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Workforce Sustainability in U.S. Construction: Impact of Health and Wellbeing, Diversity, Equity, Community, and Connectivity on Job Satisfaction and Retention

Sostenibilidad de la fuerza laboral en la construcción de EE. UU.: Impacto de la salud y el bienestar, la diversidad, equidad, comunidad y conectividad con relación a la satisfacción y retención laboral

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Abstract

The construction industry is currently experiencing high turnover rates and a shortage of skilled labor, which presents significant challenges to workforce sustainability. This study examines the relationship between key workforce sustainability attributes—diversity, health and wellbeing (H&W), equity, community, and connectivity—and their impact on job satisfaction and attrition intentions among Latino/Hispanics, Black or African Americans, and Caucasian workers within the U.S. construction sector. Utilizing data from 95 fieldworkers, correlation analysis indicates that diversity, equity, and community play crucial roles in influencing job satisfaction and retention. These insights provide strategic guidance for promoting a sustainable workforce through inclusive and supportive workplace practices.

Keywords: Workforce Sustainability; Health and Wellbeing; Equity; Diversity; Job Satisfaction.

Resumen

Alcualmente, la industria de la construcción en los Estados Unidos está experimentando altas tasas de rotación y escasez de mano de obra calificada, lo que presenta desafíos importantes para la sostenibilidad de la fuerza laboral. Este estudio examina la relación entre los atributos clave de sostenibilidad de la fuerza laboral (diversidad, salud y bienestar (H&W), equidad, comunidad y conectividad) y su impacto en la satisfacción laboral y las intenciones de deserción entre los trabajadores latinos/hispanos, negros o afroamericanos y anglosajones en la construcción estadounidense. Utilizando datos de 95 trabajadores, el análisis de correlación indica que la diversidad, la equidad y la comunidad desempeñan papeles cruciales a la hora de influir en la satisfacción y retención laboral. Estos conocimientos proporcionan orientación estratégica para promover una fuerza laboral sostenible a través de prácticas laborales inclusivas y de apoyo.

Palabras clave: Sostenibilidad de la Fuerza Laboral; Salud y Bienestar; Equidad; Diversidad; Satisfacción laboral.

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1. Introduction

The construction industry significantly contributes to the U.S. economy but faces high turnover rates and a shortage of skilled labor. Workforce sustainability, which involves maintaining a productive and satisfied workforce, is crucial for the industry's long-term success (Van Der Lippe and Lippényi, 2019) (Bureau of Economic Analysis, 2024). Despite its substantial contribution to the economy, workforce sustainability remains a major concern (Gambatese et al., 2019). This sector is labor-intensive and relies heavily on human labor for project completion (Ling et al., 2018). The demanding conditions of the construction environment pose various risks to workers, including emotional, physical, and financial challenges (Karakhan et al., 2020). These stresses contribute to high turnover rates, reduced safety performance, and labor shortages (Karakhan et al., 2020). The average turnover rate across all industries is approximately 21-22% of the annual salary to recruit and retrain for a vacant position (Goplerud et al., 2017). The turnover rate in the construction industry is higher compared to other sectors, with an average rate of around 21.4%, and employees aged 24 or younger experiencing about 64% turnover. A study by the Associated General Contractors (AGC) of America found that 89% of contractors have difficulty finding workers, 61% have delayed project schedules due to workforce shortages, and 90% intend to hire new workers in 2022 (AGC, 2024).

Workforce sustainability in the construction sector is necessary due to its labor-intensive nature and the mental and physical demands placed on workers. This environment can result in emotional, physical, and financial stress, impacting both health and wellbeing (H&W) and workforce sustainability. Creating a supportive environment that prioritizes worker health can help address these concerns, reduce turnover, and enhance employee retention (Karakhan et al., 2020). Furthermore, promoting equity in the workplace is essential for fostering inclusivity and fairness, ensuring all employees have equal opportunities for career advancement and access to resources (Araya, 2021). Both H&W and equity play significant roles in the job satisfaction and retention of skilled laborers in the construction industry.
(Xue et al., 2022) indicated that numerous former employees from various companies have resigned due to the inability to manage job-related stress. Additionally, (Gambatese et al., 2019) highlight that extreme conditions in the construction industry affect workforce sustainability, which is further compounded by declining productivity, project delays, and cost overruns (Enshassi et al., 2013). Employees often express the intention to resign or retire early due to unfavorable working conditions (Sun and Wang, 2017). High labor turnover can adversely affect organizations, as the cost of replacing employees and the loss of knowledge and skills when employees leave may undermine a company's competitive advantage in its industry (Jafari et al., 2019). Recently, concerns about the impact of employee turnover on productivity have become prominent in the construction sector across different countries (Kissi et al., 2023). Furthermore, the global labor supply is encountering difficulties in meeting the increasing demand for construction services (Gutu et al., 2023).

A growing body of research, including studies by (Gambatese et al., 2019), (Gutu et al., 2023), and (Claire et al., 2010), suggests that a diversified workforce with equitable management systems significantly enhances organizational performance, surpassing traditional high-performance work systems. Three key points underscore the importance of workforce diversity: (1) the ongoing talent shortage, which requires companies to fully utilize the capabilities of all employees, (2) the need for businesses to reflect and understand their customers by communicating in ways that address their concerns, and (3) the fact that diverse teams consistently produce better results.

Workforce sustainability involves maintaining a productive and satisfied workforce within a supportive work environment (Van Der Lippe and Lippényi, 2019). According to (Gambatese et al., 2019), work sustainability is characterized by the degree to which the workforce can effectively perform its intended functions over time. (Kossek and Kossek, 2019) Proposed that sustaining a workforce can be achieved through employment practices that integrate work-life balance and well-being with employees' work experiences throughout their careers. This approach enables consistent performance while supporting personal and family life.

Achieving workforce sustainability requires establishing an environment that fosters motivated, healthy, and skilled individuals. It also necessitates ongoing efforts to nurture and sustain necessary skills and competencies through training, incentives, and career development programs. The industry must explore fundamental factors driving employee commitment to retain top talent (Murray and Holmes, 2021). There is a recognized need to enhance workforce sustainability in the construction sector (Gambatese et al., 2019). Employee turnover is a primary concern due to its significant financial impact on organizations (Sun and Wang, 2017). The cost of replacing an employee can reach up to 200% of their annual salary, including expenses for recruiting, hiring, and training a new employee (Reina et al., 2018).

Workforce sustainability is an essential concept that has received limited attention in the literature (Jafari et al., 2019); (Karakhan et al., 2021). Current studies, including (Karakhan et al., 2020), focus on developing tools for workforce sustainability. (Gutu et al., 2023) assessed workforce

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sustainability through digitization and leadership. (Ling et al., 2018) investigated human resources management practices to improve project managers' job satisfaction. Ali et al. (Karakhan et al., 2021) emphasized fostering diversity, equity, and inclusion among construction workers. While numerous studies have addressed workforce sustainability (Karakhan et al., 2020); (Sing et al., 2017); (Karakhan et al., 2023); (Karakhan et al., 2021); (Jafari et al., 2019), none have explored the relationship between job satisfaction, attrition intentions, and sustainable workforce attributes among the construction workforce.

Thus, there is limited research specifically examining the relationship between workforce sustainable attributes (such as health and wellbeing, equity, diversity, community, and connectivity), job satisfaction, and attrition intentions within the construction industry across different ethnic groups. This study investigates the role of diversity, health and wellbeing (H&W), equity, community, and connectivity in promoting job satisfaction and reducing attrition intentions among Latino/Hispanic, Black or African American, and Caucasian workers. By addressing the impact of diversity, health and wellbeing (H&W), equity, community, and connectivity—critical yet underexplored elements—this research provides a comprehensive understanding of how these factors contribute to workforce sustainability, particularly in a labor-intensive industry like construction (Kossek and Kossek, 2019).

To address the identified research gap, this study seeks to evaluate the relationship between critical workforce sustainability (WS) attributes, job satisfaction, and attrition intention. To achieve this objective, the research team has established two specific goals:
Assess the significance of health and well-being (H&W), equity, diversity, community, and connectivity among construction workers.
Examine the relationship between these WS attributes and fieldworkers' job satisfaction and attrition intention.

2. Literature review

2.1 Workforce sustainability

(Table 1) presents the workforce attributes adopted for this study. Workforce sustainability reflects the degree to which workforce members are integrated into a work environment that is nurturing, diverse, equitable, safe, connected, valued, and mature (Karakhan et al., 2020). The level of sustainability in a workforce can range from high to low, influenced by factors such as the education and training received, as well as the qualities and skills developed, like maturity and competence. A workforce may be capable of self-sustenance or might require external resources to maintain its operational capabilities and fulfill its intended roles. For this study, the workforce includes all members of a construction-related organization, encompassing roles from laborers to engineers, supervisors, and managers, who participate directly or indirectly in the construction process (Karakhan et al., 2020).

Embracing diversity can be beneficial to organizations, aiding them in attracting talented and proficient employees from diverse ethnic groups globally (Gambatese et al., 2019). A workplace that values diversity and inclusiveness fosters community support, career growth, innovation, and overall maturity. Therefore, it is essential for organizations to demonstrate their commitment to fostering and maintaining a diverse and inclusive work environment (Gambatese et al., 2019). Ethnic and racial diversity in the workplace plays an important role in enhancing work and team dynamics, as well as promoting a supportive and healthy work environment (Karakhan et al., 2020). The purpose of this indicator is to assess ethnic and racial diversity within construction organizations and encourage the development of a workforce that mirrors the ethnic and racial composition of the surrounding community (Karakhan et al., 2020).

Research shows that face-to-face, one-on-one meetings remain effective in the digital era (Gambatese et al., 2019). These meetings promote two-way communication, strengthen supervisor-team relationships, and boost teamwork. Organizing social events helps ensure employees connect mentally and emotionally with peers and management.

Construction projects involve various trades, priorities, and tight deadlines, making a cooperative environment crucial (Karakhan et al., 2020). Teamwork enhances connectivity, engagement, problem-solving, and motivation. Organizations should reward helpful behavior and support team discussions and small group sessions (Karakhan et al., 2020).

To encourage a sense of belonging among employees within the larger community, it is important to emphasize workforce integration within the industry (Gambatese et al., 2019). Promoting such integration can support employee growth and development while building a cohesive work community at the industry level, ultimately enhancing workforce sustainability across the sector. Creating a local community within the workplace

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ensures that an organization and its employees are integrated into the broader community surrounding the business (Gambatese et al., 2019). This connection provides support to employees and contributes to business outcomes. Employees tend to be more productive and deliver higher-quality services when they serve their community. Therefore, fostering a local community at work enhances overall workforce sustainability and organizational performance (Karakhan et al., 2020).

2.2 Job Satisfaction

Job satisfaction is an overall measure of employee satisfaction and happiness with their job (Xue et al., 2022). It is influenced by the perceived relationship between what one desires from their job and what one perceives the job as offering (Reina et al., 2018). Satisfaction with job rewards is a crucial aspect of job satisfaction, assessing whether job rewards meet employees' expectations. Satisfaction with HRM practices, which include incentives, benefits, training, managerial support, and employee engagement, also plays a significant role. Employees' satisfaction with HRM practices is linked to their behavior and intention to stay (Xue et al., 2022). Job satisfaction is affected by multiple factors, including educational preparation for the job, work hours, salary, the work environment, the nature of the work itself, leadership behavior, promotion criteria, interpersonal relationships, job competence, welfare measures, personal recognition, and growth opportunities (Xue et al., 2022). Enhancing job satisfaction helps retain valuable employees, sustain the company, and reduce turnover rates. Within a project team, when job satisfaction is achieved, team members feel internally connected to the project and are motivated to work hard to ensure its success (Jafari et al., 2019) as shown in (Table 1).

2.3 Attrition Intentions

The factors influencing turnover intentions include perceived lack of effectiveness, inadequate resources, dissatisfaction with autonomy (Xue et al., 2022), quality of interpersonal relationships, opportunities for career advancement, fairness, and flexibility in work schedules (George, 2015). Employees may either exit the workforce entirely or frequently switch to another employer that offers better conditions (Xue et al., 2022). These factors affecting the workforce's intention to leave a job have been categorized into four groups, namely, job-related factors, external environmental factors, organizational factors, and personal factors of the workforce (Ayodele et al., 2020).

2.4 Health and wellbeing (H&W)

Health and Wellbeing (H&W) is a critical factor in workforce sustainability, particularly in the construction industry, where physical and mental demands are high. Ensuring the physical and emotional well-being of employees helps maintain a productive workforce, reduces turnover, and prevents occupational injuries. According to (Kossek and Kossek, 2019), promoting H&W involves not only safety measures but also mental health support, stress management, and work-life balance initiatives, which are crucial to workforce sustainability. Workers who experience a higher level of well-being are more likely to be satisfied with their jobs and less likely to consider leaving the industry (Goplerud et al., 2017).

2.5 Equity

Equity, as defined by (Karakhan et al., 2020), refers to the extent to which employees in a company or organization feel they are treated equally and fairly, without any form of discrimination. It encompasses fair treatment in compensation, evaluation, opportunities for promotion, workload distribution, and overall work responsibilities, regardless of personal characteristics or employment level. All individuals have the right to be treated equitably, and organizations must demonstrate fairness, respect, and non-discrimination in their policies. A merit-based, transparent recruitment and promotion process is essential to attracting and retaining competent employees.

Recruitment and promotion decisions should be based on an individual's abilities, skills, experience, and qualifications, rather than personal relationships, favoritism, or bias. The top five criteria for achieving a fair process are: (1) clear, accessible processes for appointments and promotions shared through guidelines or policy documents, (2) open advertisements of job vacancies, including detailed job descriptions and required qualifications, (3) a policy that rewards exceptional and above-average performance, (4) appointment or promotion decisions made and reviewed by at least two individuals (the "four-eyes principle"), and (5) standardized application forms that are accessible to all.

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Table 1. Survey Tools Used in the Study.

Construct	Definition	Sources
Community	Put on social events Involvement in the local community through charity Encourage workers to stay connected to a professional community Workload trade-off between employees	(Gambatese et al., 2019)
Diversity	Diverse and inclusive leadership Diverse and inclusive front-line management Diverse and inclusive workforce (frontline workers) Skilled workforce	(Gambatese et al., 2019)
Connectivity	Involves workers in decision-making Regular meetings between workers and their supervisors Employee stock ownership program Encourage social and fun activities within workdays Implement a teamwork approach	(Gambatese et al., 2019)
Attrition	I have considered leaving my job I am considering leaving my job I am actively looking for other jobs I feel that I could leave my job	(Gambatese et al., 2019)
Job satisfaction	Feeling good about one's job Feeling fairly satisfied with my job I feel secure about my job I believe management is concerned about me Most days I am enthusiastic about my job I definitely like my job	(Macdonald & MacIntyre, 1997)
H&W	Zero injury goals Safety and health program Safety toolbox and meeting	(Gambatese et al., 2019)
Equity	Equality, social justice, and non-discrimination policy Transparent especially with respect to pay Fair pay/compensation equitably Merit-based recruitment and promotion process	(Gambatese et al., 2019)

3. Methodology

This study aimed to evaluate the relationship between key workforce sustainability (WS) attributes, job satisfaction, and attrition intention. First, a structured literature review defined these relationships. Next, a survey assessed construction fieldworkers' views on WS attributes, job satisfaction, and their intention to leave the industry. Finally, statistical analysis examined the survey results to understand these relationships better.

3.1 Survey

A questionnaire was utilized to collect opinions and personal experiences from construction fieldworkers regarding the significance and interplay among sustainable job resources—connectivity, community, and diversity—alongside workforce job satisfaction and attrition intentions as previously outlined in (Table 1). This data collection approach was selected due to its ability to provide valid and reliable insights into respondents' experiences and their comprehension of how sustainable resources influence job satisfaction and attrition intentions. The questionnaire, originally developed by (Gambatese et al., 2019) and (Macdonald y MacIntyre, 1997), was adopted with modifications for this study and subsequently validated by domain experts. Responses were recorded on a 5-point Likert scale, and the instrument's validity was further corroborated through a pilot study involving five academic research experts specializing in workforce sustainability.

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To assess the importance of diversity, community, and connectivity, the survey was designed to measure the perceived value of these workforce sustainability attributes among construction workers. Participants were asked to rate these attributes on a 5-point Likert scale, with questions specifically formulated to determine the relevance of each attribute within their work environment. Furthermore, this study evaluated the perceived importance of health and wellbeing (H&W) and equity in relation to job satisfaction and attrition intentions. Survey items addressing H&W included queries on the availability of health support, work-life balance, and mental health resources. The equity component examined fairness in resource allocation, career advancement opportunities, and the presence of discrimination within the workplace.

A total of 95 fieldworkers from the construction industry, representing three ethnic groups (Caucasians, Latinos/Hispanics, and Black or African Americans), participated in the survey. The majority of respondents were Caucasians (53%), followed by Latinos/Hispanics (26%), and Black or African Americans (21%). These proportions reflect the diverse composition of the construction workforce in the United States. According to Builders (2024), 57.5% of the construction workforce are Caucasians, 31.1% are Latinos/Hispanics, 5.1% are Blacks or African Americans, 1.8% are Asians, and 4.1% are unknown. The research sample thus accurately represents the U.S. construction workforce demographics.

To ensure unbiased results, participants were drawn from general contractors, subcontractors, and construction management consultants. This approach aimed to secure high-quality responses and balanced feedback. Specifically, the sample included 48% general contractors, 36% subcontractors, and 16% construction management consultants. The sample size is considered adequate in comparison with previous studies; for instance, surveys conducted by (Vee and Skitmore, 2003) and (Brown and Loosemore, 2015) were based on responses from 31 and 23 respondents, respectively.

3.2 Statistical Analysis

A reliability analysis was conducted to evaluate the internal consistency of the scale used for measuring job satisfaction and attrition, utilizing Cronbach's alpha estimate of reliability. The analysis was performed using SPSS Statistics 26.0. According to (Navarro-Rivera and Kosmin, 2013), Cronbach's alpha reliability coefficient of 0.70 is considered adequate. The results indicated that Cronbach's alpha coefficient surpassed the 0.70 threshold, as demonstrated in (Table 2) (Owusu-Manu et al., 2018). Consequently, the study can be deemed sufficiently reliable. Conducting reliability analyses is essential for ensuring the validity and accuracy of survey outcomes. Such analyses assess the internal consistency of the scale, thereby confirming the reliability of the measurement (Ahadzie, 2007).

Table 2. Cronbach's Alpha Analysis.

Group	Number of Items	Item-Total Correlation (Average)	Cronbach's Alpha
Health and wellbeing	3	0.86	0.92
Equity	3	0.90	0.77
Diversity	4	0.71	0.78
Connectivity	5	0.78	0.88
Community	3	0.93	0.72

A one-sample t-test was used to evaluate the significance of workforce sustainability attributes. This statistical test compares the sample mean to a known population mean to determine variable significance (Ross and Wilson, 2017); (Owusu-Manu et al., 2018). It reports degrees of freedom, the test value, and the p-value. At a 95% confidence level, with a p-value below 0.05 and a hypothesized mean of 3.0, the test assessed the importance of these attributes in the study. The significance (2-tailed) value indicates whether the observed sample mean is significantly different from the hypothesized population mean in either direction. A mean difference provides the actual difference between the sample mean and the hypothesized mean, giving insight into the magnitude of this difference. The 95% confidence interval offers a range within which we can be 95% certain that the true population mean lies, further validating the reliability of the results. If the confidence interval does not include the hypothesized mean, it suggests a significant difference, reinforcing the findings indicated by the p-value (Field and Anxiety, 2013).

Correlation Analysis: The research team also performed correlation analysis to assess the interrelationships among the study variables. Correlation analysis is a method used to evaluate the strength and direction of the linear relationship between two continuous variables (Field and Anxiety, 2013). In this section of the study, a correlational analysis was carried out to provide an initial understanding of the bivariate

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relationship between the main constructs of the study. Pearson correlation was employed to generate the correlation results. The rotation matrix was used to remove unnecessary variables from the model for testing the hypothesis. Subsequently, the strength of the relationships between the constructs was evaluated using correlation analysis (Liu et al., 2016). Pearson correlation coefficients were calculated to determine the strength and direction of the relationships between WS attributes, job satisfaction, and attrition intention among the various ethnic groups.

4. Results and Discussion

4.1 The Importance of Diversity, Community, and Connectivity

The one-sample t-test results (Table 3) provide a quantitative measure of the significance of workforce sustainability (WS) attributes—Health and Wellbeing (H&W), Equity, Diversity, Community, and Connectivity—as perceived by the construction workforce. Each attribute demonstrated a highly significant positive t-value, suggesting that construction workers value these attributes above the hypothesized population mean. This highlights the importance of each WS factor in fostering job satisfaction and retention, particularly in an industry plagued by high turnover rates and challenging work environments.

The t-test result for H&W ($t = 14.36$, $p < 0.001$) reinforces the critical role that physical and emotional health plays in workforce sustainability, especially in a physically demanding field such as construction. With a mean difference of 0.79, the result indicates that employees consistently rated H&W as an essential factor in their overall job satisfaction. This finding aligns with prior research that emphasizes the need for organizations to implement robust safety protocols, mental health resources, and work-life balance initiatives (Kossek and Kossek, 2019). Employees who feel that their health and safety are adequately protected are more likely to remain committed to their jobs, reducing turnover intentions.

The Equity attribute produced the highest t-value ($t = 17.09$, $p < 0.001$) among all the WS factors, with a mean difference of 2.04, indicating a very strong sentiment among respondents regarding the importance of fairness in the workplace. This is particularly relevant in the construction industry, which often faces challenges related to equitable pay, fair treatment, and career advancement opportunities, especially among minority groups (Karakhan et al., 2020). Workers who perceive a lack of equity—whether in pay, promotion opportunities, or resource distribution—are more likely to leave their positions. The significant result for equity underlines its role as a key driver of job satisfaction and retention, emphasizing the need for organizations to develop transparent and merit-based recruitment and promotion processes.

The t-test for Diversity ($t=11.19$, $p <0.001$) reveals that this attribute is also highly valued by construction workers, with a mean difference of 2.24. This finding reflects the increasing recognition that a diverse workforce—comprising employees from different ethnic, racial, and gender backgrounds—can enhance team dynamics, foster innovation, and improve organizational performance (Gambatese et al., 2019). However, the mean difference also suggests that there may still be gaps in how well construction companies are implementing diversity initiatives. Workers from minority backgrounds, in particular, may not feel fully integrated into their work environments, which could negatively impact their job satisfaction and long-term retention.

Community also emerged as a critical factor ($t=15.07$, $p <0.001$), with a mean difference of 3.12, indicating that workers value a strong sense of community within their workplace. This attribute encompasses both professional and social support systems that employees rely on to navigate the challenges of construction work. The significant t-value for community suggests that creating opportunities for social interaction, peer support, and collaborative teamwork is essential for workforce sustainability. It also highlights the importance of developing a culture where workers feel connected to each other and the broader goals of the organization. As previous research suggests, a strong community can help mitigate stress, increase job satisfaction, and reduce turnover intentions, particularly in high-stress industries like construction (Kossek and Kossek, 2019).

The Connectivity attribute, which involves open communication, decision-making participation, and interpersonal relationships, also yielded a highly significant result ($t = 14.45$, $p < 0.001$), with a mean difference of 1.32. The importance of connectivity in construction cannot be overstated. In an industry that is often characterized by hierarchical structures and siloed work teams, fostering strong lines of communication and ensuring that workers feel connected to both their peers and supervisors can greatly enhance job satisfaction and performance (Gambatese et al., 2019). The high mean difference for connectivity points to the fact that construction workers value opportunities for engagement, shared decision-making, and collaborative teamwork, all of which contribute to a more connected and sustainable workforce.

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Table 3. One-Sample T-Test.

WS	Test Value = 3.0					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval	
					Lower	Upper
Community	15.07	95	0.000	3.12	3.66	5.40
Health and wellbeing	14.36	95	0.000	0.79	1.13	4.09
Equity	17.09	95	0.000	2.04	2.26	5.98
Connectivity	14.45	95	0.000	1.32	1.28	6.71
Diversity	11.19	95	0.000	2.24	1.73	5.42

4.2 The Relationship Between Workforce Sustainability Attributes in Fieldworkers' Job Satisfaction and Attrition Intention Across Ethnic Groups

The Pearson correlation method was utilized to investigate the relationships among workforce sustainability attributes, job satisfaction, and attrition intentions within Caucasian, Latino/Hispanic, and Black or African American populations in the U.S. construction industry. The results are displayed in (Table 4) and these indicate that Caucasian community is moderately correlated with diversity (r = 0.59) and connectivity (r = 0.38), though neither is statistically significant (p = 0.10 and p = 0.071, respectively). However, connectivity shows a significant positive correlation with diversity (r = 0.64, p = 0.04), indicating that greater team diversity can enhance interpersonal connections. Job satisfaction exhibits a weak positive correlation with community (r = 0.56, p = 0.06), while no significant relationship is observed with diversity or connectivity. Attrition intention displays a negative correlation with both diversity (r = -0.50, p = 0.03) and connectivity (r = -0.54, p = 0.10). These findings suggest that enhancing diversity and fostering strong connections may help reduce turnover within this group.

In the Latinos/Hispanics group, community is significantly correlated with diversity (r = 0.54, p = 0.04) and connectivity (r = 0.38, p = 0.03). Job satisfaction shows a strong correlation with the community (r = 0.69, p = 0.05), underscoring the importance of collective support for job satisfaction. Attrition intention is negatively correlated with diversity (r = -0.61, p = 0.01) and connectivity (r = -0.72, p = 0.01), highlighting the effectiveness of these attributes in reducing turnover.

For Black or African Americans, community is strongly correlated with connectivity (r = 0.63, p = 0.04) and moderately with diversity (r = 0.61, p = 0.09). Attrition intention is significantly and negatively correlated with community (r = -0.53, p = 0.03) and connectivity (r = -0.57, p = 0.04), showing that fostering community and improving connections are vital for reducing turnover in this group.

Health and wellbeing (H&W) and equity, these factors are positively correlated with connectivity and job satisfaction, especially in the Latinos/Hispanics and Black or African American groups. While these correlations are not always statistically significant, they point to the role of equity and H&W in creating a supportive work environment that enhances retention and job satisfaction.

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Table 4. Correlation Analysis.

Variables		H & W	Equity	Diversity	Community	Connectivity	Job Satisfaction	Attrition Intention
Caucasians								
H & W	Pearson's coefficient	1						
	P-value							
Equity	Pearson's coefficient	0.79	1					
	P-value	0.00						
Diversity	Pearson's coefficient	0.46	0.58	1				
	P-value	0.08	0.21					
Community	Pearson's coefficient	0.74	0.54	0.59	1			
	P-value	0.00	0.06	0.10				
Connectivity	Pearson's coefficient	0.61	0.33	0.64	0.38	1		
	P-value	0.05	0.05	0.04	0.07			
Job	Pearson's coefficient	0.67	0.85	0.33	0.56	0.24	1	
Satisfaction	P-value	0.00	0.00	0.27	0.06	0.05		
Attrition	Pearson's coefficient	-0.55	-0.24	-0.50	-0.68	-0.54	-0.42	1
Intention	P-value	0.01	0.20	0.03	0.34	0.10	0.00	
Latinos/Hispanic								
H & W	Pearson's coefficient	1						
	P-value							
Equity	Pearson's coefficient	0.58	1					
	P-value	0.03						
Diversity	Pearson's coefficient	0.66	0.59	1				
	P-value	0.00	0.15					
Community	Pearson's coefficient	0.65	0.57	0.54	1			
	P-value	0.00	0.34	0.00				
Connectivity	Pearson's coefficient	0.45	0.79	0.58	0.38	1		
	P-value	0.04	0.03	0.02	0.03			
Job	Pearson's coefficient	0.49	0.65	0.13	0.69	0.22	1	
Satisfaction	P-value	0.04	0.08	0.00	0.05	0.05		
Attrition	Pearson's coefficient	-0.54	-0.82	-0.61	0.42	-0.72	-0.53	1
Intention	p-value	0.00	0.01	0.01	0.28	0.01	0.02	
	Black or African Americans							
H & W	Pearson's coefficient	1						
	P-value							
Equity	Pearson's coefficient	0.33	1					
	P-value	0.20						
Diversity	Pearson's coefficient	0.84	0.30	1				
	P-value	0.05	0.45					
Community	Pearson's coefficient	0.55	0.80	0.61	1			
	P-value	0.01	0.30	0.091				
Connectivity	Pearson's coefficient	0.59	0.69	0.52	0.63	1		
	P-value	0.03	0.34	0.02	0.04			
Job	Pearson's coefficient	0.76	0.22	0.63	0.56	0.66	1	
Satisfaction	P-value	0.00	0.09	0.23	0.34	0.06		
Attrition	Pearson's coefficient	-0.47	-0.75	-0.25	-0.53	-0.57	-0.49	1
Intention	P-value	0.008	0.00	0.02	0.03	0.04	0.04	

The correlation analysis reveals that community, connectivity, and diversity play significant roles in workforce sustainability across all ethnic groups, but their impact varies. For Caucasians, diversity and connectivity are key to reducing attrition, while for Latinos/Hispanics, community and connectivity are crucial for job satisfaction and retention. Black or African Americans benefit significantly from community support and connectivity in terms of job satisfaction and attrition reduction. Health and wellbeing (H&W) and equity also emerge as important factors across groups, particularly in influencing job satisfaction and turnover intentions among minority groups. This suggests that targeted strategies addressing these attributes can help foster a more sustainable and equitable workforce in the U.S. construction industry.

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5. Conclusions

The construction industry, despite its substantial contribution to the US economy, experiences high employee turnover rates and a shortage of skilled labor. The physically and mentally demanding work environment presents risks, resulting in decreased safety performance and labor shortages. This paper highlights the need for sustainable workforce practices, including promoting diversity, community, and connectivity. By fostering a supportive environment and addressing attrition intentions, the construction sector can retain talent and ensure long-term success. To address this statement, the study presented the results of an exploratory survey of 95 U.S. construction field workers.

Through correlation analysis, the relationships between WS attributes, job satisfaction, and attrition intention were evaluated. Findings indicated that the relationship between WS attributes in construction fieldworkers' job satisfaction and attrition intention across ethnicity is statistically significant. When evaluating Community and Diversity among Latinos/Hispanics, results show a statistically significant relationship, whereas for Caucasians and Black or African Americans, the significance is less evident. The relationships between Connectivity, Diversity, and Latinos/Hispanics demonstrate significant correlations in both dimensions, while Caucasians show significance only in Connectivity-Diversity, and Black or African Americans show significance in Connectivity-Community.

When assessing the relationship between job satisfaction and community engagement, Latinos/Hispanics demonstrate a significant positive association, with Caucasians and Black or African Americans showing mixed results. On the other hand, attrition intention varies across ethnic groups, with different patterns of correlation. The findings suggest that to effectively decrease turnover rates and address the shortage of skilled labor, it is essential to customize strategies to meet the specific needs of each ethnic group. This approach will enhance job satisfaction, reduce attrition rates, and contribute to the development of a robust and diverse construction workforce.

This study is limited by its sample size and participation of only three ethnic groups; therefore, results may not fully capture the diversity of the construction workforce. While the study provides valuable insights into the relationships between WS attributes, job satisfaction, and attrition intentions, further research should include a larger population size and a broader range of ethnic groups. The following recommendations are therefore made: (1) employers should prioritize developing and maintaining a positive safety culture and should include frontline employees as key stakeholders in safety-related decision-making. (2) companies need to develop an inclusive and diverse work environment through the alignment of diversity initiatives, with strategic goals and periodic evaluation of the organization's diversity across all work categories.

6. Notes on Contributors

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