

## ORIGINAL RESEARCH



# Racial and ethnic disparities in the relationship between job satisfaction and sleep duration among adult men

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**Abstract**

This study aims to examine the relationship between job satisfaction and sleep duration and to investigate how race and ethnicity influence the association among adult men. The National Longitudinal Survey of Youth 1979 for Children and Young Adults (NLSY79 CY) was used for this study. A total of 2609 adult men were chosen for the final sample. The Statistical Package for the Social Sciences and a moderation model were employed to answer the research questions. Men's job satisfaction was positively related to sleep duration. Both Black and Hispanic men had significantly lower sleep duration than White men. We found an interaction effect indicating that a Black racial identity moderated the association of adult men's job satisfaction and sleep duration. Reducing unhealthy working conditions and stressors in the workplace may improve job satisfaction and result in better health through increased sleep duration. Further, fringe benefits should be expanded to improve men's sleep duration. Eliminating racial and ethnic discrimination in the labor market should be more prioritized and Black men should receive more fringe benefits, which may help to boost their job satisfaction and result in increased sleep.

**Keywords**

Job satisfaction; Sleep duration; Adult men; Race/ethnicity

## 1. Introduction

The average sleep duration of an adult in the United States has decreased significantly over the past several decades [1, 2]. In 2013, the average sleep duration of a U.S. adult was six hours per night, and between 1960 and 2020, it declined by nearly 90 minutes per night [1, 2]. In 2020, 33.4% of adult men in the United States reported sleeping fewer than seven hours per night, or the minimum length of sleep recommended for adults [3]. Getting adequate sleep is important, as short sleep duration has been associated with many negative health outcomes, such as diabetes, cardiovascular issues, obesity, and depression [4–6]. Sleep duration has also been associated with social-psychological factors, such as job satisfaction [2, 7, 8], and both relationships have been found to be different for workers of different races/ethnicities [9–13]. Moreover, men are more likely to report a short sleep duration than women [3, 14, 15], as well as lower job satisfaction [16, 17]. However, few studies have examined the interactions between race/ethnicity, job satisfaction, and sleep duration, particularly among adult men. Thus, in this study, we will explore the impact of sociodemographic factors (including race/ethnicity) and on adult men's job satisfaction and sleep duration, and the relationship between the two.

## 2. Literature review

### 2.1 Race, ethnicity & sleep duration

Several recent studies have examined the relationship between race/ethnicity and sleep, including sleep duration. In early sleep research, race/ethnicity was not often reported, but it has become more commonly considered over time [18]. In this study, we view race/ethnicity as a social construction that reflects historical and current inequities in power and resources, and thereby people of color have different work and health outcomes than white people [19–21]. Overall, evidence suggests that people of color, particularly Black or African American people, report the worst sleep-related outcomes, including sleep duration, when compared to white people [1, 11, 12, 22–25]. In one nationwide survey of U.S. adults, Black or African American adults were 2.34 times as likely as white adults to report very short sleep, or fewer than five hours of sleep on an average night, and 1.85 times as likely as white adults to report short sleep, or fewer than five to six hours of sleep on an average night [12]. In the same study, Asian adults were almost four times as likely to report very short sleep and almost twice as likely to report short sleep than white adults [12]. Further, in both the 1990 and 2005 National Health Interview Survey, Black or African American adults were more likely than white adults to sleep five or fewer hours per night, and they were also more likely than white adults to

sleep for nine or more hours per night [1, 22, 25].

Researchers have also examined differences by race/ethnicity in sleep duration over time [10, 11, 24]. In a study that utilized wrist monitoring and sleep logs over three days, Black men and women slept fewer hours per night (5.1 hours and 5.9 hours, respectively), compared to white men and white women (6.1 hours and 6.7 hours, respectively), and these differences remained after adjusting for various socioeconomic, employment and lifestyle factors [24]. Moreover, over a much longer period, from 2004 to 2017, U.S. adults were more likely to sleep for six or fewer hours beginning in 2013 and continuing through 2017, with this trend more significant for Hispanic and non-Hispanic Black participants [10]. Additionally, in a study that included questionnaire data at five points over more than forty years, Black or African American participants were nearly twice as likely to sleep for seven or fewer hours per night than white participants, and disparities in sleep duration by race/ethnicity increased over time for Black/African American and Hispanic participants compared to non-Hispanic whites [11]. Thus, although racial/ethnic differences in sleep duration have only been studied more recently in the sleep literature, there is ample evidence to suggest that people of color, and particularly Black people, are more likely to report short or otherwise atypical sleep patterns as compared to white people. However, fewer studies have examined these differences among young adult men specifically.

## 2.2 Race, ethnicity & job satisfaction

Many studies have examined factors that may affect a worker's job satisfaction. Organizational factors such as administrative or organizational support, organizational resources, work conditions, role ambiguity, and decision-making ability [26–28]; economic factors such as wages and insurance [26]; and demographic differences such as age, gender, education, and race/ethnicity [9, 13, 26, 27, 29, 30] have been examined in the literature on job satisfaction. Most studies examining differences in job satisfaction and race/ethnicity have focused on Black/African American workers and white workers, with the Black/African American workers reporting significantly lower job satisfaction across a number of occupation types [9, 13, 29, 31, 32]. In one study, Asian workers reported significantly lower job satisfaction than white workers, and this difference remained after adjusting for immigrant status and other individual satisfaction variables [29]. Moreover, in a sample of nurses, American Indian/Alaskan Native and Multiracial nurses reported significantly lower job satisfaction than white nurses [13]. However, not all studies found a significant difference in job satisfaction by race or ethnicity; in a sample of social workers, job satisfaction did not significantly differ by social workers' race/ethnicity [33]. Overall, there is more evidence to support that Black workers seem to report lower job satisfaction than their white counterparts, but much of the existing research did not examine other people of color's job satisfaction, so more research is needed on job satisfaction in a wider variety of racial/ethnic groups. Moreover, research is needed on potential factors that may mediate racial/ethnic differences in job satisfaction, such as unfair treatment in the

workplace, lower wages or compensation, or lack of appropriate health insurance [34–36].

## 2.3 Sleep duration & job satisfaction

A few studies have examined the relationship between sleep duration and workers' job satisfaction [2, 7, 8]. Two studies found that workers with higher sleep duration also have higher job satisfaction [7, 8]. In one study, this was found both concurrently, so directionality could not be determined [8]; and in the other, job satisfaction was measured six months after they reported sleep insufficiency, suggesting that sleep insufficiency lead to later job dissatisfaction [7]. However, in a sample of business-to-business sales employees, lower sleep duration was concurrently associated with higher job satisfaction, and the authors used conservation of resources theory to explain this finding, in that if a worker is experiencing fewer hours of sleep, they may value other resources more highly, leading to higher perceived job satisfaction [2]. Considering these mixed findings, more research is needed with workers in a wider variety of occupations to examine the relationship between sleep duration and job satisfaction, both concurrently and longitudinally, to determine whether job satisfaction leads to sleep duration, or *vice versa*.

## 2.4 The current study

Job satisfaction, or level of satisfaction with all aspects of the workplace, can influence health, including sleep duration [37, 38]. In that case, men who are greatly satisfied with their jobs may be likely to sleep longer than men who are dissatisfied with their jobs. However, the correlational relationship between job satisfaction and sleep duration may differ by men's race/ethnicity, as men of color experience stressors in the workplace and in everyday life that may impact their job satisfaction and sleep duration [35, 39–41]. Further, although men have lower sleep duration and job satisfaction than women, little research in this area has focused on men specifically, nor considered differences between white men and men of color. Thus, in this study, we aim to explore (1) the relationship between job satisfaction and sleep duration across adult men and (2) how the association may be different for White adult men compared to Black and Hispanic adult men.

## 3. Methods

### 3.1 Participants and sampling

The National Longitudinal Survey of Youth 1979 for Children and Young Adults (NLSY79 CY), collected by the U.S. Bureau of Labor, was used for this study. Respondents were the biological children of mothers residing in the United States who responded the National Longitudinal Survey of Youth 1979 (NLSY79). Thus, participants in the NLSY79 CY are also representative of Americans living the United States. We utilized 2014 data, which includes information related to health and jobs, including sleep duration and job satisfaction. There were 11,543 participants in the initial sample, including 5896 boys and men and 5648 girls and women. We only included men over the age of 18 as this study focuses on adult men.

Further, those who did not agree to be interviewed or did not reply were excluded. With these criteria, a total of 2609 adult men were chosen for the final sample.

## 3.2 Measures

### 3.2.1 Sleep duration

Participants reported their average amount of sleep in hours per night. The question used in the NLSY79 CY is: “On a typical weeknight, how many hours of sleep do you usually get?”. Based on this question, a higher score of this variable means more hours of average sleep during an average weeknight.

### 3.2.2 Job satisfaction

Adult men were requested to answer how much they like their most recent jobs. Four response categories were given to respondents with a four-point scale: like it very much = 1, like it fairly well = 2, dislike it somewhat = 3, and dislike it very much = 4. The question was as follows: How did you feel about your job? Did you like it very much, like it fairly well, dislike it somewhat, or dislike it very much? This scale was modified from a shortened version of the job satisfaction measurements, which were designed for use in the University of Michigan’s Quality of Employment Surveys [42]. As this question includes recent jobs, adult men reported levels of satisfaction with up to five of their most recent jobs. Thus, some men provided information on job satisfaction for only one job, while others reported satisfaction with five jobs. If someone had five jobs recently, the average job satisfaction score across the five jobs was used. Before analysis, all items were reversely coded so that a high score indicated higher job satisfaction. Depending on how many recent or current jobs participants had, the average score was used and a higher score indicates greater satisfaction with their jobs.

### 3.2.3 Race and ethnicity

Racial and ethnic groups in this study were White, Black, and Hispanic. White groups were used as a reference group to compare difference between White men and Black men and White men and Hispanic men.

### 3.2.4 Other socio-demographic variables

Basic factors showing demographic and socioeconomic status were included in this study. For instance, age, marital status, education, and income were controlled, because they have been found to be associated with sleep duration [5, 43–47]. Marital status has two categories: married and non-married. Education is also divided into two groups: higher education and non-higher education.

## 3.3 Analysis strategies

To examine the relationship between job satisfaction and sleep duration among adult men and to test the moderating effect of race and ethnicity on the relationship, we used the Statistical Package for the Social Sciences (SPSS, version 22.0, IBM, Armonk, NY, USA) and the moderation model developed by Baron and Kenny and Kraemer and colleagues [48, 49]. According to the model, a moderator is regarded as an independent variable, but its effect is different from the original

independent variable as it influences the strength or direction of the relationship between the independent and dependent variables [50]. To explore the moderating effect of race and ethnicity on the association between job satisfaction and sleep duration, we tested three relationships: (a) the association between job satisfaction and sleep duration among adult men; (b) the relationship between race/ethnicity and sleep duration; and (c) the interaction effect of race/ethnicity and sleep duration. These relationships were investigated based on cross-sectional data. Multiple linear regression analysis was employed to test the associations while controlling for age, marital status, education, and income. Fig. 1 indicates these three relationships.

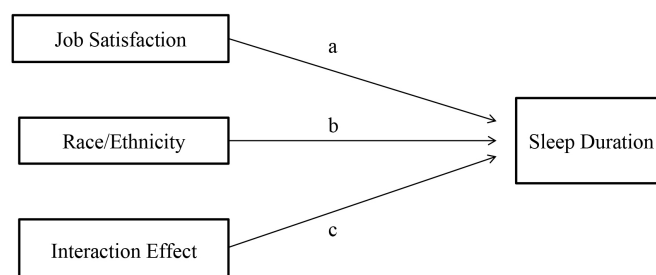


FIGURE 1. Moderation analysis.

## 4. Results

Table 1 shows information regarding demographic statistics and primary variables in this study. The average hours of sleep that the men reported on an average weeknight was 6.78 hours, and their average job satisfaction score was 3.12. Respondents’ average age was 26.87 years old and about one-fourth of the men had completed higher education. Their average income was about \$25,800, and for race/ethnicity, almost half of the men were White (46.9%), followed by Black (31.2%) and Hispanic (21.9%).

TABLE 1. Descriptive statistics.

Variable	% or mean (Standard Deviation)
	Total (n = 2609)
Hours of sleep	6.78 (1.41)
Job satisfaction	3.12 (0.71)
Age	26.87 (5.15)
Marriage	19.5%
Higher education	24.3%
Race/Ethnicity	
White	46.9%
Black	31.2%
Hispanic	21.9%
Income	2.58 (2.70)

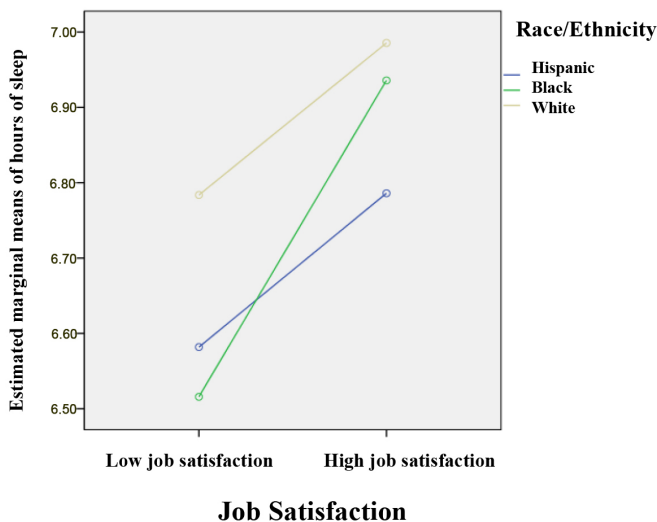
Notes. For income, the actual amount in U.S. dollars is the value of income in the table multiplied by 10,000.

The relationships between job satisfaction and sleep duration and the differences in sleep duration by race/ethnicity,

**TABLE 2. Regression results of unstandardized coefficients (standard error) predicting men's sleep duration.**

Variables	Model 1		Model 2	
(Constant)	7.15 (0.21)		7.32 (0.25)	
Job satisfaction	0.22 (0.04)	***	0.17 (0.06)	**
Age	-0.03 (0.01)	***	-0.03 (0.01)	***
Marriage	0.00 (0.08)		0.00 (0.08)	
Higher education	0.10 (0.07)		0.10 (0.07)	
Income	-0.04 (0.01)	***	-0.04 (0.01)	**
Race/Ethnicity				
Black	-0.16 (0.07)	*	-0.85 (0.30)	**
Hispanic	-0.17 (0.08)	*	0.06 (0.34)	
Moderating effect				
Job satisfaction*Blacks			0.22 (0.10)	*
Job satisfaction*Hispanics			-0.07 (0.11)	

Note. \* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.001$ .



**FIGURE 2. Job satisfaction and race/ethnicity on hours of sleep across adult men.**

as well as the moderating effect of race and ethnicity were presented in Table 2. Model 1 shows that job satisfaction was positively related to sleep duration ( $\beta = 0.22, p < 0.001$ ). Both Black and Hispanic men had significantly lower sleep duration than White men ( $\beta = -0.16, p < 0.05$ ;  $\beta = -0.17, p < 0.05$ ). Further, age and income were also negatively related to adult men's sleep duration ( $\beta = -0.03, p < 0.001$ ;  $\beta = -0.04, p < 0.001$ ). After entering the moderating effect of race and ethnicity in Model 2, job satisfaction still remained significant ( $\beta = 0.17, p < 0.01$ ). Black men still had significantly lower sleep duration even when the moderating effect was included ( $\beta = -0.85, p < 0.01$ ) while Hispanic men's sleep duration was not significantly lower than White men's when the moderating effect was included. For other sociodemographic variables, both age and income were still significant in Model 2. We found an interaction effect indicating that a Black racial identity moderated the relationship between job satisfaction and sleep duration among adult men ( $\beta = 0.22, p < 0.01$ ). The

effect of a Black racial identity on the association between job satisfaction and sleep duration is shown in Fig. 2. Both Black and White adult men showed increased hours of sleep if they were more satisfied with their jobs. However, regardless of job satisfaction, White adult men slept for more hours than Black adult men. For men with low job satisfaction, White men in this group slept for 6.78 hours on average while Black men slept for 6.52 hours. For men with high job satisfaction, White men slept for 6.99 hours on average and Black men slept for 6.94 hours. However, the effect of job satisfaction on sleep duration was greater for Black men compared to White men. Depending on how much they were satisfied with their jobs, Black men showed an increase of 0.42 hours of sleep if they had high job satisfaction, while White men reported an increase of 0.20 hours of sleep.

## 5. Discussion

As many men spend much time in their workplace, how much they are satisfied with their jobs is important for their health. Among various factors of health, this study focused on men's sleep duration, which greatly influences physical and psychological health. This study's findings indicated that there was a positive relationship between job satisfaction and sleep duration among men. Considering racial and ethnic discrimination in the labor market, the present study considered racial and ethnic disparities and found that a Black racial identity moderated the association between job satisfaction and sleep duration among men.

The current study confirmed that job satisfaction had a positive effect on sleep duration, which is consistent with previous studies [7, 8]. Full-time employed adult men spend about forty hours a week at work, and they sleep on average six hours a day [1, 2]. In other words, how much they are satisfied with their jobs and sleep duration is important for one's health because the amount of time spent at work and asleep during the day is considerable. However, many individuals these days suffer from lack of sleep due to their busy workloads, with the

average amount of sleep reported by the average adult worker decreasing over time [1, 2]. If greater job satisfaction is related to more sleep, which is closely related to better physical and psychological health [4, 51], then reducing unhealthy working conditions and stressors in the workplace would be critical for health. The present study identified a relationship between job satisfaction and sleep duration and this study's findings further suggest that men's job satisfaction is associated with their sleep duration. Most men participate in the labor market and encounter diverse unexpected difficulties from interpersonal relationships and jobs itself. As a result, many workers report a variety of complaints about their jobs and wish to have a better workplace. If men are not satisfied with their jobs, it might negatively influence their sleep, leading to negative health outcomes. Adult men's health has not been given as much attention, but it is a critical issue as young men experiencing physical and mental health issues is becoming more common [52, 53]. That is, constructing supportive workplaces for male workers may improve job satisfaction and result in better health through increased sleep duration. Research has found that support from administrators, managers and coworkers improves workers' job satisfaction [27, 28, 54]. Further, fringe benefits such as employee health insurance and retirement plan benefits should be expanded, as they are also associated with increased job satisfaction [26, 55]. Universal health insurance is a controversial issue in the United States and there can be enormous differences in coverage among individuals with different insurance plans. The burden of challenges related to paying for medical services would dramatically decrease if workers had good health insurance provided by their jobs. Additionally, people who work night shifts or inconsistent schedules have lower job satisfaction and worse sleep [56, 57], and people who work such shifts are more likely to be people of color, particularly non-Hispanic Black [58, 59]. Thus, boosting fringe benefits and increased opportunities for more day shift work schedules, would be very beneficial to enhance job satisfaction, which is associated with sleep duration among adult men. Further, if they receive more benefits from their workplace, they may show more loyalty and generate greater productivity. As such, efforts to increase job satisfaction are both related to one's quality of sleep, sleep duration, and productivity, which is valuable to employees and employers.

Affirming previous studies' findings, the current study showed racial and ethnic differences in sleep duration [11, 12, 22, 25]. Both Black and Hispanic men tended to report fewer hours of sleep than White men. By only focusing on men, this study further provides empirical evidence about racial and ethnic disparities in adult men's sleep duration. Given that all participants in this study were employed, one of the possible reasons that minority men had fewer hours of sleep is that Black and Hispanic male workers may work for more hours in more stressful occupations than white male workers, perhaps as a consequence of employment discrimination or fewer opportunities for workplace advancement for men of color compared to white men.

This phenomenon is explained by the moderating effect of race/ethnicity in this study. In this study, a Black racial identity significantly moderated the relationship between job satisfaction and sleep duration. In other words, Black men's sleep

duration was considerably influenced by their job satisfaction. Considering that a longer sleep duration was also associated with higher job satisfaction among white men, it is important to increase all employees' job satisfaction. However, Black men consistently reported fewer hours of sleep than White men, regardless of whether they had lower or higher job satisfaction. Black men reported the fewest hours of sleep compared to White and Hispanic men if they were less satisfied with jobs, but they slept about 30 minutes longer if they were more satisfied with their job. This implies that workplace stress or challenges seriously interfere with Black men's sleep duration. This study proposes that Black men experience difficulties in the workplace, which are associated with lower levels of job satisfaction. Given the strong effect of job satisfaction on Black men's sleep duration, eliminating racial and ethnic discrimination in labor market should be more prioritized and Black men should receive more fringe benefits, which may also help to boost job satisfaction. There are diverse ways to increase level of job satisfaction, but equitable opportunities should be provided to Black men compared to White men. Generally, White men are more easily able to obtain good health insurance, higher compensation and wages, *etc.*, in comparison with minorities, particularly Black men [34, 36]. In other words, unfair treatment based on race/ethnicity still occurs in workplaces and such an obstacle may result in lower job satisfaction among Black men [35, 39–41]. In addition, the types of jobs that Black men are more likely than white men to be employed in might decrease job satisfaction—such as shift work [58, 59]—so that it is necessary for Black men to be able to obtain more highly-paid jobs with increased opportunities for advancement and more consistent daytime schedules. Free higher education or job training programs could be expanded and targeted toward Black men to increase the possibility they can obtain better jobs. These actions may result in higher job satisfaction among Black men, which is closely related to quality of sleep and sleep duration.

## 6. Limitations

This study sheds light on the relationship between job satisfaction and sleep duration by considering racial and ethnic disparities. However, several limitations should be noted to interpret the results. First, this study cannot show cause and effect relationships as the results came from cross-sectional data. Thus, we suggest that future studies identify causality based upon longitudinal data. Second, covariates such as burnout may influence sleep duration, but other potential factors including burnout could not be measured in the current study. We used the NLSY79 CY and the secondary data provided limited variables. Although this is one limitation of using secondary data, we recommend that various factors influencing sleep duration among adult men should be controlled to explore the association between job satisfaction and sleep duration. Third, we used data collected in 2014; however, the most recent data released in 2018 is now available. After four years, findings may be different. Thus, we suggest that a longitudinal approach using the previous and recent data set would help to more deeply understand the relationship between job satisfaction and sleep duration.

## 7. Conclusions

Although there have been many studies on quality of sleep and sleep duration, adult men's sleep has received relatively less attention and little is known about the association between men's workplace satisfaction and sleep duration. This study suggests a new viewpoint for understanding men's sleep by considering job satisfaction. Further, the current study reveals that the relationship between men's job satisfaction and sleep duration differs by race and ethnicity. Given that Black men's sleep was more greatly influenced by job satisfaction compared to White men, we suggest diverse ways to increase job satisfaction for Black men, such as more tailored-fringe benefits to Black men and reducing racial/ethnic discrimination in the workplace. This study indicates that racial and ethnic disparities in men's job satisfaction and sleep duration should be more deeply examined and that more attention is needed to improve Black men's sleep duration.

### AVAILABILITY OF DATA AND MATERIALS

The data used in the current study is available on the website: <https://www.nlsinfo.org/content/cohorts/nlsy79-children>.

### AUTHOR CONTRIBUTIONS

JL—Study Design, Data Analysis. JL and JA—Writing Original Draft; Manuscript Review and Editing. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript.

### ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

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### CONFLICT OF INTEREST

The authors declare no conflict of interest.

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