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## Free agents or cogs in the machine? Classed, gendered, and racialized inequities in hazardous working conditions

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### Abstract

**Introduction:** Few epidemiologic studies have used relational social class measures based on control over productive assets and others' labor to analyze inequities in health-affecting working conditions. Moreover, these studies have often neglected the gendered and racialized dimensions of class relations, dimensions which are essential to understanding population patterns of health inequities. Our study fills these gaps.

**Methods:** Using data from the 2002–2018 U.S. General Social Survey, we assigned respondents to the worker, manager, petit bourgeois, or capitalist classes based on their supervisory authority and self-employment status. Next, we estimated class, class-by-gender, and class-by-race inequities in compensation/safety, the labor process, control, and conflict using Poisson models. We also estimated gender-by-race inequities among workers.

**Results:** We identified substantial class inequities, with worse conditions for workers, which is the largest class within genders and racialized groups, but also disproportionately consists of women and people of color (POC), particularly women of color (WOC). For example, relative to workers, capitalists were less likely to report safety is not a priority (prevalence ratio [PR]: 0.41, 95% CI: 0.21, 0.82), repetitive tasks (PR: 0.36, 95% CI: 0.21, 0.61) and lacking freedom (PR: 0.11, 95% CI: 0.05, 0.24). We also identified inequities among workers, with women and

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POC, particularly women of color (WOC), reporting worse conditions than white male workers, especially greater discrimination/harassment (WOC PR: 1.70, 95% CI: 1.36, 2.13).

**Conclusion:** We identified substantial inequities in working conditions across intersecting classes, genders, and racialized groups. These inequities threaten workers' health, particularly among women and POC.

### Keywords

social class; neo-Marxist; health inequities; division of labor; occupational health; working conditions; racism; sexism

## 1. Introduction

### 1.1. Overview

How does the interplay between class relations and structural sexism and racism in the U.S. shape inequities in working conditions that affect health? Epidemiologic research has identified health inequities across genders and racialized groups.<sup>1–4</sup> Epidemiologic research has also revealed health inequities across social classes, where class is operationalized relationally in terms of power and control over labor and production;<sup>5,6</sup> as well as across different work structures, such as the material and psychosocial characteristics of different occupational contexts, which reflect underlying class dynamics.<sup>7</sup> In recent decades, employers have profited by degrading employment and working conditions, and structural sexism and racism have continually funneled women and Black, Indigenous, and people of color (BIPOC)—especially BIPOC women—into particularly degraded work.<sup>1–4,8</sup> Although these social mechanisms, as well as relational class theories, suggest that health-affecting material and psychosocial working conditions should vary across intersecting classes, genders, and racialized groups, to our knowledge, no U.S. epidemiologic studies have comprehensively documented such disparities. The present study fills this gap.

### 1.2. Relational social class, working conditions, and health

Our political economy's structuring of production, appropriation, and distribution has implications for population health and health inequities. In capitalist societies, social groups differ in their abilities to obtain health-promoting resources and in their abilities to control their livelihoods and the terms and conditions of their work, factors that affect many health outcomes.<sup>5,8</sup> Identifying the root causes of these inequities requires a relational theory of social class that distinguishes classes in terms of power and control over productive assets (i.e., capital) and others' labor rather than in terms of individual-level attributes like income and education (i.e., socioeconomic status [SES]).<sup>5</sup>

In this study, we apply Wright's neo-Marxist theory, which is the most influential relational class theory in epidemiology and quantitative sociology, and which Wright developed to analyze complex and heterogeneous class dynamics in modern capitalist societies.<sup>5,9,10</sup> Drawing from Wright, we measure class along two dimensions: capital ownership and control and authority over labor and policy in the workplace.<sup>5,9,10</sup> The fundamental distinction is between: 1) capitalists, who own productive assets, control workers' labor

processes (domination), and extract as surplus the difference in value between what workers produce and what they are paid (exploitation); and 2) workers, who own no capital, and thus to sustain their livelihoods, must sell their labor power to capitalists for a wage.<sup>5,9,10</sup> The relationship between capitalists and workers causes class inequities because capitalists' profits relate inversely to labor costs and positively to labor effort; that is, the material welfare of capitalists *depends* upon workers' deprivation, subjugation, and overexertion.<sup>9</sup>

In post-industrial societies like the U.S., however, substantial segments of the workforce occupy "contradictory" locations between workers and capitalists.<sup>9</sup> For example, most managers (like workers) lack productive assets and must sell their labor power to capitalists, but managers control others' labor and often develop company policy (like capitalists).<sup>9</sup> Meanwhile, members of the petit bourgeoisie, e.g., independent shopkeepers, own productive assets (like capitalists), but they often do not control workers' labor and instead must labor themselves.<sup>9</sup> Managers' and the petit bourgeoisie's intermediate positions in hierarchies of ownership and control subject them to different, but related, material risks.<sup>9,11</sup>

Capitalism's profit imperative operates to degrade working conditions, causing health inequities across classes.<sup>5,6,11</sup> For example, insofar as businesses can (and must to survive) increase profits by lengthening working hours and reducing wages, benefits, rights, and safety, or by increasing efficiency through intensification, mechanization, or automation of labor processes, capitalists' profits come at the expense of workers' health, who may face overwork, disaffection, insecurity, and occupational hazards, as well as inadequate income, food, housing, and healthcare.<sup>5-7,11,12</sup> Moreover, while capitalists may benefit from increased control, security, and respect, workers may face conflict, alienation, insecurity, and powerlessness, factors associated with mental illness and other adverse health outcomes.<sup>5-7,11</sup>

Managers and the petit bourgeoisie may face unique hazards, even if they are less exploited and dominated than workers. For example, although they may operate relatively autonomously, the petit bourgeoisie often lack sufficient resources to compete with capitalists—particularly in an increasingly monopolized economy<sup>13</sup>—causing proletarianization (descent into the working class), stress, and privation.<sup>14</sup> Likewise, while high-level managers often enjoy substantial pay and authority, low-level managers may be exploited and dominated by upper management *and* face hostility from subordinates, inducing stress and other risks.<sup>11</sup> Indeed, some prior research has estimated that the petit bourgeoisie and low-level managers face morbidity and mortality risks similar to or greater than workers,<sup>11,14</sup> findings that are not expected or explicable under stratificationist theories of class (e.g., those that center on measures of SES and the "socioeconomic gradient"), which anticipate linear class-outcome relationships.<sup>11</sup>

Profits under capitalism are bolstered by structural sexism and racism, which work to disempower women and BIPOC and to enable their heightened exploitation and domination, especially of Black, Indigenous, and undocumented women, with deleterious consequences for their working conditions, living conditions, and health.<sup>1-4</sup> This system of patriarchy and racial capitalism (a term denoting the role of racism in structuring capitalist exploitation and

domination<sup>3,15–17</sup>) siphons women and BIPOC, especially BIPOC women, into the working class, where they often receive lower wages and benefits, have less control and power, and experience greater physical, emotional, and cognitive job demands, as well as discrimination and harassment, than their male or white counterparts.<sup>1–4,6,16,18–20</sup> Moreover, deleterious conditions extend beyond, but are tied to, these workplace relations. For example, women, especially BIPOC women, are often overburdened with waged labor and domestic labor responsibilities.<sup>21,22</sup> This unpaid (or low-paid) domestic labor relieves capitalists from paying for the workforce's welfare, heightening capitalists' profits.<sup>22</sup> Meanwhile, across genders, BIPOC often face greater levels of health-harming conditions than their white counterparts, including residential segregation, disinvestment in public and social services, environmental degradation, policing, and hyper-incarceration.<sup>2–4,23</sup>

The balance of power between labor and capital shapes the class inequities. For example, over the last several decades in the U.S., capitalists and their allied policy elites have endeavored to restore economic growth and profitability by intensifying workers'—particularly BIPOC workers'—exploitation and domination.<sup>8</sup> They have decimated unions, weakened labor protections, and introduced new technologies and management techniques, like surveillance systems, to heighten control over and deskill workers' labor.<sup>7,8,12,24,25</sup> Moreover, capitalists have increasingly relied on temporary and “gig” workers, who are easily fired and denied adequate pay, benefits, and safety protections.<sup>8,24</sup> Since the early 1980s, union density has fallen from 20%–10% overall, including from 27%–11% among Black workers, and wages for the bottom 90% of workers have stagnated.<sup>26,27</sup> Simultaneously, productivity, the share of income accruing to capitalists, and the cost of certain necessities have skyrocketed.<sup>27–30</sup> Deteriorating working conditions among those at the bottom of the class structure have likely contributed to burgeoning health inequities across classes<sup>8,29</sup> and exacerbated racialized health inequities.<sup>16,31</sup>

### 1.3. Linking relational and psychosocial models

The mechanisms linking class relations and health resemble those in common psychosocial models.<sup>21,32</sup> For example, the demand-control model predicts jobs with low control (e.g., lack of authority) and high demands (e.g., conflict and overwork) will harm health,<sup>33</sup> while the effort-reward imbalance model predicts jobs with high efforts (i.e., demands) and low rewards (e.g., meager wages) will be harmful.<sup>34</sup> Many studies have supported these models' predictions.<sup>33–37</sup> Nonetheless, psychosocial models lack explanatory force because they do not directly engage with how the structural organization of work determines workplace-level stressors and other hazards;<sup>38</sup> they also struggle to explain population patterns of these factors.<sup>21,32</sup> In contrast, neo-Marxist relational theories suggest the stressors and hazards are produced by fundamental class antagonisms.<sup>21,32,39</sup> For example, if capitalists profit from workers' unpaid labor,<sup>40,41</sup> then effort-reward imbalance is inherent to wage labor, and effective interventions must challenge the underlying class relations rather than target individual workplaces or workers. Thus, identifying the economic and power relations driving psychosocial stressors and other hazards, as relational theories do, can improve their explanatory power and their usefulness for public health practice.<sup>32</sup>

## 1.4. Research gaps and aims

Due to data scarcity<sup>42</sup> and theoretical barriers (e.g., methodological individualism<sup>5</sup>), few public health studies have used Wright's neo-Marxist framework to examine class inequities in working conditions and health.<sup>5-7</sup> Moreover, these studies have often neglected the gendered and racialized dimensions of exploitation and domination, dimensions which are key to understanding how capitalism patterns population health and health inequities in the U.S.<sup>3</sup> To address this gap, we applied a relational class theory to nationally representative General Social Survey (GSS) data on health-affecting material and psychosocial working conditions across intersecting classes, genders, and racialized groups. Our specific aims were to: 1) estimate class, class-by-gender, and class-by-race inequities in such working conditions, and 2) estimate gender-by-race inequities in such working conditions within the working class, which is the largest class across genders and racialized groups and which also tends to have worse health outcomes than other classes.<sup>6</sup> Findings from these aims can help identify specific mechanisms that may explain health inequities across relational classes, genders, and racialized groups.

## 2. Methods

### 2.1. Data and analysis overview

The GSS is a nationally representative survey of non-institutionalized adults ages 18–80 conducted annually from 1972–1994 and biennially thereafter.<sup>43</sup> The GSS has used full-probability sampling since 1975; moreover, it has included Spanish speakers in the target population since 2006.<sup>43</sup> With funding from the National Institute for Occupational Safety and Health (NIOSH), the GSS administered the Quality of Worklife Module (QWL) in 2002, 2006, 2010, 2014, and 2018 to monitor changes in working conditions over time.<sup>43</sup> The GSS conducts most interviews in-person.<sup>43</sup>

Our sample included QWL respondents working fulltime/parttime or temporarily not working; the QWL was not administered to others.<sup>43</sup> We excluded all respondents on survey ballot “d” and 2002 respondents on ballot “b”, as GSS did not administer the QWL to these respondents either.<sup>43</sup> An additional 12% of 2006 and 2014 respondents ended their interviews prior to taking the QWL module; we also excluded them from our sample.<sup>44</sup>

We conducted our analyses using R version 4.0.2.<sup>45</sup> We weighted all our estimates to make them nationally representative<sup>43</sup> and accounted for the complex survey design using Taylor series linearization.<sup>43,46</sup> Our R code is on GitHub ([https://github.com/Critical-Social-Epi/GSS\\_class\\_working\\_conditions](https://github.com/Critical-Social-Epi/GSS_class_working_conditions)); GSS data are publicly available ([gss.norc.org](https://gss.norc.umd.edu/)).

### 2.2. Measures

**2.2.1. Class**—We drew from Wright's neo-Marxist theory<sup>9,10</sup> and prior GSS analyses<sup>6,47,48</sup> to measure respondents' classes; see eAppendix 1 for a graphical representation and eAppendix 2 for questionnaire wording. Workers were those who did not supervise others, who were not self-employed, and who did not have “chief executive” occupations (Census 2010 occupation code). Managers were those who did supervise others, who were not self-employed, and who did not have “chief executive” occupations. The

petit bourgeoisie were those who did not supervise others, but who were self-employed or had “chief executive” occupations. Finally, capitalists were those who did supervise others, and who were self-employed or had “chief executive” occupations. We classified chief executives as petit bourgeois or capitalist because they often own considerable productive assets (e.g., stocks) and receive delegated ownership authority through corporate structures.<sup>10</sup> Removing the chief executive criterion and basing our class measure on supervisory authority and self-employment status alone would have only changed the class positions of 1% of the petit bourgeoisie and 7% of capitalists.

**2.2.2. Quality of Worklife**—We analyzed 16 QWL variables regarding compensation and safety, the labor process, control, and conflict at respondents’ main jobs. Respondents answered most questions using Likert scales; to increase interpretability and mitigate data sparseness, we transformed them into binary variables (e.g., strongly agree or agree versus disagree or strongly disagree). The variables were as follows:

- Compensation and safety: dissatisfied with job; income alone does not pay bills; poor safety conditions; safety not a priority.
- Labor process: repetitive work tasks; job does not require learning new things; face conflicting demands made by others; need to work fast.
- Control: do not take part with others in decision making; lack freedom to decide how to do work; mandatory extra hours of work; cannot change schedule on daily basis.
- Conflict: bad worker-management relations; do not trust management; not treated with respect; face racism, sexism, sexual harassment, ageism, or other discrimination and harassment.

eAppendix 3 contains questionnaire wording.

**2.2.3. Covariates**—Covariates of interest included respondents’ age, race/ethnicity (self-identified), gender (assigned by the interviewer as “female”/“male”), education, census region of residence, and family income.

### 2.3. Analyses

First, we calculated class-stratified descriptive statistics of our sample. Next, we characterized the class composition of each gender-race group and the gender-race composition of each class. In these analyses, we categorized respondents’ racialized group membership as “non-Hispanic white” (hereafter referred to as “white”, unless otherwise noted) or Black/Hispanic/Latinx (hereafter referred to as “person of color” or “POC”, unless otherwise noted). We excluded respondents identifying as “non-Hispanic other” (4% of the sample), as their working conditions typically differed considerably from those of other POC. Unfortunately, due to data sparseness, analyzing “non-Hispanic other” respondents as a standalone category was not possible, nor was disaggregating “POC” respondents. Disaggregating genders beyond “female”/“male” was not possible either, as GSS did not collect such data until 2018.<sup>43,49</sup>

Second, we estimated class inequities in QWL by estimating the prevalence of each adverse condition among each class relative to the prevalence among workers (i.e., prevalence ratios [PRs]) using Poisson models<sup>50</sup> adjusted for age and year, which we specified as three-knot restricted cubic splines.<sup>51</sup> We did not adjust for additional confounders to capture the total magnitude of class inequities, knowing the inequities would in part be caused by the segregation of oppressed and low-SES groups into more exploited and dominated classes.

Third, we estimated class-by-gender and class-by-race inequities in QWL. Specifically, we estimated the prevalence of each adverse condition among each class-gender or class-race relative to the prevalence among male workers or white workers by including class-by-gender or class-by-race terms in the Poisson models. In the class-by-race models, we again categorized race as white or POC and excluded those identifying as “non-Hispanic other”.

Finally, we examined gender-by-race inequities in QWL within the working class. Specifically, we first restricted our sample to workers. Next, we estimated the prevalence of each adverse condition among each gender-race relative to the prevalence among white men by including gender-by-race terms in the Poisson models. Again, we categorized race as white or POC and excluded those identifying as “non-Hispanic other”.

#### **2.4. Missing data**

Most variables in our full sample (n=6,806) contained some unplanned missingness (class measure: <1%; QWL measures: 4%; covariates: 8%). To calculate our descriptive statistics, we analyzed complete-case samples. To calculate our regression estimates, we addressed missingness using multiple imputation by chained equations with 20 replications and 25 iterations,<sup>52</sup> assuming missing values were missing at random conditional on measured values of the class, covariate, QWL, and sociodemographic variables.<sup>53</sup> In our regression analyses, we excluded those with imputed values of a given outcome variable<sup>54</sup> and combined estimates from regressions run on each of the multiply imputed datasets using Rubin’s Rules.<sup>52,53</sup>

#### **2.5. Institutional review board approval**

Our study used publicly available, deidentified data and thus was exempt from IRB review.

### **3. Results**

#### **3.1. Descriptive statistics**

In our sample, 55% of respondents were workers, 31% were managers, 8% were petit bourgeoisie, and 6% were capitalists (Table 1). However, we found gendered and racialized labor segregation, as theorized above and consistent with prior evidence. For example, while just 47% of white men were workers, 59% of white women, 61% of POC men, and 65% of POC women were workers (Figure 1). Moreover, while the working class was just 31% white men, the managerial, petit bourgeois, and capitalist classes were 40%, 40%, and 66% white men, respectively (Figure 1). Thus, workers were more often women and POC than other classes; they also tended to have lower education levels and incomes. Meanwhile, managers tended to have higher education levels and incomes than the petit bourgeoisie,

although they were otherwise similar. Finally, capitalists were more often men and white than other classes; they also tended to have higher education levels and incomes.

### 3.2. Class, class-by-gender, and class-by-race inequities in QWL

We found large relative class, class-by-gender, and class-by-race inequities in QWL, with workers tending to report much worse conditions than others. Absolute inequities were often more modest (eAppendix 4).

**3.2.1. Compensation and safety**—Regarding compensation and safety (Figure 2, eAppendix 6), workers tended to report the worst conditions, followed by managers, the petit bourgeoisie, and capitalists. For example, relative to workers, capitalists were less likely to report job dissatisfaction (PR: 0.58, 95% CI: 0.34, 0.98) and that safety is not a priority (PR: 0.41, 95% CI: 0.21, 0.82).

Within genders and racialized groups, patterns were generally similar. However, relative to male workers, women of all but the capitalist class were more likely to report that their incomes alone do not pay their bills, particularly female workers and female petit bourgeoisie. Meanwhile, respondents of color of all but the capitalist class tended to report similar conditions to white workers, although estimates were imprecise.

**3.2.2. Labor process**—Regarding the labor process (Figure 3, eAppendix 6), workers and the petit bourgeoisie tended to report more monotony than others, while managers and capitalists tended to report more intensity. For example, relative to workers, managers and capitalists were less likely to report repetitive job tasks (managers PR: 0.39, 95% CI: 0.31, 0.49; capitalists PR: 0.36, 95% CI: 0.21, 0.61), but more likely to report needing to work fast (managers PR: 1.15, 95% CI: 1.11, 1.20; capitalists PR: 1.26, 95% CI: 1.17, 1.35).

Within genders and races, patterns were generally similar. Regarding gendered inequities, however, while male petit bourgeoisie were less likely than male workers to report their job does not require learning new things, female petit bourgeoisie reported similar conditions to female (and male) workers. Likewise, while male capitalists were more likely than male workers to report conflicting demands, female capitalists reported similar conditions to female (and male) workers. Regarding racialized inequities, unlike among white respondents, POC managers reported similar levels of conflicting demands to POC workers, while POC capitalists reported lower levels than POC workers. Additionally, POC workers and POC petit bourgeoisie were more likely than white workers to report repetitive tasks and that their job does not require learning new things, particularly POC petit bourgeoisie.

**3.2.3. Control**—Regarding control (Figure 4, eAppendix 6), patterns were mixed. For example, although managers (PR: 0.39, 95% CI: 0.33, 0.45) and capitalists (PR: 0.53, 95% CI: 0.41, 0.70) were less likely than workers to report not taking part with others in decision making, the petit bourgeoisie were more likely (PR: 1.37, 95% CI: 1.19, 1.59). Meanwhile, all classes were less likely than workers to report lacking freedom, especially capitalists (PR: 0.11, 95% CI: 0.05, 0.24). However, managers (PR: 1.21, 95% CI: 1.10, 1.34) and capitalists (PR: 1.37, 95% CI: 1.18, 1.61) were more likely than workers to report mandatory extra



working hours. Finally, all classes were less likely than workers to report being unable to change their schedules, particularly the petit bourgeoisie (PR: 0.24, 95% CI: 0.18, 0.31) and capitalists (PR: 0.28, 95% CI: 0.21, 0.39).

Within genders and races, patterns were generally similar. Regarding gendered inequities, however, female petit bourgeoisie were more likely than others to report not taking part with others in decision making. Additionally, female workers and female petit bourgeoisie were less likely than men of all classes to report mandatory extra working hours. Regarding racialized inequities, POC workers and POC petit bourgeoisie were more likely than others to report not taking part with others in decision making, while POC capitalists (unlike white capitalists) reported similar levels to white workers. Moreover, POC managers were the only POC class more likely than white workers to report mandatory extra working hours.

**3.2.4. Conflict**—Regarding conflict (Figure 5, eAppendix 6), workers tended to report the worst conditions, followed by managers, the petit bourgeoisie, and capitalists. For example, relative to workers, capitalists were less likely to report worker-management conflict (PR: 0.23, 95% CI: 0.10, 0.50), not trusting management (PR: 0.23, 95% CI: 0.14, 0.36), and not being treated with respect (PR: 0.34, 95% CI: 0.18, 0.64). Nonetheless, managers were more likely than workers to report facing any discrimination or harassment (PR: 1.17, 95% CI: 1.04, 1.31).

Within genders and races, patterns were generally similar. However, relative to male workers, female workers and female managers were more likely to report facing any discrimination or harassment. Meanwhile, POC respondents of all classes were more likely than white workers to report facing any discrimination or harassment, particularly POC managers and POC capitalists.

### 3.3. Gender-by-race inequities in QWL within the working class

We estimated gender-by-race inequities in QWL within the working class, with white men tending to report better conditions than other workers (Figure 6, eAppendix 7).

**3.3.1. Compensation and safety**—Regarding compensation and safety, white women and POC women were more likely than white men to report their incomes alone do not pay their bills (white women PR: 1.43, 95% CI: 1.32, 1.56; POC women PR: 1.46, 95% CI: 1.33, 1.60). Moreover, POC were more likely than white men to report poor safety conditions (POC men PR: 1.43, 95% CI: 0.93, 2.17; POC women PR: 1.53, 95% CI: 1.07, 2.19). However, white women were somewhat less likely to report job dissatisfaction than white men (PR: 0.83, 95% CI: 0.66, 1.04).

**3.3.2. Labor process**—Regarding the labor process, inequities across gender-races were modest. However, white women were less likely than white men to report repetitive job tasks (PR: 0.78, 95% CI: 0.61, 1.00).

**3.3.3. Control**—Regarding control, white respondents tended to report better conditions than others. For example, POC were more likely than white men to report not taking part with others in decision making (POC men PR: 1.43, 95% CI: 1.18, 1.73; POC women

PR: 1.46, 95% CI: 1.23, 1.74), and more likely to report being unable to change their schedules (POC men PR: 1.25, 95% CI: 1.11, 1.41; POC women PR: 1.22, 95% CI: 1.10, 1.37). However, white women and POC women were less likely than white men to report mandatory extra working hours (white women PR: 0.70, 95% CI: 0.60, 0.83; POC women PR: 0.81, 95% CI: 0.67, 0.97).

**3.3.4. Conflict**—Finally, regarding conflict, white women and POC were more likely than white men to report facing any discrimination or harassment (white women PR: 1.65, 95% CI: 1.39, 1.97; POC men PR: 1.69, 95% CI: 1.34, 2.14; POC women PR: PR: 1.70, 95% CI: 1.36, 2.13). However, POC men were less likely than white men to report worker-management conflict (PR: 0.63, 95% CI: 0.40, 0.99).

## 4. Discussion

### 4.1. Summary of results

Applying a neo-Marxist class theory to nationally representative data, we estimated inequities in health-affecting working conditions across intersecting classes, genders, and racialized groups, and estimated gender-by-race inequities in those factors within the working class.

We identified large class inequities, with workers tending to report worse conditions than others, particularly than capitalists, who were up to 10-times less likely than workers to report adverse conditions. These findings align with neo-Marxist predictions regarding patterns of exploitation and domination across classes, as well as with prior research in different contexts.<sup>5,21</sup> Nonetheless, managers and capitalists did tend to report somewhat greater labor-process intensity and mandatory extra hours than workers; managers also reported greater discrimination and harassment. The findings among managers are predicted by contradictory class location theory, which suggests that managers, particularly low-level managers, may be subjected to greater job strain than others.<sup>11</sup> Meanwhile, less intensity among workers may be due to other degraded aspects of their labor process, such as the repetitiveness and mundanity of their job tasks.<sup>7</sup> Finally, workers' fewer mandatory extra hours may result from labor laws that—although often violated<sup>55</sup>—mandate that waged workers be paid for their working hours. These laws often do not apply to salaried managers, petit bourgeoisie, and capitalists, who may work more (unpaid) hours than others.<sup>56</sup>

Patterns across classes were generally similar within genders and racialized groups. Nonetheless, the gendered and racialized dimensions of exploitation and domination remain substantial sources of inequity.<sup>57</sup> This is evident because, consistent with prior research,<sup>3,6,20</sup> we found that women and POC—particularly women of color—were segregated into the working class and that, class aside, they often reported worse conditions than others, particularly greater discrimination and harassment (eAppendix 5). Moreover, conditional on class, women and POC did report worse conditions than others on specific measures. For example, women, particularly female workers, tended to report worse compensation and greater discrimination and harassment than men of all classes. Meanwhile, POC workers and POC petit bourgeoisie tended to report worse safety than white people of all classes; all POC classes also reported greater discrimination and

harassment. Finally, within the working class, white male workers often reported somewhat better conditions than others, particularly than female POC workers, findings which align with theories and empirical research regarding the super-exploitation of workers from oppressed groups.<sup>18,19,58</sup> As a whole, these findings suggest that structural sexism and racism in the division and structure of labor continue to degrade working conditions for women and POC in the U.S., particularly for those in the working class.<sup>1-4</sup>

These findings may partially explain previously identified health inequities across classes, genders, and racialized groups, suggesting a set of mechanisms connecting relations of property, exploitation, and domination in economic production to hazards in the organization and structure of work.<sup>1-5</sup> For example, workers tended to be exposed to much worse conditions than others, including to adverse compensation/safety, labor process, and control conditions, which have repeatedly been shown to harm health.<sup>5,8,29,35</sup> Meanwhile, managers tended to face greater labor-process intensity and discrimination and harassment than others, which may explain the heightened burden of certain outcomes, like anxiety, among those in contradictory class locations.<sup>11</sup> Finally, women and POC were segregated into the working class and generally faced worse conditions than others, which may contribute to persistent health inequities across genders and racialized groups.<sup>1-4</sup> Future research should test the effects of these disparities on health inequities, as well as the health effects of policy and labor organizing aimed at eliminating these disparities and their structural causes.

#### 4.2. Limitations

Our analyses should be interpreted considering the following limitations. First, the GSS uses subjective measures of working conditions. Responses to such measures may not exclusively depend on respondents' objective conditions, but may also depend on other factors, including respondents' dispositions, expectations, and circumstances.<sup>32,59</sup> For example, oppressed groups may judge their conditions less harshly than others (if their subordinated social positions lead them to expect worse conditions), or more harshly than others (if they depend more heavily on the quality of their jobs to survive). Alternatively, the subordinated positions of oppressed groups may motivate them to understand their objective conditions and give them privileged insights, making them more reliable and valid than others.<sup>60</sup> Regardless, differential reporting between oppressed and dominant groups may have affected our inequity estimates, although the net effects of such differential reporting are difficult to predict.

Second, our exclusion of unwaged domestic labor, predominately performed by women<sup>21</sup>, and unemployed and incarcerated respondents, disproportionately working class POC<sup>3</sup> (particularly POC men<sup>61,62</sup>), may have also biased our estimates by making the groups under study appear spuriously similar.

Third, our petit bourgeois category may have contained some workers employed in the "gig" economy who identified as self-employed but whose true relationship to capital and others' labor placed them in the working class. This misclassification would make working conditions among workers and the petit bourgeoisie appear spuriously similar.

Fourth, due to data sparseness, we were unable to subdivide classes, including workers (e.g., precariously employed versus not precariously employed), managers (e.g., low-level versus high-level), and capitalists (e.g., small versus large). Thus, working conditions likely varied considerably within our class categories, and we were unable to identify those in the most contradictory class locations, such as low-level managers and supervisors.<sup>11</sup> Low-level managers and supervisors likely constituted a substantial portion of those classified as “managers”, as nearly 75% of “managers” in our sample did not report that their supervisees supervised others, an indicator used in prior research to identify such groups.<sup>6,48</sup>

Fifth, due to data limitations, we grouped together respondents identifying as Black or Hispanic/Latinx and excluded those identifying as “non-Hispanic other”. Such respondents may be subjected to different forms of racism and oppression.<sup>4</sup> Thus, grouping them together (or excluding them) prevented us from identifying likely inequities in working conditions across those groups.

Finally, gender in the GSS was assigned by the interviewer and dichotomized as “female” or “male”.<sup>43,49</sup> Such an approach assumes gender can be accurately determined through interviewer observation and erases those identifying as transgender, nonbinary, or otherwise.<sup>63</sup> Although the 2018 GSS survey did contain questions that allowed respondents to self-identify their gender (including as “transgender” or “as a gender not listed”), such questions were only administered to a subsample of respondents.<sup>43,49</sup>

Future research should address these limitations, particularly by exploring inequities in working conditions within and across finer class categories, additional genders, racialized groups, and ethnicities, and various immigration and documentation statuses. Such research would benefit from an increased GSS-QWL sample size, which may require greater NIOSH funding. Future research should also explore the role of the “gig” economy in the identified inequities, including how it affects the distribution of class membership and respondents’ working conditions. Finally, future research should investigate classed, gendered, and racialized inequities in working conditions in other types of societies, including in societies with socialist, communist, or mixed socio-economic systems, and/or in societies in the Global South.

## 5. Conclusion

We identified substantial inequities in material and psychosocial working conditions across relational social classes, with generally worse conditions for workers, which is the largest class within each gender and racialized group, but also disproportionately consists of women and POC, particularly women of color. We also identified inequities affecting women and POC—especially women of color—within the working class, with such workers tending to report worse conditions than other workers. These inequities threaten workers’ health, particularly the health of female workers and workers of color. However, because they are grounded in class relations of exploitation and domination and in structural sexism and racism, remedying the inequities will require dismantling the underlying structural relations that produce them, not ministering to individual workers and workplaces. Such structural interventions include: shorter-term efforts to increase worker power through working-class

organizations like labor unions, political parties, and worker cooperatives and committees; social movements fighting racial capitalist oppression, exploitation, and domination; and longer-term efforts to democratize the ownership and control of productive assets.<sup>64,65</sup>

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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## Data availability:

The R code used to conduct our analyses is available on GitHub ([https://github.com/Critical-Social-Epi/GSS\\_class\\_working\\_conditions](https://github.com/Critical-Social-Epi/GSS_class_working_conditions)); GSS data are publicly available ([gss.norc.org](https://gss.norc.org)).

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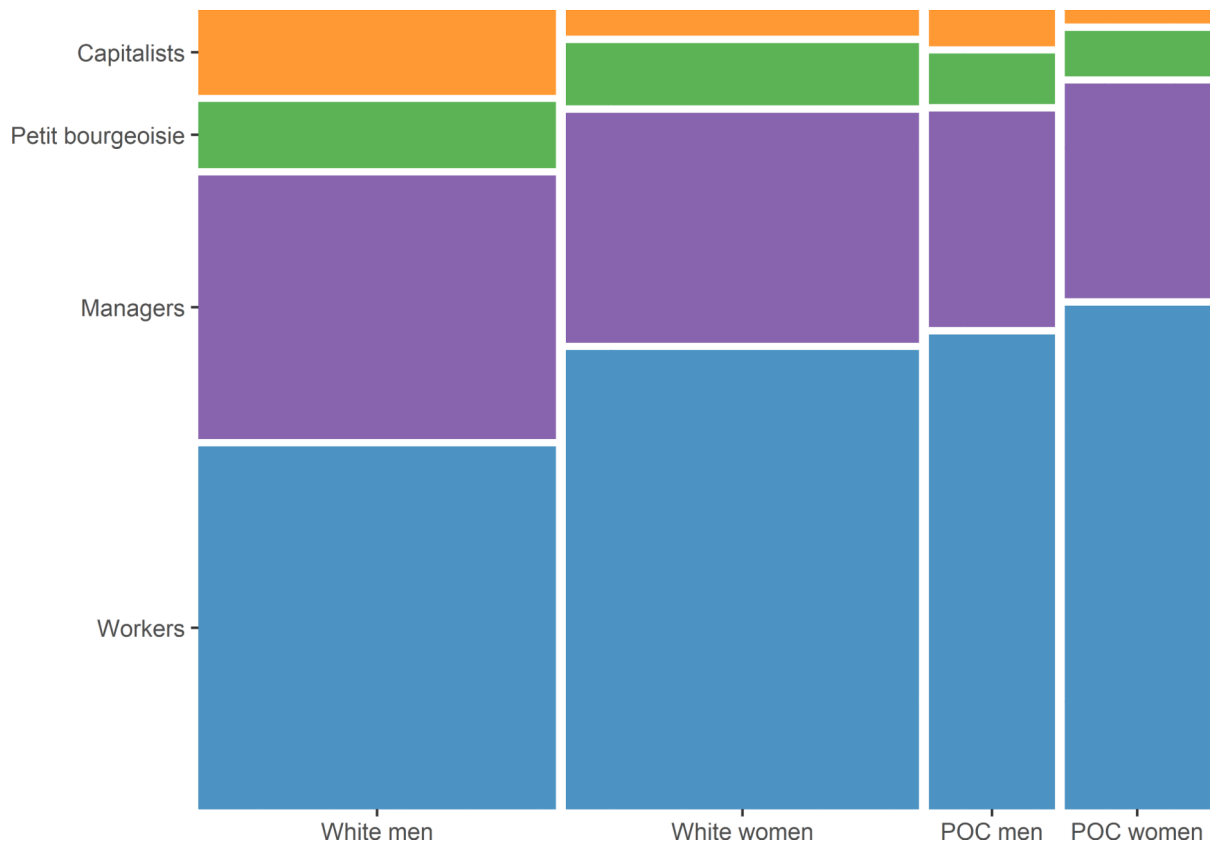
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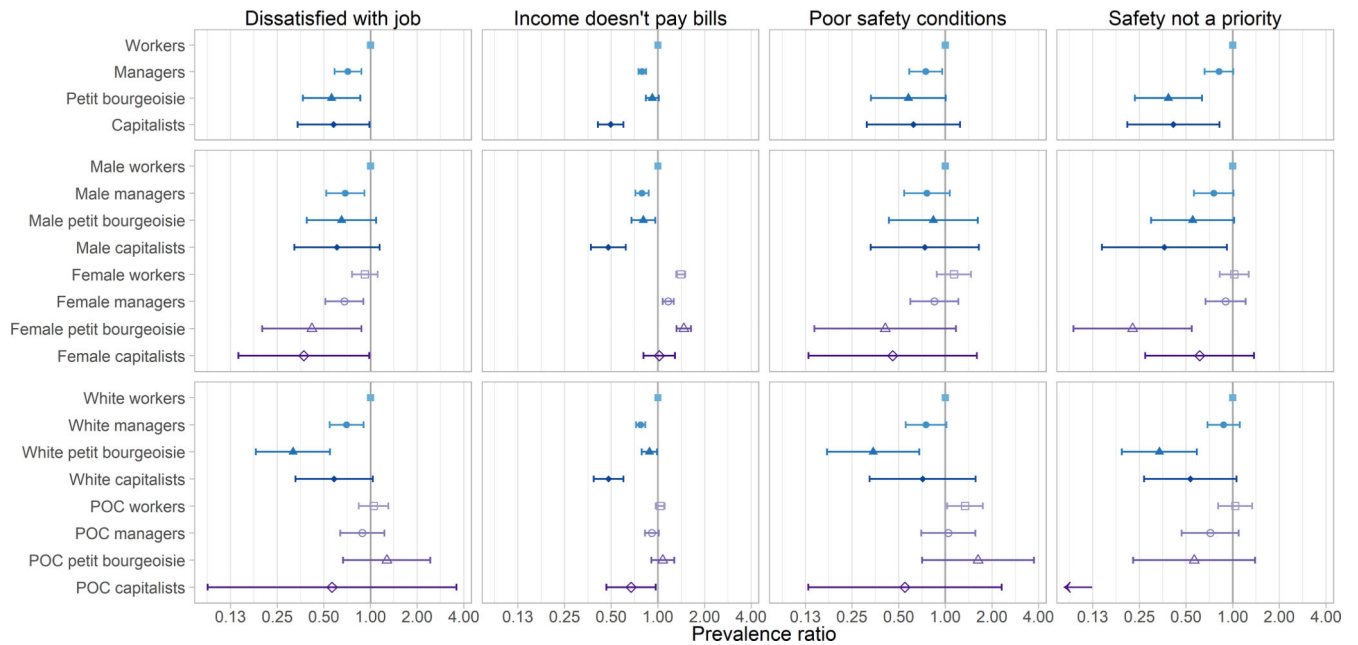


**Figure 1.**

Mosaic plot depicting the class composition of each gender-race group (vertical) and the gender-race composition of each class (horizontal), with the area of each rectangle proportional to each group's sample size.

Notes:

Estimates are based on survey-weighted data from the 2002, 2006, 2010, 2014, and 2018 waves of the General Social Survey's Quality of Worklife module excluding respondents identifying as "non-Hispanic other" (4%) and those with any missing values of relevant variables (1%), producing a sample size of 6,456. "White" group consists of those identifying as "non-Hispanic white"; "POC" group consists of those identifying as "non-Hispanic Black" or "Hispanic".

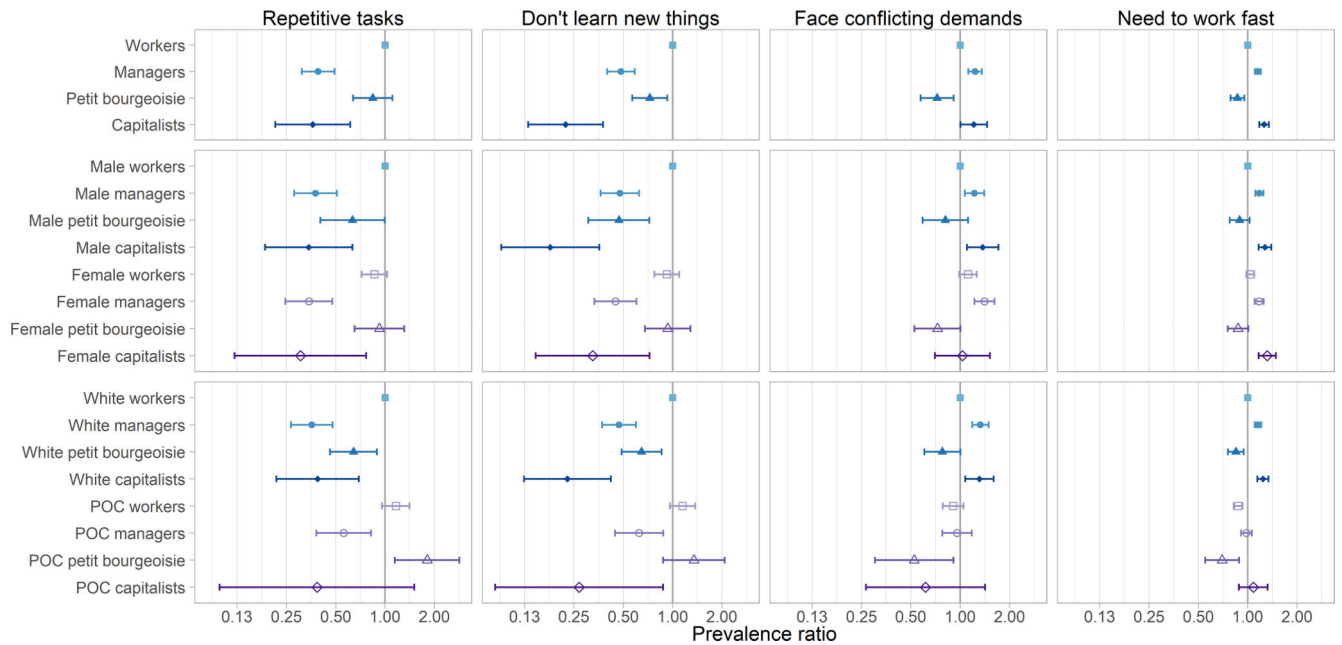


**Figure 2.**

Prevalence of each adverse compensation/safety-related condition among each class, class-gender, or class-race relative to the prevalence among workers, male workers, or non-Hispanic white workers.

Notes:

Estimates come from Poisson models adjusted for age and year with 3-knot restricted cubic splines, with standard errors calculated via Taylor series linearization. Models run on survey-weighted, multiply imputed data from the 2002, 2006, 2010, 2014, and 2018 waves of the General Social Survey's Quality of Worklife (QWL) module. Sample included 6,806 respondents prior to excluding observations with missing values of a given outcome variable (4%). Class-race models additionally excluded respondents identifying as "non-Hispanic other" (4%). "White" group consists of those identifying as "non-Hispanic white"; "POC" group consists of those identifying as "non-Hispanic Black" or "Hispanic". Arrow indicates zero respondents in the given subgroup reported the adverse condition, and thus the point estimate was too small to plot.

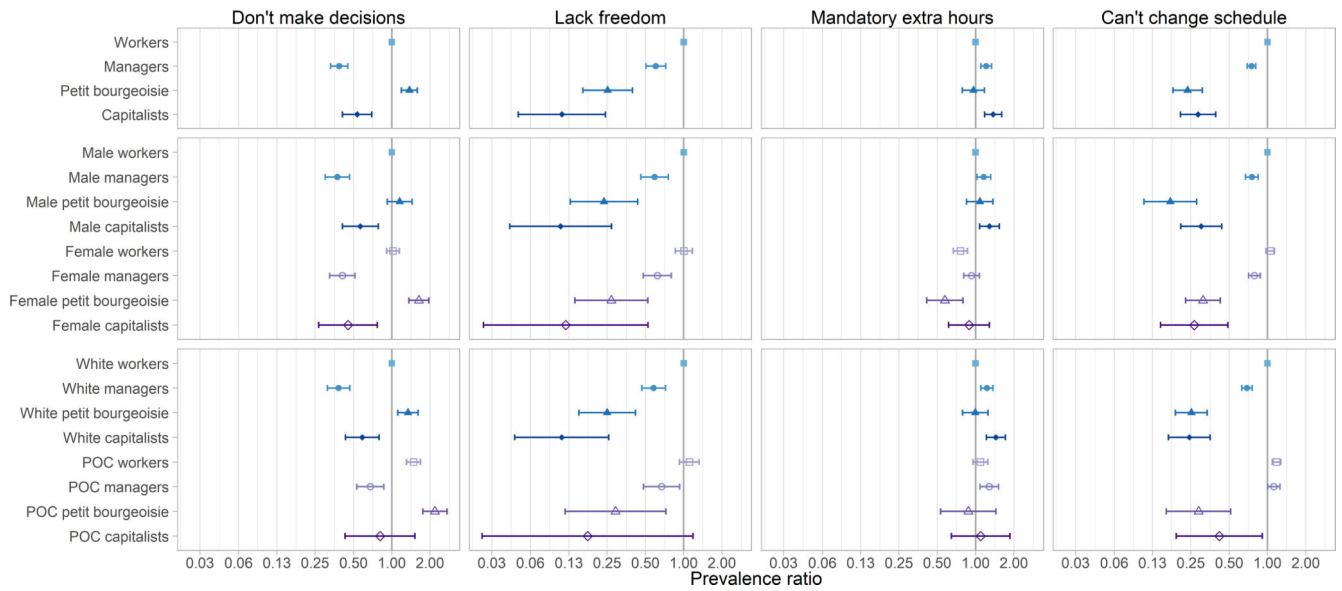


**Figure 3.**

Prevalence of each adverse labor-process-related condition among each class, class-gender, or class-race relative to the prevalence among workers, male workers, or non-Hispanic white workers.

Notes:

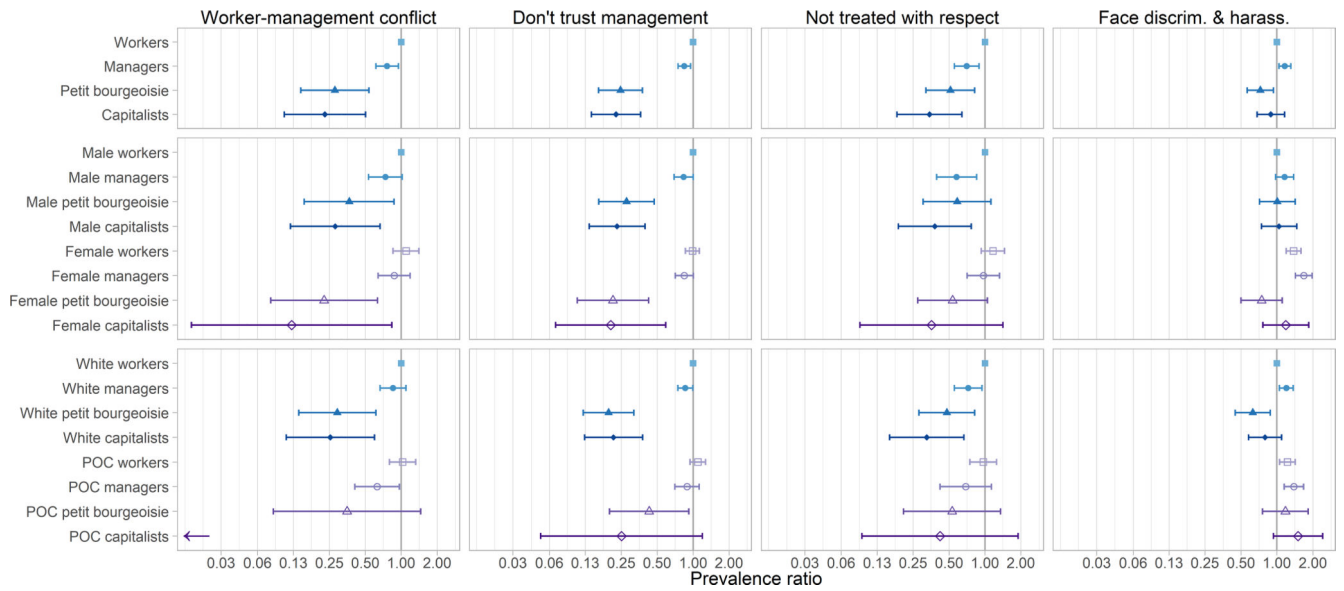
Estimates come from Poisson models adjusted for age and year with 3-knot restricted cubic splines, with standard errors calculated via Taylor series linearization. Models run on survey-weighted, multiply imputed data from the 2002, 2006, 2010, 2014, and 2018 waves of the General Social Survey's Quality of Worklife (QWL) module. Sample included 6,806 respondents prior to excluding observations with missing values of a given outcome variable (4%). Class-race models additionally excluded respondents identifying as "non-Hispanic other" (4%). "White" group consists of those identifying as "non-Hispanic white"; "POC" group consists of those identifying as "non-Hispanic Black" or "Hispanic".



**Figure 4.** Prevalence of each adverse control-related condition among each class, class-gender, or class-race relative to the prevalence among workers, male workers, or non-Hispanic white workers.

Notes:

Estimates come from Poisson models adjusted for age and year with 3-knot restricted cubic splines, with standard errors calculated via Taylor series linearization. Models run on survey-weighted, multiply imputed data from the 2002, 2006, 2010, 2014, and 2018 waves of the General Social Survey’s Quality of Worklife (QWL) module. Sample included 6,806 respondents prior to excluding observations with missing values of a given outcome variable ( 4%). Class-race models additionally excluded respondents identifying as “non-Hispanic other” (4%). “White” group consists of those identifying as “non-Hispanic white”; “POC” group consists of those identifying as “non-Hispanic Black” or “Hispanic”. “Can’t change schedule” question not administered in 2018.

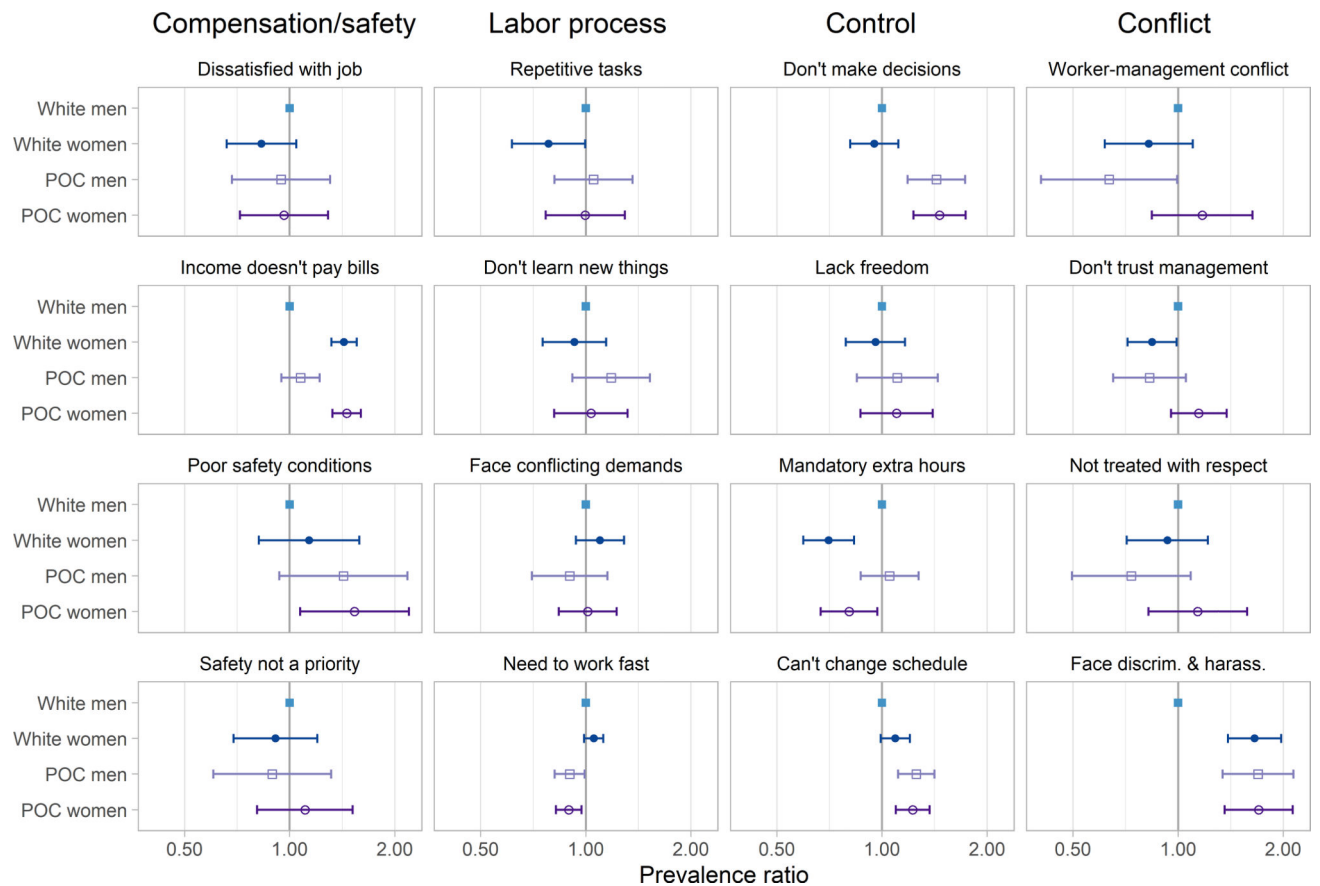


**Figure 5.**

Prevalence of each adverse conflict-related condition among each class, class-gender, or class-race relative to the prevalence among workers, male workers, or non-Hispanic white workers.

Notes:

Estimates come from Poisson models adjusted for age and year with 3-knot restricted cubic splines, with standard errors calculated via Taylor series linearization. Models run on survey-weighted, multiply imputed data from the 2002, 2006, 2010, 2014, and 2018 waves of the General Social Survey’s Quality of Worklife (QWL) module. Sample included 6,806 respondents prior to excluding observations with missing values of a given outcome variable ( 4%). Class-race models additionally excluded respondents identifying as “non-Hispanic other” (4%). “White” group consists of those identifying as “non-Hispanic white”; “POC” group consists of those identifying as “non-Hispanic Black” or “Hispanic”. Arrow indicates zero respondents in the given subgroup reported the adverse condition, and thus the point estimate was too small to plot.



**Figure 6.**

Among workers, prevalence of each adverse condition among each gender-race group relative to the prevalence among non-Hispanic white men.

Notes:

Estimates come from Poisson models adjusted for age and year with 3-knot restricted cubic splines, with standard errors calculated via Taylor series linearization. Models run on survey-weighted, multiply imputed data from the 2002, 2006, 2010, 2014, and 2018 waves of the General Social Survey's Quality of Worklife (QWL) module. Sample excluded respondents identifying as "non-Hispanic other", producing a sample size of 3,640 workers on average across imputations prior to excluding observations with missing values of a given outcome variable ( 4%). "White" group consists of those identifying as "non-Hispanic white"; "POC" group consists of those identifying as "non-Hispanic Black" or "Hispanic". "Can't change schedule" question not administered in 2018.

**Table 1.**

Sociodemographic composition of sample stratified by class.

	Workers	Managers	Petit bourgeoisie	Capitalists
Percent	54.9	31.3	7.5	6.2
Women (%)	55.1	48.2	48.9	22.6
Race/ethnicity (%)				
NH <sup>a</sup> white	66.3	71.1	71.9	81.2
NH <sup>a</sup> Black	15.7	11.6	7.4	6.0
NH <sup>a</sup> other	3.7	5.3	7.3	5.6
Hispanic	14.4	12.0	13.4	7.3
Highest degree (%)				
Less than high school	9.3	7.6	11.4	7.3
High school	54.3	44.0	48.1	39.3
Junior college	9.1	10.6	8.7	7.7
College plus	27.3	37.8	31.8	45.6
Marital status (%)				
Married	51.5	55.7	60.2	71.3
Never married	30.5	26.3	19.2	10.2
Widowed/divorced/separated	18.0	18.0	20.6	18.5
Region (%)				
Midwest	25.2	22.6	18.7	20.8
Northeast	15.3	17.8	15.7	12.8
South	38.7	34.5	35.3	35.9
West	20.7	25.1	30.3	30.5
Age (median [quartile 1, quartile 3])	40 [30, 51]	41 [31, 51]	49 [37, 57]	51 [41, 58]
Income (median [quartile 1, quartile 3]) <sup>b</sup>	6.4 [3.5, 10.2]	8.4 [4.9, 12.9]	6.4 [3.2, 12.3]	12.3 [6.9, 23.1]

Notes:

Estimates are based on survey-weighted data from the 2002, 2006, 2010, 2014, and 2018 waves of the General Social Survey's Quality of Worklife module excluding respondents with any missing values of relevant variables (9%), producing a sample size of 6,193.

<sup>a</sup>Non-Hispanic

<sup>b</sup>Family income in tens of thousands of 2018 dollars.