HHS Public Access

Expanding the Paradigm of Occupational Safety and Health *A New Framework for Worker Well-Being*

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Abstract

Objective: This article describes the National Institute for Occupational Safety and Health's (NIOSH) development of a conceptual framework for worker well-being. While well-being research is growing, there is a need to translate theoretical concepts into practical models for measurement and action.

Methods: Multidisciplinary literature reviews informed development of the worker well-being framework and major domains and subdomains. An expert panel helped prioritize constructs for measurement.

Results: The framework includes five domains and 20 subdomains and conceptualizes worker well-being as a subjective and objective phenomenon inclusive of experiences both within and beyond work contexts.

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The authors have no conflicts of interest.

Conclusion: Well-being is a positive and unifying concept that captures multiple factors that contribute to workers' health and quality of life. This work lays the foundation for larger well-being measurement efforts and will provide tools for NIOSH partners to help workers flourish.

Keywords

framework development; measurement; occupational safety and health; policy and programming; worker well-being

Scholarship on the topic of well-being spans numerous fields of inquiry, including psychology, economics, philosophy, political science, biology, sociology, and public health. At its broadest level, well-being is commonly conceived as a positive state of existence, and more than simply the absence of negative factors. It is characterized by constructs such as happiness, flourishing, or the ability to live well. Because well-being can capture so many facets of the human experience, a movement has begun to consider the concept as a major outcome through which we evaluate the effectiveness and impacts of policies designed to enhance the public's health.[1–3] How we choose to define the elements of well-being will have important ramifications for measurement and ultimately our conclusions about how well we are achieving our goals as a society.

Amidst this broader context, a parallel movement to understand well-being is taking place within the workplace. Conceptualizing and measuring *worker* well-being is a developing field of research.[4] Worker well-being has been measured through concepts as varied as job satisfaction, employee engagement, positive emotions, good physical or mental health, and quality of social relationships, to name a few, and associations have been made with outcomes such as reduced mortality and improved work performance.[5,6] Well-being has therefore been proposed as a unifying framework for integrating multiple indicators of occupational safety and health and a valuable tool for occupational health researchers and practitioners seeking to develop and implement holistic approaches to enhance the overall quality of life for worker populations. However, for such approaches to succeed, agreed-upon definitions and measures of worker well-being must be utilized as a starting point for action. Unfortunately, despite the growing body of literature, currently, well-being research suffers from imprecise definitions for well-being, inconsistent use of measures that limit comparability across studies, and a general lack of consensus over what worker well-being actually *is*. The lack of theoretical clarity acts as a real barrier to the use of well-being as an organizing framework for program and policy development, implementation, and evaluation.

Recognizing the need for a comprehensive worker well-being measurement approach, in 2012, the National Institute for Occupational Safety and Health (NIOSH) Total Worker Health (TWH)® Program, in partnership with the RAND Corporation, led an effort to define and operationalize the concept of worker well-being. The TWH Program is designed to support policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being.[7] TWH supports more holistic-centered approaches to the health and safety of workers that shift the focus beyond a narrow attention to workplaces to a more

comprehensive look at both work-related factors and circumstances beyond the workplace that act to threaten or enhance the well-being of workers.

In this article, we present a proposed framework for worker well-being (see Fig. 1) informed by comprehensive and multidisciplinary literature reviews and the input of an expert panel consisting of occupational safety and health and well-being researchers. We define worker well-being as an *integrative concept that characterizes quality of life with respect to an individual's health and work-related environmental, organizational, and psychosocial factors. Well-being is the experience of positive perceptions and the presence of constructive conditions at work and beyond that enables workers to thrive and achieve their full potential.* Our well-being framework is comprised of five domains: (1) workplace physical environment and safety climate; (2) workplace policies and culture; (3) health status; (4) work evaluation and experience; and (5) home, community, and society. In the sections below, we describe the development of this framework and discuss two main themes that emerged from our methodological approach and provide a conceptual grounding for framework components: (1) worker well-being should encapsulate both work and nonwork settings; and (2) worker well-being should be comprised of both subjective (individuals' perceptions and beliefs) and objective (aspects of individuals' environment and living conditions or standards) domains. This comprehensive approach to conceptualize the nature of worker well-being will inform our efforts to develop measurement instruments and ultimately help guide application of the concept to real-world settings.

STUDY APPROACH

Development of the worker well-being framework is a step that is foundational to future NIOSH and NIOSH partner activities surrounding well-being. We undertook a robust development process to ensure that the framework was evidence-based and vetted by leading scholars in the fields of well-being and occupational safety and health. We carried out a three-pronged approach to development of the framework. We first conducted a broad-level, multidisciplinary literature review to develop an overarching framework and define the major domains that would comprise worker well-being. We next carried out targeted literature reviews on existing measurement instruments related to the framework domains and extracted instrument factors (concepts measured or what we call well-being subdomains and subdomain constructs). Following these activities, we convened an expert panel to gather input and guidance on selecting subdomains and subdomain constructs for use in measurement applications.

Literature Reviews to Define the Well-Being Framework

The broad-level literature review to identify framework domains spanned both the peer-reviewed and "grey" (eg, government reports, books) literatures and covered disciplines, including the social sciences, biomedical sciences, and economics. We focused on two search engines, PubMed and EBSCOhost. Google Scholar was also used to supplement the database searches. Search terms were constructed that included the word *well-being* as well as similar constructs (*happiness, flourishing*) given common usage of the term *well-being* to generally refer to an overall state of *doing well*. These terms were combined with terms

related to work (eg, *workplace, occupation, work, worksites, productivity, employment, job*). We scoped our review by focusing on the following article types: review, meta-analyses, conceptual/theoretical, and methodsfocused papers. As an extension of this review, we performed a supplementary search to obtain a sample of empirical studies. The subset of empirical studies was used to confirm review article assertions regarding the quality and focus of the empirical literature and to identify any new articles not captured in reviews.

Altogether, our search returned about 400 documents. Our final reference list included 149 sources after applying the following exclusion criteria: (1) well-being defined nonspecifically (eg, used simply as a synonym for health or wellness); (2) well-being defined in negative terms only (eg, stress, burnout); (3) lack of focus on worker populations; (4) well-being used as a term in a nonrelevant field of study (eg, fetal or ecological well-being); and (5) well-being used as an outcome variable outside the workplace (eg, impacts of disease on well-being).

Due to the lack of a clear or standard approach to defining well-being and determining its important domains, we performed qualitative assessments of the 149 articles to identify recurring themes or topic patterns across studies including commonly used indicators and drivers of worker well-being. This assessment resulted in a collection of about 150 constructs. Through a categorization and grouping process of the constructs, the five domains that comprise the framework as illustrated in Fig. 1 emerged.

- *Workplace physical environment and safety climate* includes factors that relate to physical and safety features of the work environment.

- *Workplace policies and culture* relates to organizational policies, programs, and practices that have the potential to influence worker well-being.

- *Health status* involves aspects of individuals' lives relating to their physical and mental health and welfare.

- *Work evaluation* and experience refers to individuals' experiences and evaluations relating to the quality of their work life.

- *Home, community,* and *society* encompasses the external context or aspects of individuals' lives that are situated outside of work but may still influence worker well-being.

For the targeted literature review, Google and PubMed databases were searched for existing scales, surveys, frameworks, and other measurement instruments related to the five domains or to the concept of well-being overall. We captured all of the concepts measured across instruments that mapped to our different framework domains as subdomains or subdomain constructs. For example, mental health may be a subdomain of the domain *health status*, with anxiety, depression, or experience of stress being subdomain constructs within the health status domain. We removed redundancies with the initial set of constructs captured in the literature review and excluded constructs if they were only distally related to worker well-being (eg, national economic climate under the domain of *home, community,* and *society*) or had little support in the literature for a relationship to well-being.

Expert Panel

In the period 2015 to 2016, we convened an expert panel to provide guidance on selecting and prioritizing the identified subdomains and subdomain constructs for eventual measurement applications. The panel included 13 well-being and occupational safety and health scholars with collective expertise covering the following areas: (1) general workplace/ worker well-being; (2) occupational safety and health; (3) workplace policies and benefits; (4) occupational health psychology; and (5) work and community. Panelists were identified on the basis of our knowledge of previous work, results of the literature review, and NIOSH recommendations. The expert panel met virtually on three separate occasions to engage in prioritization exercises and provide feedback on framework development. The panel also offered feedback between meetings as needed. To facilitate panel deliberations, we developed six criteria to help select a finalized set of subdomains and subdomain constructs as a starting point for discussions. Criteria were as follows:

1. Existing measures. Are there validated, reliable, and/or reputable measurement instruments for the subdomain constructs?

2. Importance (literature). Does the existing evidence support the overall importance of the subdomain or construct as an indicator or predictor of worker well-being?

3. Priority (for NIOSH or expert panel). Is the subdomain or construct an important priority area for NIOSH or the expert panel (eg, fits into mission areas; is a neglected area or gap that should be filled)?

4. Overlapping. Does the subdomain or its relevant constructs overlap with other model subdomains and could it be captured by another subdomain?

5. Measurability. Can the subdomain or construct be captured through practical measurement approaches (eg, survey)?

6. Interpretation. Will subdomain or construct measures tell us something actionable about worker well-being?

Panel prioritization exercises consisted of individual rankings of the various subdomains and constructs followed by group discussions that included considerations of the six criteria as applied to all the measures. Following panel discussions, we ended up with a set of 20 subdomains and 58 subdomain constructs that comprise the proposed framework (Table 1). We note however that while the framework has a clear conceptual basis, elements may change in the future as we operationalize the framework and test measurement instruments.

DISCUSSION

Given its complexity, the concept of worker well-being is difficult to capture through just one or a limited number of indicators. Therefore, our approach conceptualizes worker well-being as comprising multiple domains, subdomains, and subdomain constructs. This dashboard approach is consistent with recommended approaches for incorporating well-being into policy applications,[8] and has ready analogies with other broad, multifaceted concepts such as the weather or the performance of an automobile. In all cases, there is no

one indicator that can fully describe the phenomenon in question. To understand weather, we must look at indicators such as humidity, temperature, or cloud cover.[9] Similarly, to assess car performance, dashboard indicators of battery charging, oil pressure, engine temperature, and others should all be evaluated.[8] As noted, the development of our multidimensional worker well-being framework was grounded in the results of the literature and existing well-being measurement instruments as well as the input of an expert panel. Two main themes emerged from these methodological approaches that underlie the ultimate composition of the worker well-being framework. A comprehensive worker well-being framework should (1) incorporate work and nonwork settings and encapsulate workers, workplaces, and the communities within which each operates; and (2) integrate subjective (individuals' perceptions and beliefs) and objective (aspects of individuals' living and working conditions or standards) approaches for well-being.

Capturing Work and Nonwork Contexts

Well-being should be an ideal concept for integrating the many different work and nonwork factors that positively or negatively contribute to workers' health and quality of life. However, the majority of existing work-related well-being measurement tools are currently too narrow or limited to support such a usage. At the same time, both workplace and societal trends are raising the importance and urgent need for concepts and measures that can more accurately capture the changing realities of workers' lives in and outside of work. As discussed by Schulte et al,[4] the very nature of work is changing rapidly and new patterns of work organization such as flexible working arrangements are increasingly causing work and nonwork contexts to overlap. These changes coupled with economic, social, and health-related societal upheavals are challenging historical distinctions between work and nonwork settings in occupational safety and health research and programming.

Depending on the perspective, the overlapping roles people play in different life domains can either be a source of conflict due to competing demands or can be mutually enriching by providing resources that can be shared across roles. Meta-analyses have yielded correlations between job satisfaction and overall life satisfaction of 0.30 and 0.40.[10] Therefore, what happens at work likely does not stay at work, and the same is true for the effects of other areas of our lives on the experience of work. For these reasons, we found it important to ensure that the well-being framework be inclusive of work and nonwork contexts at both the domain and subdomain levels. This idea is reflected in our use of the term *worker* well-being, as opposed to *employee* well-being or *workplace* well-being. By decoupling the identity of a worker from his or her place of work, the framework can better envelop the interplay of work and nonwork domains.

The inclusion of nonwork settings raises important questions about the roles that organizations or employers can play in achieving worker well-being. Although several of the framework domains contain elements with overlapping work and nonwork contexts, we note the *health status* domain as an example of where enrichment opportunities that organizations could provide would cross into other life domains. A 2017 employer survey found that 59% of workplaces offered wellness programs to improve employee health.[11] Organizations may see many benefits to investing in employee health, such as better retention, higher morale,

decreased sick days, increased work productivity, and reductions in health care costs and health insurance premiums.[12–14] While evidence regarding the overall effectiveness of workplace wellness programs is mixed, the proliferation of such programs may be an indicator of employer interest in creating a larger "culture of health" at work.[15] In such a culture, worker health is a priority and, in addition to measures to protect workers from hazardous workplace exposures, workplaces provide environments, resources, and support systems that encourage healthy lifestyles and reinforce health as a shared value. Given that time spent working can make up a large portion of the day, a workplace culture of health may yield not only more healthy and safe working conditions but also health benefits that spill over into other parts of peoples' lives. The worker well-being framework thus includes a subdomain of *workplace health culture* to capture this emerging and important workplace trend.

In sum, implicit in our proposed well-being framework is the idea that enhancement of worker well-being does not occur through employer-based workplace interventions alone. While such interventions are imperative, they are not sufficient to comprehensively advance worker well-being. Given the overlapping nature of different areas of people's lives, achieving worker well-being instead requires broad-based programs and partnerships that cross work and nonwork settings as increasingly called for in the occupational health literature.[16,17] Our proposed well-being framework thus offers a structure for not only characterizing determinants of well-being across different spheres of life but serves also to identify actions and avenues for interventions to enrich the well-being of working people. However, we note that there may be some concerns about considering work and nonwork factors together, particularly around protecting the privacy and confidentiality of workers (if nonwork information is accessible to employers) and the potential dilution of limited resources devoted to classic occupational safety and health issues.[18] These concerns can and should be addressed as part of implementation planning in future efforts to apply the framework.

Integration of Subjective and Objective Approaches to Understanding Well-Being

In our view, worker well-being is conceptualized in terms of both the assessment of the quality of one's life *and* the fulfillment of basic conditions at work and beyond that are necessary for individuals to thrive. In the literature, these two perspectives reflect a debate between whether well-being is best assessed as a subjective phenomenon (ie, assessment of the quality of one's working life) or an objective phenomenon (ie, fulfillment of basic living or working conditions necessary for individuals to thrive). In the worker well-being framework, the subjective approach is addressed mainly through the domain of *work evaluation* and *experience*. The objective approach is addressed mainly through the other four domains. Below, we discuss the two perspectives and the importance of incorporating both into the well-being framework.

Subjective Approach to Understanding Well-Being

From a psychological perspective, well-being is a subjective assessment of the quality of one's own life. According to this perspective, only individuals can judge their own lives according to the values and principles that matter most to them.[19] Assessment of subjective

well-being is appealing, as it allows for individuals to directly state their preferences and be the arbiters of what the good life means for them. However, subjective well-being on its own may not suffice as the sole metric of well-being because of hedonic adaptation, where individuals tend to adapt to positive or negative conditions.[20] In addition, social comparison theory posits that assessment of well-being may be influenced by the level of awareness an individual has about the range of available opportunities[21]; for example, desiring some reward at work only upon noticing other people receiving the reward. These phenomena, which may lead to the "happy peasants and miserable millionaires" paradox, raises important policy implications.[22,23] For instance, should no actions be taken if individuals face adverse working conditions, but their subjective well-being is high because of hedonic adaptation? Should policies focus on the "miserable millionaires" over the "happy peasants" if subjective well-being is the ultimate metric on which we base policy? Furthermore, without specification of the variables that may drive subjective well-being, decision-makers lack information about potential targets for intervention.

Objective Approach to Understanding Well-Being

The second school of thought proposes an objective perspective that conceptualizes well-being as the opportunity to achieve the things in life that individuals have reason to value.[24] Objective wellbeing research has focused on defining what basic "needs" are necessary for individuals to achieve their desires (eg, physical health; material well-being; physical safety; social relationships; spiritual harmony).[20,25,26] The objective approach thus offers a framework for assessing whether people have the opportunities to achieve well-being, regardless of whether they choose to take advantage of those opportunities. This approach, with its emphasis on the process through which well-being is achieved, offers more direction for intervention than a subjective approach.

Although there are needs that most individuals would agree with, such as economic security, adequate food, or safe working conditions, critics of the objective approach note that it often falls to third parties to decide what needs are most valuable for a particular population or situation.[20,27] This determination of what needs are considered important regardless of what an individual might value has raised concern over a perceived paternalism inherent to the objective approach in practice. In addition, the approach effectively deemphasizes the subjective experience of an individual. A person may possess all the capabilities necessary to take advantage of opportunities but may also report feelings of unhappiness or meaninglessness.

A Combined Subjective and Objective Approach for Well-Being

Together, the two well-being philosophies may hold great promise for mitigating each other's limitations and enhancing our understanding of worker well-being.[8,20,27] There is precedence for a combined approach as evidenced by community well-being frameworks, such as the Canadian Index of Well-being,[28] the Santa Monica Well-Being Project,[2] and the Gallup-Healthways Well-Being Index.[29] Like the present worker well-being framework, these community-level frameworks all integrate subjective domains with objective well-being domains that define the needs that allow individuals to thrive.

We note that in the tradition of occupational safety and health, there may be some tension between subjective and objective approaches. Subjective approaches may create the impression that the onus for change falls on the individual and that well-being is mainly an individual responsibility. Occupational health though has typically maintained that employers have primary responsibility for worker safety and health. Indeed, many aspects of a workplace that are critical for well-being, such as well-maintained equipment or security procedures, may not even be known or considered by individual workers, unless something goes wrong. However, the framework proposes that well-being is as much a subjective experience as it is having the conditions necessary to thrive. Subjective assessments provide us with information about the true value individuals place on various working conditions. Therefore, worker well-being may be truly understood only through assessing the interactions between a person's subjective perceptions and the surrounding environments that affect them.

CONCLUSION

The work presented here represents the start of an exciting new area for the NIOSH TWH Program and lays the foundation for larger efforts aimed at understanding, measuring, and assessing worker well-being in the years to come. Through a comprehensive and multidimensional approach, the proposed worker well-being framework offers two major benefits: (1) opportunity to characterize the well-being status of the workforce or worker populations in a comprehensive way across work and nonwork contexts; and (2) the provision of direction for individuals, organizations, and government as to actions that could be taken to enhance well-being. Through our development process, we have produced a well-being framework with a sound theoretical foundation. However, we realize that components may change as the framework is operationalized and undergoes rigorous fielding and testing. The eventual measurement and use of worker well-being as a tool for policy and program development, implementation, and evaluation will aid NIOSH partners and all those interested in enhancing worker well-being. This work can also inform the growing community and societal movements to incorporate well-being into public policies. Defining, promoting, and evaluating worker well-being is a complex undertaking requiring partnerships and commitments across not just employers but individuals and communities as well. However, the goal of helping workers to flourish is an occupational safety and health and population health endeavor worth pursuing.

ACKNOWLEDGMENT

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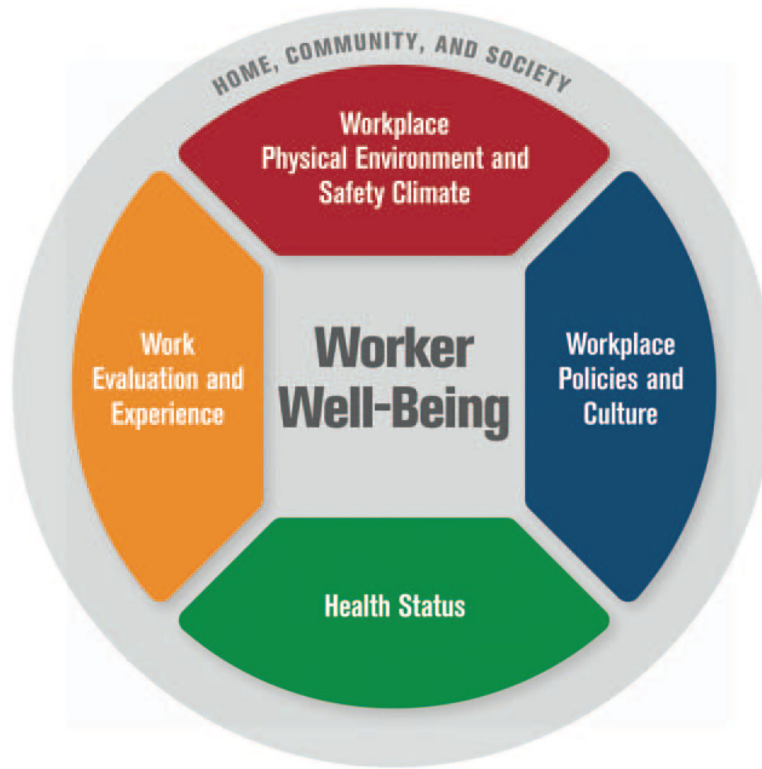
FIGURE 1.
Proposed worker well-being framework.

TABLE 1.

Proposed Final Set of Worker Well-Being Domains, Subdomains, and Subdomain Constructs

Domain	Subdomain	Subdomain Constructs
Workplace physical environment and safety climate	Workplace safety conditions Workplace design	Perceptions of and satisfaction with safety climate
	Workplace design	Workplace design Environmental conditions; physical surroundings; pleasantness; disability and other accommodations
	Workplace conflict and civility	Experience with harassment; incivility; discrimination
Workplace policies and culture	Salary/rewards	Satisfaction with wages; advancement potential; recognition
	Benefits	Types of benefits provided; satisfaction with benefits
	Workplace culture	Respect; fairness; perceived organizational support
	Workplace health culture	Organizational commitment to health; resources/programs
	Work-life integration	Flexibility; perception of balance; organizational support for work/life balance; work/family conflict
Health status	Physical health	General/overall; presence of specific conditions
	Mental health	General/overall; stress; depression; anxiety
	Health-related behaviors and lifestyle	Physical activity; alcohol use; smoking; diet; sleep
	Functionality/disabilities	Physical; mental; cognitive
	Injuries	Experience of injuries; severity
Work evaluation and experience	Satisfaction	Overall job satisfaction; supervisor/management; peers and coworkers; job security
	Meaning and organization of work	Meaningful and purposeful work; autonomy; control; vigor; dedication; absorption; demands; engagement
	Affect	Positive emotions at work; negative emotions at work
Home, community, and society	Life satisfaction	Overall life satisfaction
	Financial health	Financial security
	Social relationships	Social support
	Community engagement and lifestyle	Types of activities engaged in; satisfaction with engagement