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Assessing the Prevalence, Determinants, and Impact of Mental Health in the American Construction Industry

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Mental health is a significant cause of suicide and disability worldwide. It has particularly affected the construction industry. The American construction industry, a vital economic sector, faces a significant but often unaddressed crisis regarding the mental health and well-being of its workforce. Synthesizing findings from multiple studies, this paper will critically examine the prevalence, causes, and impacts of mental health issues among construction workers and project professionals. Research consistently highlights the severe psychosocial work environment as a primary contributor to these issues. Key stressors include demanding schedules, long working hours, high job insecurity, tight deadlines, hazardous working conditions, and a pervasive culture that discourages the expression of vulnerability or the seeking of help. Studies confirm alarmingly construction industry high rates of mental health issues, including depression, anxiety, and elevated suicide risk, significantly greater than those in the general working population. Additionally, a lack of adequate social and organizational support aggravates the negative effects of work stress. These challenges have a tangible impact on operational outcomes, including reduced labor productivity, increased turnover, higher rates of accidents, and compromised project quality. Addressing this crisis requires a multi-faceted approach, encompassing organizational culture change, improved work-life balance, and the implementation of robust mental health support programs. The findings of this study produced in a framework will help deepen the understanding of professional mental health assessment scales and relevant factors as used in the construction industry.

Keywords: Construction, Mental Health, Suicide

Introduction

The construction industry in the United States (U.S.) occupies a central role in the national economy, delivering infrastructure, commercial facilities, and residential buildings that underpin urban growth and societal well-being (Lawhorn and Ilic-Godfrey 2025, Pheng and Hou 2019). At the same time, the industry is increasingly recognized as a high-risk sector not only for physical hazards but for mental health challenges as well. Despite the high visibility of physical safety measures hard hats, fall protection, and hazardous-materials training, the psychosocial domain remains largely under-addressed in many construction settings (Chan et al. 2020, Rouhanizadeh and Kermanshachi 2021). This imbalance leaves workers and project professionals vulnerable to stress, anxiety, depression, substance misuse, and suicide (Blair Winkler et al. 2024, Rouhanizadeh et al. 2021, Tijani et al. 2021). The present

study seeks to explain the extent and nature of mental health issues within this sector, the factors driving them, and the implications for individuals, organizations, and project outcomes.

The prevalence of poor mental health in construction work is striking, a review of global construction industry research identifies that anxiety, depression, and psychological distress occur at elevated levels among construction workers compared to other industries (Almaskati et al. 2024, Blair Winkler et al. 2024, Pamidimukkala et al. 2025). In the U.S., a survey found that 15.4% of construction workers reported symptoms of anxiety or depression in 2021, with 84.3% of those not seeking professional help (Trueblood et al. 2024). Even more alarming, the rate of suicide in the construction industry far exceeds that of the average workforce. According to the Association of General Contractors of America (AGC) in 2021, 56 suicides per 100,000 male construction workers compared to 32 per 100,000 male workers across all sectors (AGC 2025). Such statistics underscore the urgent need for systematic investigation of mental health in this field. Understanding why these elevated risks persist demands attention to the occupational context of construction work. Unlike many other industries, construction presents a unique confluence of psychosocial stressors: jobsite hazards, unpredictable work hours, project-driven deadlines, frequent subcontracting and job transitions, seasonal employment, remote or mobile work locations, and a workforce dominated by a culture of toughness and self-reliance. Some studies identified factors such as excessive work demands, work-life imbalance, and poor working environments as primary stressors that adversely affect mental health among construction workers globally (Almaskati et al. 2024, Gruttadaro and Beyer 2021). The male-dominated nature of the industry (with over 90% of workers being male) compounds risks because men are statistically less likely to seek help for mental health issues and more likely to die by suicide. Moreover, job insecurity and the patchwork nature of employment relationships in construction amplify financial and emotional strain (Lawani et al. 2025, Liu et al. 2021).

In addition to the human costs, mental health issues within construction impose considerable operational and economic burdens on organizations and projects. Workers experiencing depression, anxiety, or substance misuse are more prone to absenteeism, presenteeism, turnover, and accidents. They may also exhibit diminished productivity, reduced attention to safety protocols, and lower overall engagement. For instance, mental health disorders across industries cost the U.S. economy an estimated US$193.2 billion annually, with construction workers being particularly vulnerable (Wehbe et al. 2022). Therefore, this study aims to synthesize the current academic literature regarding this crisis. The objective is three-fold: first, to establish the current statistical prevalence of mental health issues a focus on anxiety and depression; second, to critically examine the difference between a pre-period (2013 – 2017) and post-period (2018 –2023); and third, to propose a framework for intervention. By synthesizing these findings, this review seeks to deepen the understanding of professional mental health assessment scales and relevant factors as used in the construction industry, providing a critical foundation for evidence-based interventions and policy reform.

Literature Review

Mental Health Measurement Tools and Assessment Scales

Robust assessment of mental health in occupational settings depends on validated psychometric instruments. In the construction industry, several general-purpose scales have been used, but there is growing recognition of the need for industry-specific tools (Chan et al. 2020, Newaz et al. 2022). For instance, in a global review of construction industry mental health research, the predominant instruments included the Depression Anxiety Stress Scale (DASS), the Hopkins Symptom Checklist 25 (HSCL-25), and variants of the Center for Epidemiologic Studies Depression Scale (CES-D) (Blair Winkler et al. 2024, Chan et al. 2020). According to Chan et al. (2020), the DASS was used as the primary tool in their meta-analysis of mental health risk factors in the construction industry. The HSCL-

25 was employed in a U.S. study of commercial construction workers, where it captured psychological distress at a 16% prevalence (Blair Winkler et al. 2024). While these general instruments provide valuable baseline data, they may not fully capture the unique psychosocial stressors of construction work (e.g., temporal job insecurity, production pressure, remote worksites, site hazards) (Almaskati et al. 2024, Tijani et al. 2021). Recognizing this gap, recent work has begun to design scales tailored for construction contexts, such as a new Construction Worker Well-Being and Safety Culture in the work environment to scale what embeds mental health support, organizational commitment, and worker engagement in construction settings (Al-Bayati and Chellappa 2025, Sorensen and Dennerlein 2014). In addition to mental health outcome scales, many studies incorporate workplace psychosocial factor scales such as safety climate, decision latitude, supervisor/peer support, job demands, work-family conflict, and job insecurity (Dennerlein et al. 2021). For example, the authors used the K6 (a brief psychological distress screen) along with scales for safety climate and supervisor support. Thus, the measurement domain in construction mental health research typically involves three layers: 1. outcome measurement (depression, anxiety, distress, suicidality), 2. exposure/psychosocial factor measurement (job demands, support, safety climate), and 3. sometimes protective or resilience factors (e.g., resilience scales such as the Connor–Davidson Resilience Scale) (Hashem et al. 2024). A limitation across the literature is the inconsistent use of definitions and scales, which hampers comparability across studies (Hutton et al. 2022).

Prevalence and Determinant Empirical Evidence in Construction

Prevalence of poor mental health among construction workers, along with a set of recurring determinants and contextual factors, has been documented. The Center for Construction Research and Training (CPWR) indicates that nearly half of the surveyed U.S. construction workers reported having depression, and one in three reported anxiety at least monthly, and this prevalence requires urgent attention. According to Dennerlein et al. (2021), a study on commercial sites in the U.S. found that 16% of workers screened positive for psychological distress via K6, a rate higher than the general male population. Global review by (Blair Winkler et al. 2024) reports that in heavy civil construction contexts, the prevalence was as low as 8% in one U.S. subsample, but generally much higher elsewhere, cautions about heterogeneity. Consistent determinants evidence identifies a cluster of interconnected occupational stressors in the construction industry, including high job demands (tight schedules, long hours, and production pressure), work-family conflict (inflexible schedules and communing uncertainty), poor safety climate, low supervisor support, and harassment, job insecurity and precarious employment, and hazardous physical/site conditions and seasonal layoffs, all of which collectively amplify mental health risks among construction workers (Blair Winkler et al. 2024, Dennerlein et al. 2021). Understanding these shifts through data-driven analysis can inform evidence-based interventions and policy decisions targeted at mitigating the burden of mental health disorders in construction.

Impact of Poor Health on Outcomes and Need for Holistic Framework

Poor mental health within the construction sector has significant operational, human, and economic implications, moving beyond individual suffering to affect overall project and organizational performance. Research indicates that mental health challenges among construction workers are associated with elevated rates of absenteeism, presenteeism, turnover intention, and reduced engagement (Chan et al. 2020, Pamidimukkala et al. 2025). Compounding the physical hazards inherent to the industry, psychological strain creates a synergistic risk environment that contributes to an increased risk of accidents and safety incidents (Chan et al. 2020). Furthermore, these issues lead to a decline in productivity and work quality, alongside schedule delays, rework, and cost overruns. Although these links are qualitatively acknowledged, their quantitative financial impact within construction datasets remains under-documented. Given this cascading effect, experts argue that mental health must be integrated into the "Total Worker Health" paradigm, which synchronizes physical safety, psychosocial health, and organizational performance (Dennerlein et al. 2021, Pamidimukkala et al.

2025). Studies using established scales like the K6 psychological distress measure have shown high distress rates, often linked to job demands and work-family conflict, emphasizing the urgency of this integrated approach (Blair Winkler et al. 2024, Dennerlein et al. 2021).

Interventions, Support Frameworks, and Critical Research Gaps

The literature proposes multilevel frameworks to support mental health, organized into primary (prevention), secondary (early detection), and tertiary (treatment and rehabilitation) tiers. Primary prevention, which focuses on upstream organizational changes like modifying job design, reducing excessive demands, improving scheduling, and fostering work-life balance, is identified as critically underutilized in the construction context despite its importance (Chan et al. 2020). Secondary prevention includes screening and supervisor training, with calls for interventions specifically targeting work factors such as safety climate and supervisor support (Dennerlein et al. 2021). Tertiary efforts involve tailored counseling, crisis support like construction-specific helplines, and rehabilitation, often with an emphasis on stigma reduction within the male-dominated workforce. Despite the existence of these robust frameworks, their implementation is inconsistent, and published intervention studies often lack strong evaluation designs, such as randomized controlled trials or longitudinal follow-up (Hutton, 2022). Major research gaps remain, including the lack of a standardized, construction-specific mental health measurement instrument, a need for longitudinal studies to establish causality between work factors and outcomes, and a significant deficit in research that quantitatively links mental health metrics directly to operational project performance (Aust et al. 2024, Greiner et al. 2022). Future research should prioritize developing validated, industry-specific scales and conducting rigorous, outcome-integrated intervention trials across all levels of the construction workforce (Aust et al. 2024, Dennerlein et al. 2021).

Methodology

This is a retrospective, repeated-cross-sectional analysis using nationally representative survey data (CPWR 2025) and aggregated estimates to compare the prevalence of self-reported anxiety and depression among U.S. construction workers across two multi-year periods. The principal objective is to estimate and compare the prevalence and adjusted odds of anxiety and depression in a pre-change period vs a post-change period and to quantify change over time. For the primary analysis comparing two distinct five-year periods, the pre-period is defined as 2013-2017 and the post-period as 2018-2023 to ensure data comparability and validity. This specific segmentation is recommended because the National Health Interview Survey (NHIS 2020) underwent significant questionnaire and sample redesign during 2018 and 2019, leading organizations like the CPWR to caution that estimates before and after 2018 may not be directly comparable, thus necessitating the exclusion of the transition year 2019 from the main contrast (CPWR 2025, NHIS 2020).

Data Source and Analysis Reporting

The data for this research were from two sources (1) Web of Science and (2) NHIS public-use microdata files. The Web of Science (WoS) Core Collection was selected as the data source for the current statistical prevalence of mental health issues a focus on anxiety and depression in construction, due to its comprehensive coverage of peer-reviewed scientific publications, advanced filtering capabilities, and citation-tracking features. Web of Science is also commonly used to identify constructs and determine keyword trends from literature to identify a partner from the topic, abstract, and keywords. The new smart search was used, which uses the power of AI, on the research topic, without America for the prompt. This engine helps to streamline the need for data cleansing as it focuses on the prevailing keyword in the topic. Initial search returned 393 research works from articles to proceeding papers, after limiting the publication year to 2013 to 2023 (excluding 2018), to cover the same year period for the CPWR data report, 220 publications were analyzed using VOSviewer (version 1.6.20). The VOSviewer identifies networks and patterns through exploring, visualizing, and creating bibliometric

maps of science (Akinlolu et al. 2020, Makabate et al. 2022).

The NHIS public-use microdata files (sample adult files) for years 2013–2017 and 2018–2023 were used because they provide nationally representative health indicators, including self-reported anxiety/depression and related care/use variables, and industry of employment. CPWR's Mental Health Data Dashboard and Data Bulletins, which synthesize NHIS and other sources and provide construction worker-focused prevalence estimates, definitions, and interpretive notes. The study population includes respondents aged 18-64 who report current employment and whose primary industry of employment is Construction (NAICS 23/Census Industry code for "Construction") at the time of interview. Use NHIS industry and occupation variables. NHIS uses a complex, multistage probability sample with survey weights, strata, and PSU design variables. All analyses will incorporate the NHIS survey weights and use Taylor series linearization (or replicate weights when available) to calculate standard errors, confidence intervals, and design-corrected tests. For analysis, reporting a fit join-point regression on yearly prevalence is used to detect changes in trend and estimate annual change. This helps determine whether there is evidence of a trend break. The statistic is an estimated weighted prevalence and set at 95% confidence intervals of anxiety and depression for each year and for each multi-year period (pre and post).

Results

Current statistical prevalence of mental health issues: anxiety and depression

Comparing the level of anxiety and depression issues published during the pre-period and post-period of the study revealed a vast difference. Most problems related to mental health issues in the construction industry during the pre-period are stress and other health issues that were not specifically identified. This issue was considered as one that impacted the worker performance in construction between 2015 and 2016. VOSviewer software was used to map the outcomes with Mental Health linked to health, the construction industry, stress and performance. A step further to the post-study year (Figure 1) revealed a drastic shift, with more health issues like psychological distress, burnout, musculoskeletal disorder, pains, stress, suicidal thoughts, etc., along with anxiety and depression were identified. The keywords were prevalent in research studies on mental health issues in construction from 2021 to mid-2022.

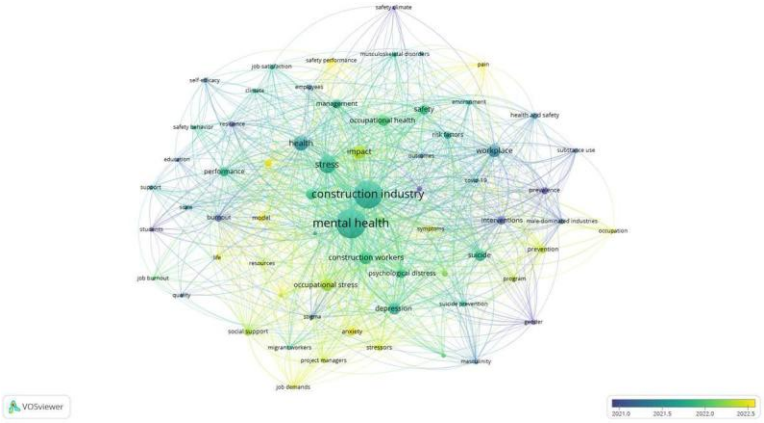


Figure 1. Post-Period Study Mental Health Issues in Construction (2018 – 2023)

The overview of anxiety and depression indicated what is most prevalent, while they are some similarities of the mental health impact, there are some specific determinants for each case (Figure 2). One standalone for anxiety is safety behavior, while for depression, there are several connected issues like job burnout, social support, pain, and substance use.

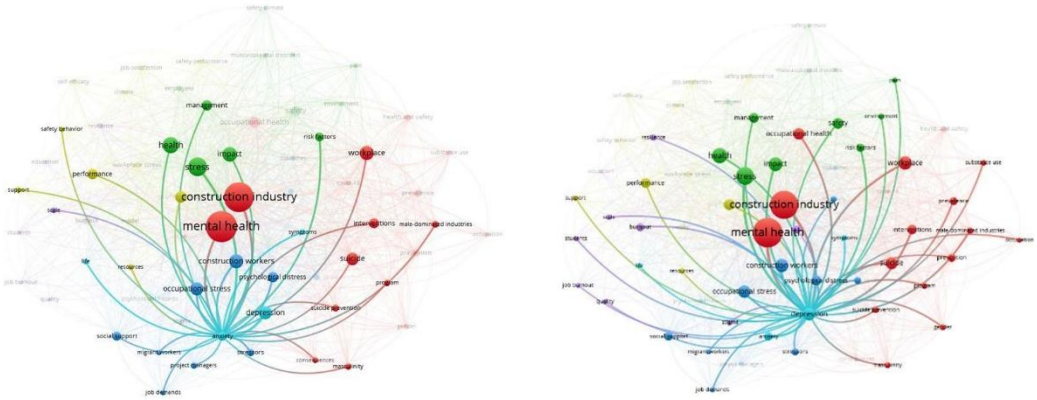
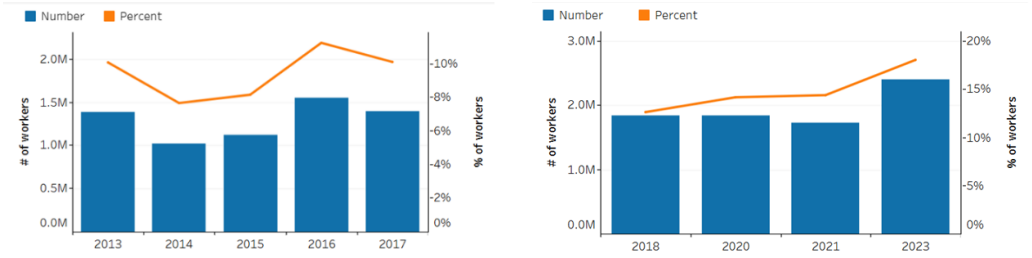


Figure 2. Mental Health Issues: Anxiety vs Depression (2018 – 2023)

Difference in Mental Health Issues for Pre and Post Period in the U.S. Construction Industry

There is an increase in anxiety cases in the U.S. construction industry, with an average of 9.5% among 1.3 million workers during the study pre-period to a 15.5% jump among 2.0 million reporting anxiety-related issues (Figure 3). There is a need to find a solution for anxiety-related issues, the outcome of which results from being anxious, is damaging to the person and the industry.

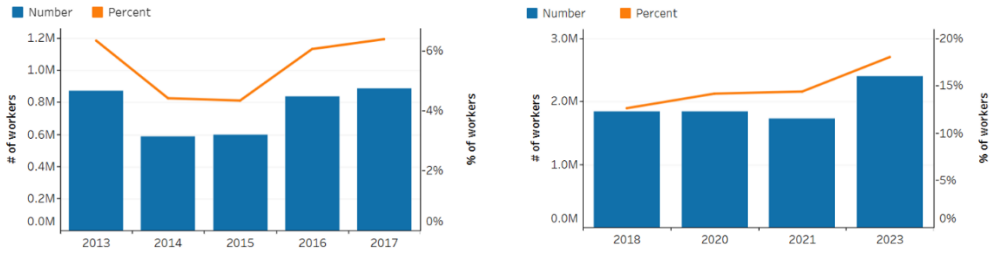


a. Pre-period 2013-17 b. Post-period 2018-2023

Figure 3. Mental Health Issues: Anxiety (Source - (CPWR 2025))

Likewise, in the same trend pattern, an increase was found for depression cases in the U.S. construction industry. During the pre-period, less than 5% of 666.6 thousand construction workers reported having depression, while the post-period experienced an increase to almost 7% from 909.3 thousand construction workers. The result of these issues indicates that some workers are currently taking medication for depression meeting with a mental health professional if they can afford the bills. In contrast, suicide and substance overdose remain significant contributors to mortality among construction workers. These issues represent a leading cause of death in the industry and demand urgent and coordinated interventions to reduce fatalities among both active and post-construction workers. Construction stakeholders need policies implemented to reduce workplace stress, job

burnout, psychological distress, etc., that impact employees' ability to function correctly in and outside their work environment



a. Pre-period 2013-17 b. Post-period 2018-2023

Figure 4. Mental Health Issues: Depression (Source - (CPWR 2025))

Framework for Mitigation of Mental Health in the U.S. Construction Industry

The framework for the finding is a Total Mental Health Safety Framework, designed to guide construction industry stakeholders in utilizing these research findings for evidence-based intervention development and strategic implementation. Table 1 below provides actionable tiers that could be operationalized.

Table 1. Framework for Total Mental Health Safety for Construction Workers

Tier	**Actionable Focus**	**Stakeholder Goal**	**Direct Link to Research Findings**
I. Baseline and Surveillance	Standardized Assessment & Monitoring	To establish a reliable, ongoing measure of mental health risk within the organization/sector.	Prevalence Data (Figs. 4 & 5): Use the established ~15.5% anxiety and ~7% depression post-period rates as organizational benchmarks for screening. Mental Health Measurement Tools: Standardize the use of validated scales (e.g., DASS, K6) across projects for consistent data collection.
II. Determinant-Based Primary Prevention	Organizational and Job Redesign	To proactively modify the work environment and culture to reduce the primary stressors causing anxiety and depression.	Determinant Data (Fig. 3): Target the identified key stressors: Job Demands (reduce excessive work hours/pressure); Work-Family Conflict (improve scheduling predictability); Social Support/Safety Behavior (mandate supervisor training on support and safety climate).
III. Integrated Intervention Strategy	Implementation of Multi-Level Support	To ensure comprehensive and accessible support mechanisms are available to all workers.	Literature Review: Adopt the Primary/Secondary/Tertiary intervention model. Focus on Primary (Tier II) first, then Secondary (supervisor training for early detection) and Tertiary (access to construction-specific counseling/helplines and addressing stigma).

IV. Operational Impact Quantification	Link Mental Health to Project Metrics	To demonstrate the financial and operational return-on- investment (ROI) of mental health programs to executive leadership.	Impact Findings: Systematically track metrics like Absenteeism, Turnover Rate, and Accident Rate alongside mental health screening data to empirically link high distress to poor project performance, thus justifying investment.
V. Policy and Culture Change	Stigma Reduction & Policy Mandates	To integrate mental health into the Total Worker Health paradigm and overcome the "toughness" culture.	Contextual Factors: Directly address the industry's male-dominated culture and low help-seeking rate. Incorporate mental health awareness training into mandatory safety orientations and advocate for legislative or contractual requirements for mental health resources on all major projects.

Conclusion, Limitation, and Future Studies

This study confirms a significant and worsening mental health crisis in the American construction industry. Through a retrospective, repeated-cross-sectional analysis, the research provides compelling evidence of a marked increase in the prevalence of self-reported anxiety and depression among U.S. construction workers between the pre-period (2013-2017) and the post-period (2018-2023). Specifically, anxiety prevalence jumped from an average of ~9.5% to ~15.5%, and depression prevalence rose from less than ~5% to almost ~7% of the workforce, underscoring the urgency of this public health issue. Furthermore, the analysis of research determinants highlights a complex interplay of specific occupational stressors, including job burnout, low social support, pain, and substance use, that drive depression, while safety behavior shows a distinct link to anxiety. The findings not only solidify the need for integrating mental health into the industry's existing safety culture but also offer a Total Mental Health Safety (TMHS) Framework for stakeholders to move from acknowledgement to systemic, evidence-based intervention, targeting key determinants to safeguard the workforce and enhance project operational stability.

The study's limitations include potential data comparability issues arising from the NHIS redesign between 2018-2019, which may partly influence the observed pre- and post-period differences. Additionally, the reliance on self-reported data introduces bias due to stigma-related underreporting, while the cross-sectional design limits causal inference. Lastly, the U.S.-focused context constrains the generalizability of findings to global construction settings. Future studies should focus on developing and validating a construction-specific mental health assessment scale that reflects the industry's unique psychosocial stressors. Also, with overdose being a leading cause within the construction industry, there is a need for more research comparing the impact of overdose usage between construction workers and other industry professionals. Longitudinal research is needed to evaluate the causal effects and ROI of targeted interventions, such as supervisor mental health training and scheduling reforms. Additionally, a deeper investigation into the relationship between substance use, safety behavior, and mental health across various trades and organizational levels is essential for context-specific understanding and prevention.

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