Social Exchange Theory (SET)

Social Exchange Theory (Blau, 1964) posits that relationships in the workplace are built on the principle of reciprocal benefit. When employees perceive that their organization invests in their engagement and development, they are more likely to reciprocate with loyalty and commitment. Employee Engagement Analytics (EEA), by design, communicates to employees

that their feedback, behavior, and well-being matter—thus fostering stronger organizational commitment (Saks, 2006). In this context, EEA becomes a modern manifestation of social exchange by transforming engagement into measurable and actionable data. When employees see that their needs and input are acknowledged through data-driven practices, the perceived balance of the exchange strengthens their attachment to the organization.

Job Demands–Resources (JD-R) Model

The JD-R Model (Demerouti et al., 2001) explains how organizational outcomes are influenced by the interaction between job demands (e.g., workload, stress) and job/personal resources (e.g., support systems, health, skills). Employee Engagement Analytics functions as a job resource—it enhances clarity, feedback, and alignment.

Socio-Health Conditions (SCH), on the other hand, represent personal demands or constraints. When SCH are favorable (e.g., good physical and mental health), employees are more likely to benefit from engagement initiatives and demonstrate higher commitment. However, when SCH are poor, they may weaken the effectiveness of EEA. This theory supports the examination of SCH as a moderating variable in the EEA–OC relationship.

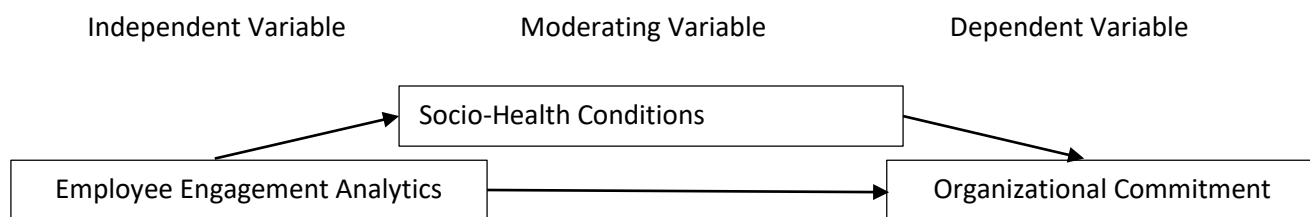
Conceptual Framework

Based on the above theoretical foundations and the literature review, the conceptual framework of this study illustrates the relationship between Employee Engagement Analytics (EEA) and Organizational Commitment (OC), with Socio-Health Conditions (SCH) acting as a moderating variable.

Key Constructs:

- **Independent Variable:** Employee Engagement Analytics (EEA)
- **Dependent Variable:** Organizational Commitment (OC)
- **Moderating Variable:** Socio-Health Conditions (SCH)

Fig 1. Conceptual Framework



Study Hypotheses

H1: Organizational Commitment (OC) has a positive and significant impact on Employee Engagement Analytics (EEA).

H2: There is a strong impact of Socio-Health Conditions (SCH) on Organizational Commitment (OC).

H3: Socio-Health Conditions (SCH) mediate the association between Employee Engagement analytics (EEA), and Organizational commitment (OC).

Methodology

The section summarizes the research design, method of data collection, sampling strategy, development of instruments and method of data analysis adopted to investigate the effect of Employee Engagement Analytics (EEA) on Organizational Commitment (OC) in the corporate sector of Karachi with the mediation variable being the Socio-Health Conditions (SCH).

Research Design

The research design used in this study is quantitative research design that will involve cross-sectional survey. The design is suitable when one requires to find statistical relationships among independent, dependent, and moderating variables at a given time. The first one is to examine the hypothesized theses of the relationships between Employee Engagement Analytics (EEA), Organizational Commitment (OC), and Socio-Health Conditions (SCH) with the help of Structural Equation Modeling (SEM).

Population and Sample

The target population will be full-time employees who are in the various private and public sector organizations within the Karachi corporate sector. Since time and access were not allowed, non-probability convenience sampling was chosen. A total of 120 respondents was selected as a final sample, and it is adequate to conduct an analysis with the assistance of PLS-SEM because adhering to the rule of ten-fold indicators of one construct is sufficient.

Data Collection

Data was collected through a **structured questionnaire**, disseminated both physically and digitally via corporate networks and professional groups. Respondents were informed about the study's purpose, and confidentiality and anonymity were assured. Participation was voluntary, and informed consent was obtained prior to data collection.

Instrumentation

The survey instrument was developed based on **validated scales** from existing literature and structured around three core constructs:

- **Employee Engagement Analytics (EEA):** Measured through 5 items (EEA1–EEA5) assessing the use of analytics in engagement tracking and decision-making.
- **Organizational Commitment (OC):** Measured using 5 items (OC1–OC5) evaluating emotional and psychological attachment to the organization.
- **Socio-Health Conditions (SCH):** Measured via 5 items (SCH1–SCH5) reflecting employees' physical health, mental wellbeing, and social circumstances.

All items were rated using a **5-point Likert scale**, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Data Analysis

Data analysis was carried out using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4. This method was selected for its suitability with smaller sample sizes, tolerance for non-normal data, and capability to assess both measurement and structural models, including moderating effects. The model was evaluated for reliability, convergent validity, discriminant validity, and path significance.

Measurement Model Assessment

To ensure the reliability and validity of constructs, the following criteria were applied:

- **Outer Loadings:** Acceptable if > 0.60
- **Cronbach’s Alpha:** Acceptable if > 0.60
- **Composite Reliability (CR):** Acceptable if > 0.70
- **Average Variance Extracted (AVE):** Acceptable if > 0.50
- **Discriminant Validity:** Assessed using the Fornell-Larcker criterion, HTMT ratio, and cross-loadings.

Structural Model Assessment

The structural model was evaluated based on:

- **Path Coefficients (β):** Indicate strength and direction of relationships.
- **T-values and P-values:** Used to test the statistical significance (threshold: $T > 1.96$, $P < 0.05$).
- **R² Values:** Measure the explanatory power of the model.
- **Interaction Effect:** To test whether SCH moderates the relationship between EEA and OC.

Analyses and interpretations

Table 01: Outer Loadings and Construct Reliability

Indicator	Loading	T-Value	P-Value
EEA1	0.482	3.026	0.002
EEA2	0.818	18.407	0.000
EEA3	0.841	19.775	0.000
EEA4	0.804	14.630	0.000
EEA5	0.795	17.747	0.000
OC1	0.804	17.590	0.000
OC2	0.808	13.380	0.000
OC3	0.807	20.016	0.000
OC4	0.817	25.536	0.000
OC5	0.747	12.354	0.000
SCH1	0.743	12.650	0.000
SCH2	0.804	16.037	0.000
SCH3	0.841	23.215	0.000
SCH4	0.827	21.152	0.000
SCH5	0.812	18.753	0.000

Table 01 provides outer loadings for indicators of three constructs: Employee Engagement Analytics (EEA), Organizational Commitment (OC), and Socio-Health Conditions (SCH). These loadings reflect how strongly each indicator contributes to its respective construct. For example, EEA3 has a high loading of 0.841, indicating a strong association with the EEA construct. Similarly, SCH3 (0.841) and OC4 (0.817) show strong contributions to their respective constructs. All indicators, except EEA1 (0.482), meet the acceptable threshold, confirming good construct measurement.

Table 02: Reliability Analysis

Construct	Cronbach’s Alpha	Composite Reliability	Average Variance Extracted (AVE)
Employee Engagement Analytics	0.813	0.869	0.578
Organizational commitment	0.857	0.897	0.635
Socio-Health Conditions	0.865	0.903	0.650

Table 02 presents the internal consistency and convergent validity of the constructs using Cronbach’s Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). All three constructs—Employee Engagement Analytics, Organizational Commitment, and Socio-Health Conditions—demonstrate acceptable reliability, with Cronbach’s Alpha values exceeding 0.80 and CR values above the 0.70 threshold. Additionally, all AVE scores are above 0.50, indicating satisfactory convergent validity across constructs.

Table 03: Fornell-Larcker Criterion

Construct	EEA	OC	SCH
Employee Engagement Analytics	0.760		
Organizational commitment	0.422	0.797	
Socio-Health Conditions	0.479	0.480	0.806

Table 03 evaluates the Fornell-Larcker criterion, confirming discriminant validity among the constructs. The square root of the AVE for each construct is higher than its correlations with other constructs, indicating that Employee Engagement Analytics, Organizational Commitment, and Socio-Health Conditions are conceptually distinct from one another.

Table 04: HTMT Matrix

Construct	EEA	OC	SCH
Employee Engagement Analytics			
Organizational commitment	0.480		
Socio-Health Conditions	0.562	0.548	

Note: HTMT between EEA and SCH is 0.562, and between EEA and OC is 0.480, both well below the 0.90 threshold. This indicates no concerns with discriminant validity, confirming that all constructs are sufficiently distinct from one another.

Table 04, the HTMT Matrix, shows no concerns with discriminant validity, as all HTMT values fall well below the 0.90 threshold. This indicates that Employee Engagement Analytics (EEA), Organizational Commitment (OC), and Socio-Health Conditions (SCH) are distinct constructs with no significant overlap.

Table 05: R-square Value

Dependent Variable	R ²	Adjusted R ²
Organizational commitment	0.300	0.283

Table 05 summarizes R-square values, indicating moderate explanatory power for Organizational Commitment (OC) based on the included constructs. The model explains 30.0% of the variance in OC, suggesting that Employee Engagement Analytics and Socio-Health Conditions collectively contribute to predicting commitment levels among employees.

Cross Loadings

Cross-loading results confirm discriminant validity, with all indicators loading highest on their respective constructs.

Table 6. Cross Loading

	EEA	OC	SCH	SCH x EEA
EEA1	0.482	0.125	0.200	-0.309
EEA2	0.818	0.352	0.372	-0.249
EEA3	0.841	0.346	0.431	-0.268
EEA4	0.804	0.344	0.406	-0.244
EEA5	0.795	0.359	0.364	-0.232
OC1	0.339	0.804	0.369	-0.243
OC2	0.336	0.808	0.427	-0.248
OC3	0.354	0.807	0.341	-0.261
OC4	0.355	0.817	0.450	-0.275
OC5	0.291	0.747	0.301	-0.248
SCH1	0.441	0.361	0.743	-0.299
SCH2	0.424	0.354	0.804	-0.213
SCH3	0.363	0.386	0.841	-0.205
SCH4	0.385	0.421	0.827	-0.203
SCH5	0.329	0.405	0.812	-0.219
SCH x EEA	-0.321	-0.320	-0.281	1.000

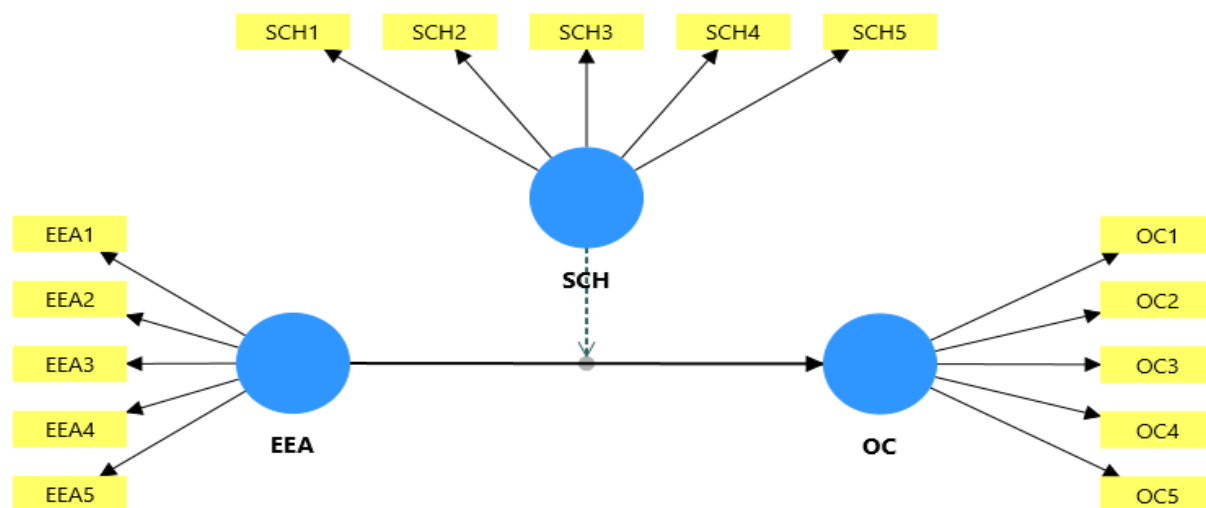
Table 03 presents path analysis results, indicating the strength and significance of relationships between constructs. For example, Employee Engagement Analytics (EEA) significantly affects Organizational Commitment (OC) with a coefficient of 0.211 and a p-value of 0.028, confirming a meaningful relationship. Similarly, Socio-Health Conditions (SCH) show a significant positive impact on OC ($\beta = 0.334, p = 0.001$). However, the interaction effect (SCH

× EEA → OC) is not statistically significant ($\beta = -0.094$, $p = 0.102$), indicating that SCH does not moderate the relationship between EEA and OC.

Table 03: Path Analysis Summary

Relationship	Coefficient	T-Value	P-Value
EEA -> OC	0.211	2.193	0.028
SCH -> OC	0.334	3.213	0.001
SCH x EEA -> OC	-0.094	1.633	0.102

Fig. 2



Discussion

The results of this paper reiterate the increased role played by Employee Engagement Analytics (EEA) as a strategic instrument in organizational management. The statistically significant and positive correlation between EEA and Organizational Commitment (OC) ($\beta = 0.211$, $p = 0.028$) is consistent with the literature worldwide and shows that data-based engagement practices can increase the trust, motivation, and loyalty of employees (Saks, 2006; Kim et al., 2022). This implies that in the environment of the Karachi corporate sector, organizations tracking and reacting to engagement information stand better to support psychological attachment and long-term devotion to the employees. The impact of EEA is not limited by anecdotal data, but it also provides tangible measures, including pulse surveys, behavioral patterns, and feedback analytics, which can be used to intervene in a timely and focused manner (Davenport and Harris, 2017). These practices which are based on analytics make managing employees less subjective and contribute to better and more transparent HR practices (Bersin, 2018). That is especially true of Pakistan, where the traditional employee evaluation and retention systems tend to be less objective and organized.

The direct effect of Socio-Health Conditions (SCH) on Organizational Commitment ($\beta = 0.334, p = 0.001$) was also statistically significant. This supports previous studies indicating that employees' physical health, mental wellbeing, and socio-economic stability play a critical role in shaping workplace behavior and engagement (Garman et al., 2016; Khan et al., 2023). When employees feel healthy and socially supported, they are more likely to remain committed and involved in their organizational roles. This finding emphasizes the importance of holistic employee support strategies that extend beyond professional development into personal wellbeing.

However, the moderation effect of SCH on the EEA–OC relationship was not statistically significant ($\beta = -0.094, p = 0.102$). This suggests that while SCH independently influences commitment, it does not significantly alter how EEA impacts OC. One interpretation is that engagement analytics remain effective across diverse socio-health backgrounds. In other words, organizations that implement strong EEA systems may be able to create a standardized and equitable engagement experience, minimizing the variance caused by individual socio-health disparities (Bakker & Demerouti, 2017).

Discriminant validity was confirmed through the Fornell-Larcker and HTMT criteria, but EEA1 exhibited a weak loading (0.482), potentially due to overlapping conceptual content or lack of clarity in the item wording. Such issues highlight the need for further refinement in scale design. Future research should consider removing or rephrasing weak items to improve construct validity.

The R^2 value for OC was 0.300, indicating a moderate level of explanatory power. This suggests that EEA and SCH together explain 30% of the variance in organizational commitment, leaving room for other contributing factors such as leadership style, organizational culture, or job satisfaction (Meyer & Allen, 1991; Ahmed et al., 2022).

Even though the reliability coefficients were high in general, the moderation coefficient (SCH \times EEA) showed insignificant value. This is consistent with a study that proposes that analytics-based engagement strategies could rely not on individual factors, but provide a more standardized, universal way of enhancing commitment (Aral, Brynjolfsson, and Wu, 2020). Nevertheless, this does not deny the significance of the contextual influences such as health or social stability that remain independently influential.

Overall, the findings confirm the paramount importance of the EEA in strengthening the organizational commitment and support the increased applicability of the employee wellbeing. Companies must embrace the use of analytics in their engagement processes and establish integrated wellbeing programs to help maintain sustainable organizational performance and retention of employees.

Conclusion

This paper explored how Employee Engagement Analytics (EEA) affects Organizational Commitment (OC) in the Karachi corporate industry where Socio-Health Conditions (SCH) were also considered as moderators. The results established that EEA positively and statistically significantly influences OC, which means that the use of data-driven engagement strategies can contribute to the increase in employee loyalty and goal consistency. SCH also exhibited a significant direct influence on OC, which demonstrates the role of wellbeing as the determinant of employee behavior.

Nonetheless, the moderation role of the SCH on the EEA-OC relationship was relatively insignificant, which implies that engagement analytics would be applicable in different health and social situations. Although measurement validity was confirmed, low loading of one of the EEA indicators demonstrates that a better scale design is necessary. These findings highlight the importance of integrating data analytics with wellbeing policies in HRM practice especially in

developing markets like Pakistan. Future studies ought to consider other moderating or mediating factors, e.g. organizational culture or leadership style, to learn more about the employee engagement dynamics.

Recommendations

Based on the findings, the following recommendations are proposed:

1. **Enhance Data-Driven HR Capabilities:** Corporate organizations should invest in training HR professionals and managers in the use of Employee Engagement Analytics (EEA) to make informed decisions that strengthen organizational commitment.
2. **Promote Wellbeing-Centered Policies:** Companies should implement support mechanisms such as wellness programs, health insurance, and work-life balance initiatives to address the impact of Socio-Health Conditions (SCH) on employee engagement and retention.
3. **Improve Measurement Instruments:** Future organizational research and HR departments should revise and validate engagement and commitment scales, particularly addressing weak indicators like EEA1, to enhance reliability and discriminant validity.
4. **Integrate Analytics with Employee Feedback Systems:** Organizations should use real-time feedback platforms and engagement dashboards to align employee needs with organizational goals and improve commitment over time.
5. **Develop HR Policy Frameworks:** Policymakers and corporate governance bodies should encourage the adoption of analytics-based engagement strategies across sectors to support data-informed workforce management practices in Pakistan.

Limitations of the Study

This study has a few limitations that should be acknowledged:

- **Sample Size and Sampling Method:** The study employed a sample of 120 respondents using convenience sampling, which may restrict the generalizability of the findings across different industries or demographic groups.
- **Geographical Scope:** The research was limited to corporate organizations in Karachi, and the results may not reflect conditions in other cities or rural regions of Pakistan.
- **Measurement Concerns:** One item within the Employee Engagement Analytics construct (EEA1) showed a low outer loading, suggesting potential issues with scale clarity or respondent interpretation.
- **Cross-Sectional Design:** The use of a cross-sectional research design limits the ability to infer causal relationships between variables, as data was collected at a single point in time.
- **Self-Reported Data:** The reliance on self-reported questionnaires may have introduced response bias, such as social desirability or misreporting, which could affect data accuracy.

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