

Occupational Stress and Mental Health Burden Among U.S. Construction Workers: A Secondary Analysis of National Surveillance Data

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Abstract: Construction workers in the United States are exposed to a uniquely intense combination of occupational stressors; however, the mental health burden of this workforce remains significantly understudied relative to its physical safety record. This study presents a secondary analysis of four nationally representative federal surveillance datasets: the Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII) 2018 to 2022, the National Institute for Occupational Safety and Health (NIOSH) National Health Interview Survey (NHIS) Occupational Health Supplement, the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS) 2020 to 2022, and OSHA Injury Tracking Application (ITA) establishment-level data 2017 to 2022, to characterize the prevalence, trends, and organizational predictors of occupational stress and mental health distress in the U.S. construction workforce. BRFSS analysis identified a frequent mental distress (FMD) prevalence of 18.3% among construction and extraction workers, representing an adjusted odds ratio of 1.61 (95% CI [1.39, 1.87]) relative to all employed workers. SOII trend data document a 20.4% increase in construction-sector illness-related days-away-from-work cases between 2018 and 2022 against a backdrop of declining total recordable case rates, indicating a growing share of occupational illness relative to injury. NHIS data show that 48.7% of construction workers reported often or always finding their work stressful, compared to 34.2% of all employed workers, and that 67.8% lacked access to a workplace health program. Multivariate logistic regression identified work-attributed sleep disturbance (odds ratio [OR] = 2.47), high job demands (OR = 2.14), and low supervisor support (OR = 1.83) as the strongest independent predictors of FMD in the construction workforce. These findings, drawn entirely from government-administered surveillance systems, provide a nationally representative and methodologically rigorous evidence base for integrating occupational mental health management into construction safety programs in the United States.

Keywords: occupational stress, mental health, construction workers, secondary data analysis, BRFSS, NIOSH NHIS, BLS SOII, frequent mental distress, sleep disturbance, occupational surveillance

I. INTRODUCTION

Construction is one of the most physically hazardous occupational sectors in the United States. The Bureau of Labor Statistics recorded 1,056 fatal work injuries in the construction and extraction sector in 2022, representing approximately 19.2% of all occupational fatalities across all industries [1]. The National Safety Council estimated the total cost of work-related injuries across the U.S. economy at \$167 billion in 2022, with construction workers consistently overrepresented in both fatal and nonfatal injury statistics [2]. Policy, regulatory, and research responses to this physical safety burden have been substantial, producing meaningful reductions in construction injury rates over the past three decades through hazard control, regulatory enforcement, and safety management improvements [3].

Research on the mental health burden of the construction workforce has attracted comparatively limited attention, and there have been almost no regulatory or programmatic responses. However, the structural characteristics of construction work, including physical hazard exposure, severe schedule pressure, project-based job insecurity, long and irregular working hours, geographic separation from family, and organizational cultures that discourage the expression of psychological distress, constitute a documented cluster of psychosocial risk factors associated with elevated occupational stress, burnout, and common mental disorders in the occupational health literature [4, 5]. The Centers for Disease Control and Prevention has identified male construction and extraction workers as one of the occupational groups with the highest suicide rates in the United States, with rates approximately twice the national average for working-age men [6]. This finding alone establishes the mental health burden of the construction workforce as a public health concern of the first order.

Despite this evidence, the mental health of construction workers has rarely been investigated using nationally representative data sources with sufficient sample sizes to support industry-level prevalence estimates and multivariate predictor analyses. Most existing construction mental health research has relied on convenience samples recruited through individual employers or professional associations, limiting the generalizability of findings [7, 8]. Federal occupational surveillance systems, including the BLS Survey of Occupational Injuries and Illnesses, the NIOSH National Health Interview Survey Occupational Health Supplement, the CDC Behavioral Risk Factor Surveillance System, and the OSHA Injury Tracking Application, collectively offer a nationally representative, government-administered evidence base that has not been systematically analyzed to characterize the construction workforce's mental health burden.

This study addresses this gap by conducting a secondary analysis of four federal surveillance datasets to (1) quantify the prevalence of frequent mental distress and occupational stress indicators in the U.S. construction workforce relative to other occupational groups; (2) document trends in illness-related occupational health outcomes in construction between 2018 and 2022; and (3) identify the organizational and occupational predictors most strongly associated with mental health distress in construction workers. By drawing exclusively on government-administered surveillance data, the study provides an evidence base of scale and representativeness that primary survey research in this population cannot feasibly achieve, while eliminating the access, recruitment, and self-selection limitations that constrain survey-based construction mental health research.

II. LITERATURE REVIEW

A. Mental Health and Stress in the Construction Workforce

The occupational health literature has consistently documented elevated stress and poor mental health outcomes in construction workers relative to national workforce norms. Stansfeld and Candy's landmark meta-analysis of 11 prospective studies encompassing 11,636 participants established strong associations between high job demands, low job control, and low social support, the combination systematically present in construction work, and the development of common mental disorders, including depression and anxiety [9]. Boschman, van der Molen, Sluiter, and Frings-Dresen found that 31.2% of Dutch construction workers met the criteria for high emotional exhaustion on the Maslach Burnout Inventory, with physically demanding work, high time pressure, and limited decision latitude as the primary predictors [10]. Love, Edwards, and Irani demonstrated through structural equation modeling that work stress significantly predicted reduced job satisfaction, organizational commitment, and performance quality among construction professionals, establishing occupational stress as a productivity and safety management concern alongside its direct health consequences [11].

Naoum, Herrero, Egbu, and Fong identified excessive workload, job insecurity, poor work-life balance, and lack of managerial support as the dominant sources of occupational stress reported by construction professionals, with time pressure and schedule demands ranking highest across all seniority levels [12]. Lingard and Francis documented significantly higher work-life conflict and lower psychological well-being among construction workers than comparable workers in other industries, attributing the gap to the combination of long working hours, physical fatigue, and project-based employment insecurity that characterizes construction work [13]. Chen, McCabe, and Hyatt demonstrated that individual resilience and organizational safety climate jointly predict safety performance and psychological stress, confirming that organizational factors shape psychological outcomes in construction as powerfully as they shape physical safety outcomes [14].

B. Suicide and Severe Mental Health Outcomes in Construction

The construction sector's suicide burden has been documented across multiple national epidemiological datasets and represents the most severe end of the occupational mental health continuum. The CDC National Violent Death Reporting System analysis published by Zammit et al. identified construction and extraction as the civilian occupational groups with the highest age-adjusted suicide rates among men in the United States, substantially exceeding the rates documented in other high-stress occupational groups, including law enforcement and healthcare [6]. Milner, Law, Spittal, Pirkis, and LaMontagne's systematic review of occupation and suicide across 17 countries confirmed that construction workers faced consistently elevated suicide risk across all national contexts examined, identifying the combination of financial stress, social isolation, physical pain, and help-seeking stigma as the primary mechanisms [15].

The help-seeking dimension is particularly consequential in the construction industry. Leung, Chan, and Cooper identified workplace stigma as the primary barrier to help-seeking among construction professionals in Hong Kong, operating through both formal channels, such as concerns about career consequences, and informal social channels, such as fear of reputational damage among male peers [16]. These barriers are compounded by the project-based employment structure in which workers may be reluctant to disclose mental health difficulties to employers who will not retain them

beyond project completion and by occupational cultures that equate the expression of psychological distress with professional inadequacy [7, 12].

C. Federal Occupational Surveillance Systems as a Data Resource

The United States federal occupational health surveillance infrastructure provides several datasets well-suited to investigating the construction sector's mental health burden at a nationally representative scale. The BLS Survey of Occupational Injuries and Illnesses (SOII) is the primary source of annual industry-level data on nonfatal occupational injuries and illnesses, capturing total recordable case rates, days-away-from-work cases, and illness categories by industry and occupation [17]. The NIOSH contribution to the National Health Interview Survey through the Occupational Health Supplement collected detailed self-reported data on psychosocial work conditions, including work stress, job demands, social support, and work-attributed sleep disturbance, enabling industry and occupational group comparisons at the national scale [18]. The CDC Behavioral Risk Factor Surveillance System collects state-level data on frequent mental distress, defined as 14 or more days of poor mental health in the preceding 30 days, which has been validated as a robust indicator of clinically significant psychological distress in population surveillance contexts [19]. The OSHA Injury Tracking Application contains establishment-level records of total recordable cases and illness cases submitted annually by covered employers, enabling construction-sector illness trend analysis at the establishment level [20].

A secondary analysis of these datasets offers methodological advantages over primary survey research in the construction population that are directly relevant to this study's objectives. The combined datasets encompass hundreds of thousands of respondents and employment records, providing statistical power to detect small but practically meaningful differences in mental health outcomes between construction workers and other occupational groups. Government data collection protocols and standardized industry classification systems ensure comparability across years and occupational categories. The absence of recruitment barriers, response bias related to employer sponsorship, and ethical constraints on psychometric instrument administration make these datasets uniquely suited to population-level prevalence estimation in a workforce that primary survey research has consistently struggled to access representatively [8, 10].

III. THEORETICAL FRAMEWORK

This study is grounded in the job demands–resources (JD-R) model, which provides the theoretical architecture for understanding how the structural characteristics of construction work produce mental health distress and how organizational resources moderate these effects [21, 22]. The JD-R model proposes two distinct psychological processes. The energy depletion process occurs when job demands, aspects of work requiring sustained physical or psychological effort, exceed workers' capacity to recover, producing exhaustion and burnout. The motivational process occurs when job resources, aspects of work that facilitate goal achievement and personal growth, sustain engagement, and buffer the impact of demands on well-being. The model predicts that workers experiencing high demands with inadequate resources will show the highest rates of mental distress and the greatest risk of clinically significant burnout.

The applicability of the JD-R model to the federal surveillance datasets analyzed in this study is grounded in the alignment between the model's core constructs and the variables available in each dataset. Job demands are operationalized through NHIS variables measuring job stress, workload, and physical demands; job resources are operationalized through NHIS variables measuring supervisor support, coworker support, and access to workplace health programs. Mental health outcomes are operationalized through the BRFSS frequent mental distress measure, SOII illness-related days-away-from-work cases, and OSHA total recordable illness rates. The model's demand-resource architecture provides the organizational logic for the study's predictor selection and frames the policy implications of the regression findings in terms of modifiable organizational levers rather than individual worker characteristics.

Conservation of Resources (COR) theory complements the JD-R model by explaining the cumulative nature of occupational stress in long-duration construction projects [23]. COR theory proposes that psychological stress occurs when individuals face actual or threatened loss of valued resources, and that workers with depleted resource reserves are more vulnerable to further stress than those with abundant resources. This prediction provides the theoretical basis for understanding why mental health distress in construction tends to peak during the most demanding project phases, why help-seeking is suppressed by fears of further resource loss, and why organizational resource investment, particularly supervisor support and access to health programs, has disproportionately large effects in high-demand environments.

IV. METHOD

A. Research Design

This study employed a retrospective secondary data analysis design, drawing on four publicly available federal occupational health surveillance datasets. All datasets are publicly available from federal agency websites and were

accessed between January and April 2025. Secondary data analysis was selected as the appropriate methodology for this research objective because the surveillance datasets employed provide nationally representative samples of a scale and quality that primary survey research in the construction workforce cannot achieve, while eliminating access barriers, recruitment challenges, and self-selection limitations that constrain primary data collection in this population [24]. The analytical approach integrates descriptive trend analysis, occupational group comparisons, and multivariate logistic regression to comprehensively characterize the construction workforce’s mental health burden.

B. Data Sources

Four federal surveillance datasets were analyzed, as described in Table I. The BLS SOII annual reports for 2018 to 2022 provided industry-level total recordable case rates and days-away-from-work illness case counts for the construction sector (NAICS sector 23) and all private industries combined. The NIOSH NHIS Occupational Health Supplement datasets from 2010 and 2015, the two most recent cycles in which the occupational health supplement was administered, provided self-reported psychosocial work condition data for respondents employed in construction occupations identified by Standard Occupational Classification codes. The CDC BRFSS 2020 to 2022 combined datasets provided frequent mental distress prevalence data for respondents identifying their current or most recent employment as construction and extraction (Census industry codes 770 to 798). The OSHA ITA 2017 to 2022 public data files provided establishment-level total recordable case and illness case rates for construction establishments identified by six-digit NAICS codes beginning with 23.

TABLE I. FEDERAL SURVEILLANCE DATASETS AND VARIABLES ANALYZED

Dataset	Variables Extracted	Coverage
BLS SOII (2018–2022)	Nonfatal occupational illness and injury rates per 10,000 full-time workers; days-away-from-work (DAFW) cases; illness categories by industry	Construction vs. all private industry; annual trend data
NIOSH NHIS OHS (2010, 2015)	Self-reported work-related stress, job demands, supervisor support, workload, sleep disturbance attributable to work	Nationally representative household survey; construction occupation subgroup
CDC BRFSS (2020–2022)	Frequent mental distress (FMD): ≥ 14 days of poor mental health in past 30 days; employment status; industry of longest employment	State-level surveillance; construction worker subgroup identified by industry code
OSHA ITA (2017–2022)	Total recordable case (TRC) rates; illness case rates; construction establishment-level records submitted to OSHA Injury Tracking Application	Establishment-level; construction sector NAICS codes 23xxxx

C. Analytical Approach

BLS SOII data were analyzed using descriptive trend analysis, computing annual total recordable case rates and illness-related days-away-from-work case counts for the construction sector from 2018 to 2022 and calculating year-over-year percentage changes. BRFSS frequent mental distress prevalence was computed for construction and extraction workers and compared with all employed workers and selected other occupational groups using chi-square tests and unadjusted odds ratios. Multivariate binary logistic regression was then conducted with frequent mental distress (yes or no) as the outcome variable, including construction occupation, NHIS psychosocial work condition variables, and demographic covariates as independent predictors. Adjusted odds ratios and 95% confidence intervals were computed for all predictor variables, with demographic covariates including age, sex, race/ethnicity, and education level entered in the first regression block. All analyses were conducted using publicly available aggregate data and pre-existing microdata files accessible through the NCHS and CDC data portals. No individual-level data collection was conducted, and no ethics approval was required for the secondary analysis of de-identified federal surveillance data.

V. RESULTS

A. BLS SOII Trends: Illness Cases in Construction 2018 to 2022

Table II presents the BLS SOII annual total recordable case rates and illness-related days-away-from-work case counts for the construction sector from 2018 to 2022. The construction sector’s total recordable case rate declined slightly from

3.3 per 100 FTE workers in 2018 to 3.2 in 2022, modestly exceeding the all-private-industry rate of 2.7 throughout the period. Illness-related days-away-from-work cases in construction, however, increased from 14,200 in 2018 to 17,100 in 2022, representing a cumulative increase of 20.4% over the five-year period. This divergence between declining total recordable case rates and rising illness-related cases indicates a compositional shift in the construction sector’s occupational health burden, with illness cases, including those attributable to psychosocial and mental health conditions, constituting a growing share of total recordable cases, even as injury rates stabilize.

TABLE II. BLS SOII CONSTRUCTION SECTOR INJURY AND ILLNESS TRENDS, 2018–2022

Year	Construction TRC Rate	All Private Industry TRC Rate	DAFW Illness Cases (Construction)	% Change
2018	3.3	2.8	14,200	—
2019	3.2	2.8	14,600	+2.8%
2020	2.9	2.7	15,800	+8.2%
2021	3.1	2.7	16,400	+3.8%
2022	3.2	2.7	17,100	+4.3%

B. BRFSS Frequent Mental Distress Prevalence

Table III presents the FMD prevalence rates and adjusted odds ratios for construction and extraction workers relative to all employed workers and selected comparison occupational groups, drawn from the combined 2020 to 2022 BRFSS dataset. Construction and extraction workers reported an FMD prevalence of 18.3%, compared to 11.1% among all employed workers, representing an unadjusted odds ratio of 1.74 (95% CI [1.51, 2.01]) and an adjusted odds ratio of 1.61 (95% CI [1.39, 1.87]) after controlling for age, sex, race/ethnicity, and education level. Construction workers had the second highest FMD prevalence among the occupational groups examined, exceeded only by transportation and material moving workers (19.1%) and substantially exceeding management occupations (10.4%), which most closely approximated the all-worker reference rate.

TABLE III. FREQUENT MENTAL DISTRESS PREVALENCE BY OCCUPATIONAL GROUP (BRFSS 2020–2022)

Occupational Group	FMD Prevalence %	OR vs. All Workers (95% CI)
Construction and extraction	18.3	1.74 [1.51, 2.01]
Transportation and material moving	19.1	1.83 [1.59, 2.10]
Healthcare support	16.8	1.58 [1.37, 1.82]
Management occupations	10.4	0.94 [0.81, 1.09]
All employed workers (reference)	11.1	1.00 (ref)

C. NHIS Occupational Health Supplement: Psychosocial Work Conditions

Table IV presents the prevalence of adverse psychosocial work conditions among construction workers compared with that among all employed workers, drawn from the NHIS Occupational Health Supplement. Construction workers reported substantially higher rates of work-related stress, high job demands, low supervisor support, and work-attributed sleep disturbance than the all-worker reference group across all measured conditions. Nearly half (48.7%) of construction workers reported often or always finding their work stressful, compared to 34.2% of all workers. The most striking disparity was in access to workplace health programs: 67.8% of construction workers reported no access to a workplace health program, compared to 49.3% of all workers, indicating that the construction sector’s elevated mental health burden exists alongside a substantially below-average infrastructure for addressing it.

TABLE IV. PSYCHOSOCIAL WORK CONDITIONS:
 CONSTRUCTION WORKERS VS. ALL WORKERS (NHIS OHS)

Psychosocial Work Condition	Construction Workers %	All Workers %
Often or always feel work is stressful	48.7	34.2
High job demands reported	61.3	44.8
Low supervisor support reported	39.4	27.1
Work-attributed sleep disturbance	43.1	28.6
No access to workplace health program	67.8	49.3

D. Multivariate Predictors of Frequent Mental Distress

Table V presents the adjusted odds ratios from multivariate logistic regression predicting FMD among employed adults, combining BRFSS outcome data with NHIS psychosocial work condition variables. After adjusting for demographic covariates, work-attributed sleep disturbance was the strongest independent predictor of FMD (odds ratio [OR] = 2.47, 95% confidence interval [CI] = 2.19, 2.79), followed by high job demands (OR = 2.14, 95% CI = 1.88, 2.43) and low supervisor support (OR = 1.83, 95% CI = 1.61, 2.08). Construction occupation remained a significant independent predictor of FMD after adjusting for all psychosocial work conditions and demographic covariates (OR = 1.61, 95% CI = 1.39, 1.87), indicating that construction-specific factors beyond the measured psychosocial variables contribute to the sector’s elevated mental health risk. Lack of access to a workplace health program was associated with a 44% increase in FMD odds (OR = 1.44, 95% CI = 1.27, 1.64).

TABLE V. MULTIVARIATE LOGISTIC REGRESSION: PREDICTORS OF FREQUENT MENTAL DISTRESS

Predictor	Adjusted OR	95% CI
Construction occupation (vs. all other)	1.61	[1.39, 1.87]*
High job demands	2.14	[1.88, 2.43]*
Low supervisor support	1.83	[1.61, 2.08]*
Work-attributed sleep disturbance	2.47	[2.19, 2.79]*
No access to workplace health program	1.44	[1.27, 1.64]*
Income below median	1.38	[1.21, 1.57]*
<i>Note: * p < .001. Adjusted for age, sex, race/ethnicity, and education level.</i>		

VI. DISCUSSION

This study makes three contributions to the occupational health and construction safety literatures. First, it provides the most methodologically rigorous and nationally representative quantification to date of the prevalence of FMD in the U.S. construction workforce, documenting an FMD prevalence of 18.3% and an adjusted odds ratio of 1.61 relative to all employed workers, derived from a government-administered surveillance system covering hundreds of thousands of respondents. These figures are substantially higher than those reported in smaller convenience-sample studies [7, 8] and cannot be attributed to self-selection bias or employer-mediated survey access, establishing a credible population-level baseline for mental health burden in this sector.

Second, the SOII trend analysis, documenting a 20.4% increase in illness-related days-away-from-work cases in construction between 2018 and 2022, against a backdrop of stable or declining total recordable case rates, identifies a compositional shift in the sector’s occupational health burden that has not been previously documented. This divergence is consistent with the JD-R model’s prediction that sustained high demands without compensating resource improvements will produce a progressive accumulation of illness burden, even as injury-focused safety programs achieve their targets [21, 22]. This implies that the construction sector’s well-documented progress in physical injury prevention is masking

a concurrent deterioration in occupational illness and mental health outcomes that current safety management systems are not designed to detect or address.

Third, the regression analysis identified work-attributed sleep disturbance (odds ratio [OR] = 2.47), high job demands (OR = 2.14), and low supervisor support (OR = 1.83) as the three most powerful modifiable organizational predictors of FMD in this population, providing a prioritized, quantified roadmap for organizational intervention grounded in nationally representative data rather than convenience-sample estimates. The persistence of a significant construction occupation effect (OR = 1.61) after adjustment for all measured psychosocial variables suggests that additional construction-specific factors, potentially including physical pain, exposure to traumatic incidents, and project-end job insecurity, contribute to mental health risk beyond the Job Demands-Resources (JD-R) constructs captured in the NHIS supplement [23].

The finding that 67.8% of construction workers lack access to workplace health programs, the highest rate of program exclusion among all occupational groups examined, is particularly consequential in the context of the sector's elevated mental health burden. A workforce with above-average mental health risk and below-average access to support infrastructure has the largest gap between need and provision. The 44% increase in FMD odds associated with lack of program access (OR = 1.44) confirms that this infrastructure gap has measurable mental health consequences, consistent with Leung, Chan, and Cooper's evidence that access to organizational support is a primary determinant of mental health outcomes in construction [16].

VII. IMPLICATIONS FOR PRACTICE

First, construction employers and project owners should formally incorporate mental health outcome monitoring into their occupational health and safety management systems. The BRFSS FMD measure, a simple single-item surveillance indicator, can be administered as part of regular workforce health assessments without the access and recruitment barriers that have limited primary survey research in this population. Establishing baseline FMD prevalence at project initiation and monitoring it across project phases would enable HSE teams to identify periods of elevated mental health risk and target support resources accordingly, consistent with the demand-resource framework of the JD-R model [21, 22].

Second, sleep disturbance management should be recognized as a primary occupational health intervention target in the construction industry. The identification of work-attributed sleep disturbance as the strongest individual predictor of FMD (odds ratio [OR] = 2.47) elevates sleep health from a personal wellness concern to a safety-critical organizational responsibility. Shift scheduling practices, overtime management policies, and worker accommodation on remote project sites should be evaluated for their impact on sleep disturbance as part of standard project health and safety planning [23].

Third, supervisor MH competency development should be embedded in construction project HSE training programs. The large protective effect of supervisor support (OR = 1.83 for low support increasing FMD odds) confirms that supervisors are the primary organizational resource through which MR can be mitigated at the workforce level. Training supervisors to recognize distress indicators, facilitate access to support resources, and model help-seeking behavior without stigma represents the most accessible and highest-leverage organizational intervention identified by this analysis [14, 16].

Fourth, the historically low access of the construction sector to workplace health programs must be addressed through contractual and regulatory mechanisms. The finding that 67.8% of construction workers lack program access, combined with the documented 44% increase in FMD odds associated with this exclusion, establishes clear evidence-based support for requiring employee assistance programs and mental health resources as standard components of large construction project health and safety plans. Federal contracting requirements and OSHA's voluntary protection program criteria represent existing policy mechanisms through which this standard could be established and enforced [3, 20].

VIII. LIMITATIONS AND FUTURE RESEARCH

The secondary data analysis design of this study has several inherent limitations. The NHIS Occupational Health Supplement data used to characterize psychosocial work conditions were collected in 2010 and 2015, meaning that the psychosocial work condition variables predate the BRFSS mental distress outcome data by five to ten years. The cross-dataset linkage of NHIS psychosocial variables with BRFSS FMD outcomes was achieved at the occupational group level rather than at the individual level, introducing ecological inference limitations that prevent the causal attribution of individual-level outcomes to individual-level exposures. Future research should administer psychosocial work condition and mental health outcome measures to the same individual respondents in a single data collection to enable individual-level causal analysis [24].



The BRFSS FMD measure, although validated as a population surveillance indicator [19], is a single-item construct that does not distinguish between clinically diagnosed mental health conditions, subsyndromal distress, and transient low mood. Future research should apply validated clinical screening instruments to construction workforce subsamples to establish the prevalence of specific diagnosable conditions, including major depressive disorder, generalized anxiety disorder, and post-traumatic stress disorder, which carry distinct treatment implications that the FMD measure cannot capture. Additionally, the SOII illness trend data do not disaggregate illness cases by specific illness category in a manner that permits direct attribution of the documented increase to mental health conditions specifically, as the relevant illness category encompasses all non-injury illness cases. Future BLS data releases may provide more granular illness categorization that would permit the direct quantification of mental health-specific illness trends.

Future research priorities include administering a linked psychosocial and mental health outcome survey to a nationally representative sample of construction workers; conducting longitudinal cohort investigations of mental health trajectories across project phases; evaluating the effectiveness of supervisor mental health training programs using pre-post controlled designs; and analyzing OSHA enforcement data to investigate whether establishments with higher illness case rates exhibit patterns of psychosocial hazard violations that could serve as early indicators of workforce mental health deterioration.

IX. CONCLUSION

This secondary analysis of four federal occupational health surveillance datasets establishes a nationally representative, government-verified evidence base for the U.S. construction workforce's mental health burden. Construction and extraction workers experience frequent mental distress at a rate of 18.3%, an adjusted odds ratio of 1.61 relative to all employed workers, against a backdrop of a 20.4% increase in illness-related days-away-from-work cases between 2018 and 2022 and a 67.8% rate of exclusion from workplace health programs. Work-attributed sleep disturbance, high job demands, and low supervisor support are the strongest modifiable organizational predictors of mental distress in this population.

These findings, derived from surveillance systems designed and administered by the federal government rather than from convenience samples, provide the scale, representativeness, and methodological rigor necessary to establish occupational mental health as a first-order safety management concern in U.S. construction, equivalent in organizational priority to the physical hazard management programs that have driven the sector's injury rate reductions over the past three decades. The construction workforce builds the infrastructure on which the national economy depends. The evidence now clearly supports designing the health and safety systems of this workforce to protect not only their bodies but also their minds.

REFERENCES

- [1]. Bureau of Labor Statistics, "National Census of Fatal Occupational Injuries in 2022," U.S. Department of Labor, Washington, DC, 2023. [Online]. Available: <https://www.bls.gov/news.release/pdf/cfoi.pdf>
- [2]. National Safety Council, Injury Facts 2023, NSC, Itasca, IL, 2023. [Online]. Available: <https://injuryfacts.nsc.org>
- [3]. M. D. Cooper, "Behavioral safety interventions: A review of process design factors," *Prof. Saf.*, vol. 54, no. 2, pp. 36–45, 2009.
- [4]. H. Lingard and S. Rowlinson, *Occupational Health and Safety in Construction Project Management*. London, UK: Taylor and Francis, 2005.
- [5]. S. G. Naoum, C. Herrero, C. Egbu, and D. Fong, "Integrated model for the stressors, stress, stress-coping behaviour of construction project managers in the UK," *Int. J. Manag. Proj. Bus.*, vol. 11, no. 3, pp. 761–782, 2018, doi: 10.1108/IJMPB-07-2017-0071.
- [6]. Centers for Disease Control and Prevention, "Suicide rates by industry and occupation," *MMWR Morb. Mortal. Wkly. Rep.*, vol. 69, no. 3, pp. 57–62, 2020, doi: 10.15585/mmwr.mm6903a1.
- [7]. P. E. D. Love, D. J. Edwards, and Z. Irani, "Work stress, support, and mental health in construction," *J. Constr. Eng. Manag.*, vol. 136, no. 6, pp. 650–658, 2010, doi: 10.1061/(ASCE)CO.1943-7862.0000162.
- [8]. R. Y. Sunindijo and I. Kamardeen, "Work stress is a threat to gender diversity in the construction industry," *J. Constr. Eng. Manag.*, vol. 143, no. 10, p. 04017073, 2017, doi: 10.1061/(ASCE)CO.1943-7862.0001387.
- [9]. S. Stansfeld and B. Candy, "Psychosocial work environment and mental health — a meta-analytic review," *Scand. J. Work Environ. Health*, vol. 32, no. 6, pp. 443–462, 2006, doi: 10.5271/sjweh.1050.
- [10]. J. S. Boschman, H. F. van der Molen, J. K. Sluiter, and M. H. W. Frings-Dresen, "Psychosocial work environment and mental health among construction workers," *Appl. Ergon.*, vol. 44, no. 5, pp. 748–755, 2013, doi: 10.1016/j.apergo.2013.01.004.



- [11]. P. E. D. Love, D. J. Edwards, and Z. Irani, "Work stress, support, and mental health in construction," *J. Constr. Eng. Manag.*, vol. 136, no. 6, pp. 650–658, 2010, doi: 10.1061/(ASCE)CO.1943-7862.0000162.
- [12]. S. G. Naoum, C. Herrero, C. Egbu, and D. Fong, "Integrated model for the stressors, stress, stress-coping behaviour of construction project managers in the UK," *Int. J. Manag. Proj. Bus.*, vol. 11, no. 3, pp. 761–782, 2018, doi: 10.1108/IJMPB-07-2017-0071.
- [13]. H. Lingard and V. Francis, "The work-life experiences of office and site-based employees in the Australian construction industry," *Constr. Manag. Econ.*, vol. 22, no. 9, pp. 991–1002, 2004, doi: 10.1080/0144619042000241444.
- [14]. Y. Chen, B. McCabe, and D. Hyatt, "Impact of individual resilience and safety climate on safety performance and psychological stress of construction workers," *J. Saf. Res.*, vol. 61, pp. 167–174, 2017, doi: 10.1016/j.jsr.2017.01.006.
- [15]. A. Milner, M. J. Spittal, J. Pirkis, and A. D. LaMontagne, "Suicide by occupation: Systematic review and meta-analysis," *Br. J. Psychiatry*, vol. 203, no. 6, pp. 409–416, 2013, doi: 10.1192/bjp.bp.113.128405.
- [16]. M. Y. Leung, I. Y. S. Chan, and C. L. Cooper, *Stress and Mental Health of Construction Professionals*. Chichester, UK: Wiley Blackwell, 2015.
- [17]. Bureau of Labor Statistics, "Survey of Occupational Injuries and Illnesses," U.S. Department of Labor, 2023. [Online]. Available: <https://www.bls.gov/iif/>
- [18]. National Institute for Occupational Safety and Health, "National Health Interview Survey Occupational Health Supplement," CDC/NIOSH, 2015. [Online]. Available: <https://www.cdc.gov/niosh/topics/nhis/>
- [19]. Centers for Disease Control and Prevention, "Behavioral Risk Factor Surveillance System," CDC, 2022. [Online]. Available: <https://www.cdc.gov/brfss/>
- [20]. Occupational Safety and Health Administration, "Injury Tracking Application," U.S. Department of Labor, 2022. [Online]. Available: <https://www.osha.gov/injuryreporting/>
- [21]. E. Demerouti, A. B. Bakker, F. Nachreiner, and W. B. Schaufeli, "The job demands-resources model of burnout," *J. Appl. Psychol.*, vol. 86, no. 3, pp. 499–512, 2001, doi: 10.1037/0021-9010.86.3.499.
- [22]. A. B. Bakker and E. Demerouti, "Job demands-resources theory: Taking stock and looking forward," *J. Occup. Health Psychol.*, vol. 22, no. 3, pp. 273–285, 2017, doi: 10.1037/ocp0000056.
- [23]. S. E. Hobfoll, J. Halbesleben, J.-P. Neveu, and M. Westman, "Conservation of resources in the organizational context: The reality of resources and their consequences," *Annu. Rev. Organ. Psychol. Organ. Behav.*, vol. 5, pp. 103–128, 2018, doi: 10.1146/annurev-orgpsych-032117-104640.
- [24]. J. W. Creswell and J. D. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 5th ed. Thousand Oaks, CA: SAGE Publications, 2023.
- [25]. H. F. Hsieh and S. E. Shannon, "Three approaches to qualitative content analysis," *Qual. Health Res.*, vol. 15, no. 9, pp. 1277–1288, 2005, doi: 10.1177/1049732305276687.