Introduction

Precarious employment (PE) — characterized by employment insecurity, income inadequacy, and limited employee protections — has been established in the literature as a key social determinant of health.[1] Researchers have shown that PE leads to poor mental and physical health[2] and that PE is linked to multiple material-need insecurities.[2,3] PE and related insecurities are also experienced differently by U.S. workers based on their race and ethnicity[4,5] due to racialized labor and immigration policies. Despite its growing prevalence in research and theory, the construct of PE has been operationalized differently based on a wide range of variables that vary by discipline, context, and publication venue.[6] Establishing a firm definition and conceptualization of the construct of PE is crucial to understanding its links to other constructs and larger sociological, economic, and health-related issues.

Models of precarious employment are difficult to test due to the need for datasets containing many employment variables as well as a large and representative sample of workers. My own work with Professors Randall Kuhn and Abel Valenzuela using the California Health Interview Survey (CHIS) has revealed disparities in workers' material-need insecurities by occupation in a large and representative sample. However, CHIS data did not contain sufficient job-related descriptors or insecurity measures to adequately define PE or to test a model of the pathways leading from PE to health. These data limitations are common to other studies of PE and health.[6] Thus, the current project aims to characterize the relationships between these constructs using a novel empirical data set entitled the California Work and Health Survey (CWHS).

Literature review

Sociodemographic correlates of PE. Workers living in California face different structural barriers to health and well-being tied to sociodemographic factors such as their gender, race and ethnicity, country of origin, and English proficiency. These same barriers can serve to disproportionately expose individuals to PE or modify the effects of PE on health. For one, in the U.S., women are more likely than men to be exposed to PE.[7] This disproportionate exposure is often due to stereotypes about men and women, their occupations of choice, and their function in the workplace.[8–10] Additionally, the race and ethnicity of workers also affects their treatment in and outside of the workplace and also leads to PE. In the U.S. in general, people of color are disproportionately exposed to PE,[7,11] and workers are often treated poorly based on the color of their skin and physical appearance (i.e., due to anti-Blackness).[12] Also, workers who identify as Latino bear a disproportionate burden of the U.S.'s discriminatory immigration policies, regardless of nativity, and may be more hesitant to speak out about workplace hazards due to fear of criminalization or — if they are immigrants — deportation.[13,14]

A worker's country of origin can also be an important factor in leading to PE.[15] For one, researchers have noted a distinct education-occupation mismatch that funnels highly educated immigrants into low-wage, precarious jobs.[11] Limited English proficiency (LEP) further forces workers into PE, regardless of their education level.[16,17] U.S. workers with LEP experience PE more frequently than their equally educated U.S.-born counterparts.[11,16] Thus, despite having a level of education that would ordinarily confer good employment conditions, many workers must resort to stressful and physically demanding jobs based on baseless stereotypes and language proficiency.

While all of the sociodemographic characteristics listed affect workers' exposures to PE arrangements, they also intersect with one another to compound experiences of PE. Consistent with intersectionality theory, which was developed and coined by Black feminist scholars in the 1980s,[18] workers' sociodemographic characteristics intersect to affect PE and the relationship between PE and health beyond the influence of any singular characteristic.[19,20] For example, gender, race, and nationality all affect the treatment of employees in and outside of the workplace, with immigrants of different genders and races experiencing different types of PE based on the judgments of others.[9,21]

Defining precarious employment. PE is a multidimensional construct that has been defined and used in a variety of fields, including sociology, economics, and public health.[1] In recent years, PE has moved from being a term largely used in theoretical research to one employed in qualitative and quantitative empirical studies. Despite its growing prevalence in research and theory, the construct of PE remains variably defined, and it is used differently based on the academic field of the study or publication in question.[6] For example, a definition within one field may include factors such as low income, job instability, limited rights, powerlessness, and lack of worker organization,[1] while definitions in other fields focus more on individual perceptions of vulnerability[22] or unemployment.[23] By combining definitions of PE from multiple papers in public health,[1,6] PE can be defined as a circumstance of employment that encompasses unpredictability in contract, hours, and pay; low wages; lack of knowledge regarding workplace rights; poor capacity to bargain or take collective action; perceived powerlessness; and hazardous working conditions.

With this broad definition, the subconstructs of PE span the entire social-ecological model, ranging from policy-induced precarity to individual-level stress and perceived vulnerability. Thus, it becomes difficult to disaggregate the effects of various elements of PE on health. For example, PE may affect health through low wages,

which lead to poverty and material-need insecurities. However, it may also affect health via the stress caused by an unpredictable contract or perceived powerlessness. Indeed, some authors posit that job insecurity itself is not considered PE, but rather serves as a mediator between other PE subconstructs and health.[24] Establishing a firm definition and conceptualization of the construct of PE, as well as the individual subconstructs within it, is crucial to building a generalizable conceptual model and understanding links from PE to other constructs and larger sociological, economic, and health-related issues. Additionally, disaggregating the subconstructs of PE can inform health policy decisions by helping researchers and policymakers home in on the elements of PE that have the greatest effects on health and can also be addressed within state public health budgets.

Precarious employment and health. There is ample evidence of a connection between PE and poor health arising from stress, uncertainty, and unsafe working conditions.[2,25,26] For example, many researchers have found associations between job strain, which encompasses limited task control, high levels of demand, and little workplace social support, and psychiatric morbidity.[2] Additionally, longitudinal and meta-analysis data show that perceived job insecurity, defined as an individual's interpretation of uncertain continuity in their job or their employer, has a negative effect on mental health.[1,25] Temporary employment and job instability are also associated with psychological and physical ill-health.[1] In a national survey of day laborers, employer and business owner abuse of the employee was associated with a positive depression screening.[26] PE arrangements also prevent access to health care by limiting employees' health insurance options and opportunities for consistent care.[27]

In addition, PE is linked to food insecurity[28] and housing insecurity.[29] These insecurities have additional profound effects on health beyond the direct effects of PE,[30,31] as they increase unhealthy environmental exposures[31] and malnutrition.[32] Evidence has linked insecurity in food and housing to increased risk of cardiovascular disease, type 2 diabetes, substance use, depression, and anxiety[33]; asthma in children[34]; and functional limitations in seniors.[34] A nationally representative study of U.S. residents also found that housing and food insecurity are directly associated with inconsistent heath care, undermedication, increased emergency department use, and hospitalizations.[35] Overall, researchers have repeatedly shown the connection between PE, multiple types of material-needs insecurities, and health. Future research can now build upon this extensive body of work to better understand the relationships between subconstructs of PE and these other complex health-related constructs, as well as differences in PE exposures based on sociodemographic characteristics.

Data and research methods

Data set. The California Work and Health Survey (CWHS), a population-based survey of California residents conducted between November 2022 and May 2023, provides a new opportunity to conduct research on PE and health.[36] Not only do the data from CWHS provide a large (n = 4,014) weighted sample, but the survey questions are specific to PE. The only published article to date using CWHS focuses on alternative work arrangements,[37] so multiple factors of PE remain to be explored within these data.

Study aims. The aims of this study are as follows: using the data available from the CWHS, 1) describe the sociodemographic correlates of PE; 2) explore how several subconstructs of PE are related to one another; and 3) relate PE subconstructs to other material-need insecurities and health. I will perform statistical analyses and build conceptual models based on these aims.

Measures. The predictor and control variables used in this project will include demographic variables, such as county of residence, age, gender, self-identified race and ethnicity, and nativity; occupation-related variables, such as age started working, industry, contract details, working conditions, and work-related benefits; housing insecurity, measured by having a place to live; and overall material-need insecurity, measured by likelihood of experiencing inadequate housing, food, or medical attention. The outcome variables include having a long-term medical condition, feeling pain, being able to do activities, and self-rated physical health, as well as perceived stress, emotional problems, life satisfaction, and self-rated mental health.

Methods. I will address Aim 1 using bivariate analyses to describe the sociodemographic characteristics associated with various PE subconstructs and health outcomes within the CWHS data. Then, I will address Aim 2 by disaggregating several of the subconstructs of PE (e.g., income inadequacy, powerlessness) and examining their relationships with one another. I will also use factor analysis and scale construction to combine various items within the questionnaires into subconstructs that align with previous literature on PE (see Table 1).[38,39] For Aim 3, I will estimate logistic regressions to assess the relationships between various subconstructs of PE, material-need insecurities, and health. As needed, I will employ structural equation modeling and mediation analysis strategies to delineate specific pathways between variables.

Preliminary findings

Preliminary analyses of the CWHS data show that various sociodemographic variables and elements of PE

are related to self-rated health outcomes. The means and standard deviations of these variables as they relate to self-rated health are illustrated in Table 2. For example, I estimated unadjusted logistic regressions of a binary self-rated health variable (poor/fair versus good/very good/excellent) and found that poor or fair self-rated health was negatively associated with being U.S.-born (OR = 0.66, $p < .001$) and positively associated with identifying as Hispanic/Latino (OR = 1.58, $p < .001$).

Additionally, an unadjusted logistic regression of poor or fair self-rated health on "breaks" (reverse-coded "My job requires working very fast without having breaks") and "freedom" (reverse-coded "I have very little freedom to decide how I do my work") showed that having more breaks (OR = 0.90, $p < .05$) and more freedom (OR = 0.84, $p < .001$) conferred lower odds of poor self-rated health. Notably, when poor treatment at work (comprised of six items related to bullying and disrespect from employers, employees, and customers) was added to the model, the effect of breaks and freedom on self-rated health was rendered not statistically significant (see Table 3; though the p-value for freedom was still .052). This suggests that poor treatment at work may partially explain the relationship between having fewer breaks and less freedom at work and poor or fair self-rated health.

Finally, when I estimated an unadjusted logistic regression of poor or fair self-rated health on shift timing, including daytime, evening, nighttime, rotating, split, and variable shifts, the only category that had a significantly different effect on self-rated health was the split shift. Specifically, the odds ratio of poor or fair self-rated health associated with the split shift as compared to the daytime shift was 8.80 ($p < .05$). The difference in self-rated health scores between shift categories is shown in Figure 1 below.

Conclusion

PE has been established in the literature as a key social determinant of health.[1] Though there are some existing literature on the sociodemographic factors associated with PE, few studies have examined the associations between these factors and the various subconstructs of PE. Additionally, PE is poorly and inconsistently defined in the literature, making it difficult to come to conclusions about the relationships between sociodemographic factors, PE, material-need insecurities, and mental and physical health. Thus, the current study provides an opportunity to inspect these factors more closely in the California worker population, which can have implications for labor and public health policies.

Table 1. CWHS items associated with previously established subconstructs of PE.[1,38]

PE subconstruct	CWHS items
Temporariness	q021: duration at current occupation q024: self-employment q025 and q026a: independent contractor q028: gig/app work
Disempowerment	q041: required to work overtime q042: flexibility in hours q055: unionized q161: promotion/firing
Vulnerability	q048: fear of losing job q053: bullying q054: respect
Wages	q029: hourly/salaried q029b: piece rate pay q030: Social Security deductions q031: tax forms q032: experienced wage theft q229: household income q236: ability to live on household income
Rights/exercising rights	q047: sick leave q057: health insurance q058: pension/retirement plan q232: income from benefits
Workplace hazards	q050: physical hazards

Table 2. Mean and standard deviation of self-rated health based on variables included in preliminary logistic regressions.

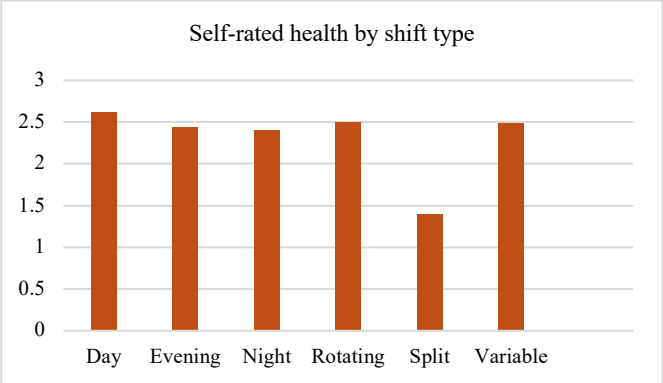
Variable	Self-rated health		
	Mean	Std. dev.	N
Immigrant status			
Foreign born	2.205	1.130	828
U.S. born	2.381	1.083	3,085
Ethnicity			
Hispanic/Latino	2.214	1.116	1,631
Not Hispanic/Latino	2.436	1.071	2,244
Breaks			
Disagree (fewer breaks)	2.332	1.102	346
Slightly disagree	2.410	1.057	634
Slightly agree	2.463	1.011	814
Agree (more breaks)	2.498	1.023	1,122
Freedom			
Disagree (less freedom)	2.279	1.113	244
Slightly disagree	2.299	1.026	481
Slightly agree	2.439	1.008	984
Agree (more freedom)	2.558	1.042	1,206

Table 3. Estimated logistic regressions of self-rated health on breaks, freedom, and treatment at work.

Variables	Model 1		Model 2	
	OR	95% CI	OR	95% CI
Breaks	0.896†	0.817-0.984	0.948	0.862-1.043
Freedom	0.829**	0.751-0.916	0.902	0.813-1.001
Poor treatment			2.178**	1.702-2.788
Constant	0.407**	0.320-0.517	0.234**	0.172-0.317
N	2,864		2,864	
AIC	2724.632		2689.418	

** p < .001, * p < .01, † p < .05.

Figure 1. Self-rated health by shift type, California Work and Health Survey.



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