For Better or For Worse:
The Effects of Nonstandard Work Schedules on Self-Reported Health across Marital Status

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ABSTRACT

Nonstandard work schedules, or shifts that occur over evenings, nights, or weekends, are more common in today's economy. Work during these irregular hours has a negative impact on health. Scholars have investigated various aspects of this work schedule, but one has yet to explore how marital status, which is linked with better health, may protect the health of nonstandard shift workers in the United States. This study investigates this relationship. It draws upon social control theory and applies the marital causation hypothesis to predict that married individuals working nonstandard work schedules will report better health than their unmarried counterparts. An analysis using the National Study of the Changing Workforce indicates that there are significant marital status variations in the relationship between work schedule and self-rated health. Specifically, the findings show that for nonstandard workers, those who are cohabiting and divorced or separated have lower odds of reporting better health than married nonstandard workers. Additionally, working a nonstandard shift is worse for the health of divorced or separated women than for married women. These findings are in accordance with the marital causation model and its explanation of the protective health benefits and greater social support marriage provides.

INTRODUCTION

The United States is now a service economy that is open 24 hours each day of the week. This economic change contributes to nonstandard work schedules for about twenty percent of the working population (Enchautegui 2013). While research shows that full-time employment is beneficial to worker's health (Ross and Mirowsky 1995), irregular shift work does not have the same advantages (Fenwick and Tausig 2001; Gordon, Cleary, Parker, and Czeisler 1986; Kleiner and Pavalko 2010; Mellor 1986). United States-based studies that examine the link between nonstandard work schedule and health find that various aspects of health are jeopardized for these workers (Chung, Wolf, and Shapiro 2009; Presser 2003). There are physical health risks associated with nonstandard schedules, such as increased smoking behavior, disrupted stomach and intestine functioning, and a greater amount of work-related accidents (Geiger-Brown, Lee, and Trinkoff 2012). Interference with regular sleep and eating schedules are a consequence of shift work, and employees experience fatigue and digestion difficulties (Finn 1981). Nonstandard work shifts are detrimental to mental health, as these workers can be more stressed and suffer greater emotional problems (Fenwick and Tausig 2001; Gordon et al. 1986; Kleiner and Pavalko 2010). Additional studies that examined this topic used data from other countries and found similar results. In places such as Finland or Japan employees with nonstandard schedules either reported worse health or experienced greater health problems (Kivimaki, Kuisma, Virtanen, and Elovainio 2001; Nakata 2012). However, previous studies do not consider how marital status moderates the relationship between nonstandard work schedules and self-rated health in the United States.

The prevalence of nonstandard schedules varies across marital status. People who are divorced, separated, widowed, or single are more likely to have nonstandard work arrangements

than people who are married (Presser 2003a). Several studies compare these groups in aggregate, and they each find that individuals who are not married more frequently work outside of standard employment hours (Enchautegui 2013; Presser 1995; Wight et al. 2008). Among married couples where both spouses are working, women more often work nonstandard schedules than men (Kalleberg 1997). If both spouses do shift work, it is uncommon for a husband and wife to work the same nonstandard shift (Presser 1995).

Health outcomes also vary across marital statuses. This link is widely documented in the social science literature, with examinations of diverse sample sets demonstrating that married individuals have better health than their non-married counterparts (Ross, Mirowsky, and Goldsteen 1990). Various pathways by which married individuals report better health have been proposed. Although some scholars argue that selection into marriage occurs for healthier individuals, others suggest that marriage causes a healthier lifestyle that is complimented by a decrease in health-risk behaviors (Lillard and Waite 1995; Ross et al. 1990). There is evidence in support of each explanation, and the two relationships can exist in tandem (Lillard and Waite 1995). Still, we know little about whether and how the effect of work schedule on health varies across different marital contexts. This is an important association to consider, given that both nonstandard work schedule and health vary by marital status.

To address this research gap, this study explores the following research questions: does working a nonstandard work schedule impact employees' self-reported health, do the effects of nonstandard work schedules on self-reported health vary by marital status, and do these relationships differ for men and women? The importance of this topic is highlighted by the rapid job growth in nonstandard work occupations expected to occur in future years (Enchautegui 2013). Considering the current tension in the United States regarding government-funded

healthcare, it will be important for employers to discern which employees are at risk of poor self-reported health, a better predictor of well-being than medical health measures (Idler and Benyamini 1997).

BACKGROUND

Theoretical Framework

Early sociological examinations of health were conducted by Emile Durkheim who studied how social forces and individuals' relationships could influence their physical well-being. This early research helps explain why work schedule affects health. In his analysis of labor separation in the workplace, Durkheim ([1894] 1997) focused on part-time workers and the disconnect they felt compared to their counterparts working full-time. He contended that those without the standard work schedule could experience less workplace regulation, which could result in more stress and worse health (Durkheim [1894] 1997, Kleiner and Pavalko 2010). This is partially due to the lack of social regulation that accompanies a nonstandard shift, which can leave a worker feeling socially and institutionally isolated. Regular work schedules are more beneficial for a person's mental and physical condition because they provide greater coherence and support for workers. It thus follows that the decreased amount of integration and regulation that accompanies nonstandard schedules would predict these workers' lower health levels.

Social integration is also a factor in marriage, and it helps explain why the relationship between work schedule and health would be different across marital status. Marriage provides entrance into the social networks of one's spouse's family and friends. In his study of suicide, Durkheim ([1897] 1951) found that married individuals were less likely to commit suicide than those who were never married. Later work by Seeman (1996) found that individuals who were more greatly integrated into society had reduced mortality rates. These results emphasized the

importance of social integration in contributing to health as well as the harmful consequences of social isolation.

Berkman and colleagues (2000) provide a model of social networks and how they impact health that builds off of Durkheim's social integration ideas. The social integration that accompanies marital networks demonstrates the routes through which relationships influence health. Given that married individuals are in a legally-bound partnership that can keep them more socially connected, they may enjoy better health than their unmarried peers. Marriage functions as a mechanism for integration, and its widespread occurrence encourages beneficial health behaviors and deters harmful ones (House, Landis, and Umberson 1988; Umberson 1987). Hence, among nonstandard workers, married people will be healthier than all other marital status groups.

Additional theories about marriage and health further explain why various marital statuses would have different health outcomes among nonstandard workers. Social control theory links social integration to well-being (Umberson 1987). The greater amount of social support gained in marriage is beneficial to health because of the increased amount of social control of health behaviors (Umberson 1992). In general, married individuals have the lowest mortality rates of all the marital statuses and enjoy better health (Ross et al. 1990; Waite and Gallagher 2000). The related marital protection hypothesis argues that the institution of marriage is a protective one in that it causes healthier behavior that fosters better overall well-being (Waite and Gallagher 2000). This social causation model is useful in explaining the relationship between work schedule and health across marital statuses because it contends that employment improves health (Ross and Mirowsky 1995). The benefit that social ties have on well-being is applicable to work schedule and is displayed differently across marital status. This investigation draws upon

social integration, social control theory, and the marital causation model to predict that the integration benefits gained in marriage promote better health for spouses than all their unmarried peers when both groups are employed in nonstandard work schedules.

Work Schedule and Health

Many studies document that paid employment is positively associated with better health for both men and women (Bartley, Popay, and Plewis 1992; Bird and Fremont 1991; Repetti, Matthews, and Waldron 1989; Ross and Mirowsky 1995; Springer 2010). While full-time workers are healthier than part time workers, individuals who are unemployed report the worst health (Ross and Mirowsky 1995; Kaleta, Makowiec-Dabrowska, and Jegier 2008). The health benefits that come from employment can vary on how job demands interact with an employee's family life and work preferences. For instance, women's education and employment have increased over the past decades, contributing to their work time and detracting from time they may have previously spent caring for children. However, Schnittker (2007) found that any stress incurred from trying to balance work and family duties does not have a significant effect on these mothers' health once their child reaches school-age. Although there are arguments about causality, as healthy workers could be more likely to be and remain employed, there is strong evidence that being employed full-time fosters better worker health than part-time employment (Ross and Mirowsky 1995). This finding is in accordance with social causation theory and reflects health measured according to physical ability as well as self-reported.

Nonstandard Work Schedules and Health

Definitions of regular work schedules include those shifts that are recurrently scheduled from Monday through Friday, generally between the hours of 6 a.m. and 6 p.m. (Enchautegui 2013; McMenamin 2007; Presser and Ward 2011). Yet economic and demographic changes in

the United States, as well as advances in technology, contribute to the increase of work schedules that occur outside of these standards (Presser 1995). Such nonstandard work schedules are those that include night or evening shifts, rotating schedules, and weekend work (Presser 2003a; Presser and Ward 2011). Workers employed with these schedules choose to do so for a variety of reasons, making nonstandard workers largely a self-selected population (Davis, Goodman, Pirretti and Almeida 2008; Harrington 2001). There are employees who primarily work part-time and use the nonstandard shift to balance childcare responsibilities (McMenamin 2007; Presser 2003; Wight, Raley, and Bianchi 2008). Students represent a sizeable number of nonstandard workers, and many select these shifts to accommodate their class schedule (McMenamin 2007; Presser et al. 2008). A minority of workers indicate that they prefer shift work because of wage benefits, although a comparison of jobs with similar characteristics shows that standard work schedules yield better pay (Kalleberg et al. 1997; McMenamin 2007). Economic changes demand for businesses to remain open or services to be available outside the standard work hours. Therefore, workers in these industries, such as food service, entertainment, or transportation, report that they engage in nonstandard work schedules because it is the requirement of their job rather than being their choice (McMenamin 2007; Presser 1995).

Studies that investigate how nonstandard work schedules are related to health report a variety of results. There is strong evidence that working a nonstandard schedule has negative effects on health (Costa 1996; Fenwick and Tausig 2001; Geiger-Brown et al. 2012; Gordon et al. 1986; Kleiner and Pavalko; Mellor 1986; Presser 2003a). This happens in part because shift work may not have the same benefits of regular, full-time employment (Ross and Mirowsky 1995). For example, nonstandard work shifts likely result in decreased provision of health insurance and lower wages, plus the jobs demanding irregular schedules are often of lower

quality (Enchautegui 2013; Kalleberg et al. 1997).These negative characteristics can lead to health behaviors that have physical and mental health consequences.

Nonstandard schedules are associated with poor health behaviors. This is partially due to the nature of nonstandard work because it leads to schedules that are irregular or hours that are longer than standard schedules (Costa 1996). The variability of sleep cycle is disruptive to the body's circadian rhythm, and this contributes to gastrointestinal complications, body temperature deregulation, and hormone imbalances (Presser 1999; Presser et al. 2008). In terms of mental health, employees that have more choice over their work schedule can feel more encouragement and pride toward their work (Harrington 2001). Workers with nonstandard shifts, however, experience negative health effects because they lack control over their work schedule (Fenwick and Tausig 2001). Part-time work leaves workers with less job satisfaction, displeasure from having little control over their variable shifts, and discontentment with their changing work hours (Kleiner and Pavalko 2010). These outcomes foster lower mental well-being which can contribute to inferior overall health for nonstandard workers. Working nonstandard hours clearly does not facilitate a healthy lifestyle.

Different international studies report similar results for the effects of nonstandard work schedule on health. In an examination of Japanese workers, Nakata (2012) found that employees who worked more than eight hours a day reported poorer health, and the main association between the extra hours and poor health was lack of sleep. A study of Finnish nurses revealed that those who worked nonstandard shifts had higher rates of smoking and obesity than those who worked standard shifts, and the authors reported that their findings parallel the health behaviors of nurses in the United States (Kivimaki et al 2001). To my knowledge, however, no

studies have been conducted using data from U.S. samples to determine the effect of nonstandard work schedules on self-reported health. Taken together, I expect that:

Hypothesis 1: Individuals who work a nonstandard work schedule will report lower self-rated health than those who work a standard work schedule.

Nonstandard Work and Health across Marital Status

Studies about nonstandard work schedules more often explore the descriptive characteristics of these employees rather than focus on how the abnormal scheduling is linked to other variables (Presser 2003a). Because of this, it is less clear whether the effect of nonstandard work on health varies across marital status. Health can be influenced by a variety of biological factors, as mentioned above, as well as social factors. Marital status is one of the most important social factors that is suggested to provide a variety of health benefits. Marriage presumes a long-term commitment that allows partners to plan for the future, it allows spouses to combine their resources, and it fosters integration with other social groups—all of these promote better health (Waite 1995). A range of empirical evidence supports this view which suggests that marriage is positively related to health and is protective against mortality (Gove 1973; Hemstrom 1996; Umberson 1987).

I expect that the relationship between nonstandard work schedule and health can vary by marital status, with shift work in particular being linked to worse health more so for the unmarried than the married. Both theory and previous findings support this anticipated result. As previously mentioned, workers with nonstandard schedules can be less regulated, which may leave them feeling less integrated in their workplace (Durkheim [1894] 1997, Kleiner and Pavalko 2010). The workplace is one setting that facilitates social networks. These networks are important for health because they can provide social support, influence, or access to resources

that could benefit one's well-being (Berkman et al. 2000). Similarly, social integration is an important component gained from marriage, and Umberson (1987) theorizes that unmarried people have higher rates of mortality because they have less social integration and support than their married peers. Both social integration and social control help explain different health outcomes in workplace and marital settings.

The combination of theoretical arguments that contribute to the assumption that the relationship between nonstandard work and health is different for married and unmarried individuals is supported by specific health outcomes found in literature on both marriage and work schedule. First, workers with nonstandard schedules have higher rates of cardiovascular disease than standard shift workers (Presser 2003a). This ailment is also more common among divorced and widowed people, as they have higher death rates from heart disease than married people (Ross et al. 1990). The marital protection model explains that the married relationship guards against poor health. Even though nonstandard shift workers may have a greater risk of contracting cardiovascular disease, married nonstandard shift workers may be more protected from unhealthy outcomes because of the support and influence marriage provides (Berkman et al. 2000; Waite and Gallagher 2000; Umberson 1987).

Likewise, there is more variability in the sleep schedules of nonstandard shift workers than standard shift workers (Presser 1999; Presser et al. 2008). Married and unmarried shift workers experience sleep irregularity, but social control theory hypothesizes that marriage will encourage better health behaviors (Umberson 1987). It follows that married shift workers may be influenced or supported by their spouse to adopt a better sleep cycle than an unmarried shift worker living without a spouse to encourage such beneficial behavior.

Furthermore, nonstandard workers have worse mental health with regard to stress and emotional problems (Fenwick and Tausig 2001; Gordon et al. 1986; Kleiner and Pavalko 2010). Various marital statuses may present differences among these workers' psychological outcomes because married people are healthier in part due to living with another person and gaining emotional support (Ross et al. 1990). This explanation follows the marital protection model.

Finally, shift work can be detrimental for marriage, as employees doing shift work report less balance between work and family life (Tausig and Fenwick 2001). Individuals working nonstandard shifts have higher rates of divorce (White and Keith 1990). For men, nonstandard shift work lowered marital quality, and female nonstandard workers also experienced a decrease due to time constraints between work and home duties (Maume and Sebastian 2012). Given these findings, I expect that:

Hypothesis 2: The effect that work schedule has on self-rated health is stronger among the married than the unmarried.

Gender Differences in the Relationships between Work Schedule, Marital Status and Health

The prevalence of nonstandard work schedules vary by gender. A disproportionate amount of women work these schedules because they are concentrated in jobs that more greatly require working nonstandard hours, such as nursing or home healthcare, cashier, or sales (Presser 1999). The concentration of women in service rather than production sector jobs is common across industrialized economies, and this may also be because these jobs are less desirable and fall to women with limited job options (Presser, Gornick, and Parashar 2008). It is additionally more frequent for men to work full-time jobs while women work more part-time, often nonstandard, jobs (Presser et al. 2008; Zeytinoglue and Muteshi 2000).

The relationship between marital status and health also varies by gender. The health benefit in marriage is stronger for men than women (Lillard and Waite 1995; Umberson 1987). This is because prior to marriage, men's lifestyles are more detrimental to their health while women's involve less health risks to begin with (Umberson 1987). Individuals who are married report better well-being in terms of both physical and psychological measures (Ross et al. 1990). Living with one's spouse is beneficial for married people's health, and married individuals also receive greater emotional and economic support (Umberson 1987; Ross et al. 1990; Waite and Gallagher 2000). Women who are married report a greater improvement in their health compared to those who are widowed, separated, or divorced (Liu and Umberson 2008). This is largely due to the increased financial reward that marriage brings (Lillard and Waite 1995). While the self-assessed health of unmarried individuals has improved in recent years, married people still have comparably better health, and this relationship is different for men and women (Liu and Umberson 2008). Additionally, because women more often engage in relationships with family or friends, married men reap benefits from this increased social integration compared to unmarried men (Lillard and Waite 1995).

I expect the relationship between work schedule and health that varies across marital status will be different for men and women. Because gender is an essential piece in the literature on marriage and health and women are more likely to work nonstandard schedules, I anticipate that stratifying the analysis by gender will demonstrate that the effect marital status has on the relationship between work schedule and health will be a particular concern for women. This leads to my third hypothesis:

Hypothesis 3. The moderating effect that marital status has for work schedule on self-rated health will be stronger for women than for men.

Other Covariates Related to Work Schedules and Health

Previous studies consistently demonstrate the demographics of individuals who are most likely to have a nonstandard work. There are differences with regard to age, race, gender, and education. Age is an important factor because many of these workers are younger, and they are often college students balancing a job outside of the standard school hours (Wight et al. 2008). Younger people may have less age-related health problems, so accounting for age is an important consideration. Gender and race differences are also present between standard and nonstandard workers. Although women are more concentrated in nonstandard shifts, male workers outnumber female workers in such jobs, and Black workers are more likely than White workers to be employed in these shifts (McMenamin 2007; Presser 2003, 2001; Wight et al. 2008). Individuals who identify as Hispanic or of some other race are also more present in nonstandard jobs than White workers (Presser 2003). Finally, people who are less educated are more likely to work outside of the regular hours (McMenamin 2007; Presser and Cain 1983). A link between education and health exists, and individuals with greater education attainment report better health (Ross and Wu 1995). Thus, nonstandard shift workers are more likely to be young, Black, and male, have low education levels, and work part-time in service sector jobs.

Family income, having children, and self-employment also play a role in who works a nonstandard schedule. The majority of all nonstandard workers come from low-income households (Enchauegui 2013). Low-income shift workers are often employed in low-skilled service industry jobs that can be detrimental to health. Self-employment is another considerable factor in this instance because many self-employed individuals work nonstandard shifts. However, as owners of their business, they have a greater interest in performing this work outside of the regular work time because they will gain greater economic rewards (Presser 1995).

Their health may not suffer as much as an individual working a nonstandard shift for a company they do not own. Having children also affects a parent's work schedule decision, particularly because childcare options are limited for working parents and nonstandard employment hours limit the time parents spend with their children (Presser et al. 2008). Childcare for single, nonstandard-scheduled parents is especially difficult, and this may be more pronounced among women because of their concentration in nonstandard jobs (Presser 1999). Accounting for these variables is important when examining relationships between work schedule and health.

METHOD

Data and Sample

This study analyzes data from the National Study of the Changing Workforce (NSCW), a nationally representative sample collected by the Families and Work Institute since 1992 (Families and Work Institute 2004). A cross-sectional analysis was conducted using data from the 2002 and 2008 surveys. Only these years could be used due to limited availability of the self-reported health variable. The two surveys were pooled to increase sample size. Given the NSCW collection of detailed information regarding the work and personal lives of U.S. employees, particularly of both varying work schedules and personal health measures, the dataset is ideal for testing the hypotheses. The key variables used, self-reported health, work schedule, and marital status, adequately provide information to depict difference in the effect of nonstandard work schedule on self-reported health across marital status groups.

This study was specifically interested in individuals who were working either standard or nonstandard shifts. Respondents who indicated that they were working some other schedule, did not know what their schedule was, or refused to answer were therefore excluded from the sample. Additionally, many of the covariates were categorical variables, and some had a minimal

percent of missing cases. Missing information for these variables, which included self-rated health, marital status, self-employment status, race, and parental status, was dropped. The age and family income variables had larger numbers of missing cases, about 1% and 8% of the sample, respectively. Rather than dropping these respondents, I imputed the missing value for age based on the other covariates, and I imputed family income per year at the mean. The final sample size was 6,774 respondents, with 3.31% of the original sample was lost due to the previously stated reasons.

Measures

Self-rated health is the dependent variable. Respondents could select from four different categories to rank their current health, and these were recoded to reflect the worst to best ratings: poor, fair, good, or excellent.

Work schedule is the main independent variable. It is measured dichotomously, with individuals who reported working a regular daytime schedule having a standard schedule and respondents who worked any shift other than that having a nonstandard schedule. This nonstandard schedule was composed of a number of shifts, including regular evening, night or rotating shifts, a split shift, or having a variable on call schedule.

Marital status is included as a moderating variable. It is composed of five categories that reflect the respondent's current marital status: married, cohabiting, single and never married, divorced or separated, and widowed. Individuals that are widowed or divorced or separated are not cohabiting with a partner.

Additional demographic and socioeconomic variables are included to control for any effect they may have on the main relationship. Race is categorized into three groups, White, Black or African American, and other race. Education refers to the respondent's highest level of

education achieved. It is broken into three categories, those with a high school diploma or below, those with some college education, and those with a college degree or beyond (this includes an Associate's degree). Age is a continuous variable, ranging from 18 to 99 years. Family income was divided into quintiles that distributed the total sample into fairly equal groups. The lowest quintile represented families whose yearly income was $32,000 or less, the next quintile was those with $32,001 to $54,000, the following group had incomes between $54,001 and $80,000, the penultimate group represented individuals whose family income ranged from $80,001 to $100,000, and the final group's income was $100,001 or more. Measures for self-employment and parental status were included as well. Self-employment simply coded respondents dichotomously as being self-employed or not, and parental status categorized respondents as either being a parent or guardian of any person or not.

Statistical Methods

The relationships between self-reported health, nonstandard work schedule, and marital status are analyzed using ordinal logistic regression. Ordinal logistic regression is ideal to analyze ordinal level dependent variables such as self-rated health. The model is estimated by maximum likelihood estimator methods (MLE). MLE is used to find the parameter values that make the sample most likely to maximize the log of the likelihood function (Hamilton 1992). This method compares the odds of an outcome being in a higher rather than a lower category by grouping the outcome categories differently. For example, the present analysis compares those with poor health to those with fair, good and excellent health, those with poor and fair health to those with good and excellent health, and those with poor, fair, and good health to those with excellent health.

There are three nested models used to test the hypotheses. The first model measures the effect of nonstandard work schedule on self-rated health without controlling for demographic or socioeconomic variables. The second model includes the demographic and socioeconomic control variables. The third model tests the second hypothesis, which predicts that the effect on nonstandard work schedules on self-rated health varies by marital status. Interaction variables for marital status by work schedule are added to the analysis. The log likelihood ratio test is used to compare the two nested models to determine if the added variables allowed the current model to explain more than the previous model. The likelihood ratio test indicated that each of the new models were significantly better than the earlier one. The final analysis stratifies these models by gender to test the third hypothesis.

RESULTS

Descriptive Statistics of Study Sample

Table 1 lists descriptive statistics that reflect the pooled and cleaned dataset. Categories that were used as a reference in the analyses are identified. The data describes the sample as being majorly composed of white, college-educated parents with an average age of about 45. There are more women than men in the sample and a good amount of the respondents are financially well-off, with about 40% having yearly family incomes above $80,000. A minority of respondents are self-employed, and about a quarter work nonstandard schedules. Most respondents indicate that they have good or excellent health, and the better part of the sample is currently married.

[Table 1 about here]

Ordinal Logistic Regression Results

Table 2 shows the estimated odds ratio of work schedule on self-rated health from ordinal logistic regression models. The results in Model 1 of Table 2 indicate that the predicted odds of reporting better health is 10.3% lower for individuals who work nonstandard schedules than those who work standard shifts. The main effects for marital status on health are supported by previous literature documenting marriage's health benefits. Respondents who are cohabiting, divorced or separated, and widowed have a significantly lower odds of reporting good health compared to married respondents.

Model 2 of Table 2 suggests that these relationships remain generally significant when the demographic and socioeconomic variables are added, although the relationship for widowed respondents reporting worse health than married respondents becomes insignificant. Results from Model 2 also suggest that men more than women and whites more than blacks have significantly higher odds of reporting better health. Furthermore, as respondents get older, their odds of reporting better health decreases. Given the link between socioeconomic status and well-being, it is not surprising that respondents with a college degree report better health and that respondents in the lowest quintile of yearly family income report worse health. Finally, those who are self-employed or parents have lower predicted odds of reporting better health than those who are not self-employed or child free. These results are in accordance with previous literature's findings.

Model 3 tests the second hypothesis by including interaction terms between marital status and work schedule. The significant interaction terms in Model 3 show that the relationship between work schedule and health varies by marital status. Although the effect of nonstandard work schedule on health is not significant among the married (indicated by the nonsignificant main effect of work schedule), this effect tends to be negative among the cohabiting and

divorced/separated (indicated by the significant interaction effects). The odds of reporting better health is 34.7% (i.e., (1-0.994*0.657)*100) lower for cohabiting nonstandard workers than cohabiting standard workers. Similarly, the odds of reporting better health are 36.4% (i.e., (1-0.994*0.640)*100) lower for nonstandard workers who are divorced or separated than their standard working counterparts. These results also suggest that the relationship between nonstandard work schedule and health is not significantly different between the single/widowed and the married.

[Table 2 about here]

To test my third hypothesis, I separate the analysis by men and women in Table 3 to determine if the moderating effect marital status has on the relationship between work schedule and health are of greater concern for women. The results suggest that among men, there are no significant interaction relationships. This means that male, unmarried nonstandard shift workers have the same odds of reporting better health as their married counterparts. There is also no evidence that work schedule affects men's health. Only the main effect for men who are widowed remained a significant predictor of reporting worse health across all the models. This finding is supported in the literature; for men in particular, entering widowhood also means losing the health protections marriage provides and increases their mortality risk (Waite and Gallagher 2000). Although the link between work schedule and health does not seem to be influenced by men's marital status, there is a significant effect among women. Working a nonstandard shift is worse for the health of divorced or separated women than married women. The odds of reporting better health is 32.7% (i.e., (1-1.092*0.616)*100) lower for divorced or separated female nonstandard workers than divorced or separated female standard workers.

[Table 3 about here]

DISCUSSION

Considering both previous findings and theoretical perspectives, I predicted that nonstandard work schedules would have a negative impact on a worker's reported health. Because marital status influences health in a diversity of ways, I anticipated that the relationship between work schedule and self-rated health would vary by marital status. I further predicted that the effect of this moderating relationship would be stronger for women than for men due to the gender differences that exist for work schedules and marital status. The results indicate support for all of these hypotheses.

The first finding, that individuals who work nonstandard schedules have lower odds of reporting good health, is consistent with previous literature. The harm that these irregular shifts have on workers' health can manifest as biological, psychological, and behavioral consequences. For example, poor quality sleep can contribute to ill health, and employees working nonstandard hours have disrupted sleep schedules (Chung et al. 2009; Geiger-Brown et al. 2012; Presser 2003a). Women working nonstandard shifts have higher sleeping pill use than those working regular shifts, and both men and women employed in shift work have increased alcohol use (Gordon et al. 1986). The disrupted sleep schedules that nonstandard workers experience can cause changes to their circadian rhythm, which can upset hormone levels and body temperature (Preser 2003a). Workers that do not have regular schedules are at greater risk of being obese (Keliner and Pavalko 2010). Nonstandard shift workers can also experience more serious health effects, as they are at a greater risk of having cardiovascular health problems (Harrington 2001; Presser 2003a). Female shift workers have a larger chance of contracting breast cancer as well as experiencing menstrual cycle disruptions (Chung et al. 2009). Shift workers' mental health is also at risk, and both male and female workers report that their nonstandard job gives them greater stress, and that lack of continuity in their shifts causes emotional problems (Gordon et al.

1986). Obviously the work one does will influence their health, but as the data shows and previous literature corroborates, nonstandard shift workers risk a greater health disadvantage than their counterparts working standard shifts.

My second finding is that the relationship between work schedule and health does depend on marital status. The results indicate that nonstandard workers who are cohabiting and divorced or separated are less likely to report good health than married workers. This relationship was anticipated, given the superior health status of married people (Lillard and Waite 1995; Umberson 1987; Waite and Gallagher 2000). Social control theory provides an explanation for the marital benefits in health. For instance, individuals who are pre- or post-marriage engage in more risky behaviors. Divorced people have a greater likelihood for smoking, drinking, fighting, and substance use, but for both men and women who enter into marriage, this risky behavior subsides (Umberson 1987; Waite and Gallagher 2000). In accordance with the marital causation hypothesis, people who are divorced, widowed, or single are additionally at greater risk than married people of dying from various health problems, ranging from cardiovascular disease to cancer to murder and suicide (Waite and Gallagher 2000). A combination of the ways in which marriage protects health, from determining behavior to combining resources to expanding social integration, facilitates greater health benefits for married people (Lillard and Waite 1995).

The moderating effect of marital status is strong for divorced or separated nonstandard workers; these respondents have lower odds than cohabiters of being unhealthy compared to married workers. This greater impact is not surprising given the adverse effect marital dissolution can have on health. Williams and Umberson (2004) found that the better health of married persons is more the result of not experiencing marital dissolution rather than gaining health benefits from marriage. Individuals who go through divorce are more likely to engage in

activities that are harmful to their health, such as alcohol or drug abuse, and, along with widows, they are less likely to have a regular, daily schedule (Umberson 1987). People who are not married display more mental ailments, worse physical health conditions, and report lower levels of self-assessed health than their married counterparts (Ross et al. 1990).

The traditional marriage relationship is also changing. One example is the increased number of people who cohabit, either before marriage or in place of it, and this relationship has different health outcomes (Waite 1995). A recent study challenged the well-being benefit married people enjoyed over cohabiters. Although the authors found that both groups see relationship quality decrease over time, cohabitating was not as advantageous as being married (Musick and Bumpass 2012). The present study's results echo this finding. Cohabiters may reap more social support benefits from living together than divorced or separated people, but they still have lower odds of reporting better health than married people.

Finally, my third finding is that the effect that marital status has on the relationship between work schedule and self-rated health will be stronger for women than men. My results support this hypothesis. When stratified by gender, the moderating effect of marital status on the relationship between work schedule and health is only present among women; there is no marital status difference for men. Divorced or separated women working a nonstandard schedule are less likely to be healthy than married women. The presence of children is potentially a key factor to explain why the health of divorced or separated nonstandard working women is affected significantly more than other unmarried women. Having children affects a parents' decision to engage in a nonstandard work schedule. Female nonstandard shift workers frequently report that they do shift work due to childcare reasons (Presser 2003).

All parents working nonstandard schedules often put their own well-being in jeopardy because they are more likely to spend free time with their children rather than on themselves or their partner (Wight et al. 2008). If women working nonstandard shifts have children, it is likely they will experience more stress in finding childcare if they do not have a spouse to share this responsibility with. Conversely, for couples who work different shifts, fathers are primarily responsible for taking care of the children while mothers work (Presser 1999; Presser et al. 2008). Having an extra caregiver in the home promotes women in low-income households to work nonstandard shifts (Enchautegui 2013). The ability to rely on one's partner for childcare during nonstandard shift work is a more likely option for married than divorced or separated women, and having this additional stressful concern may lead to worse health for these women. Doing shift work is associated with greater positive well-being for parents who are married compared to their cohabiting counterparts (Liu, Wang, Keesler, and Schneider 2011). Additionally, the majority of nonstandard workers' salaries are below the middle of all workers' earnings, and low-income women with young children are more likely to work a nonstandard shift (Enchautegui 2013). The health of these poor women may suffer from inadequate healthcare or insurance, and this difference may be more greatly pronounced for unmarried women trying to support themselves with a single paycheck. For nonstandard workers, divorced or separated women's lower odds of being healthy could be due to the decreased social support that limits childcare help and better well-being.

There are limitations to this study, as well as future directions it can explore. First, this is a cross-sectional study, which prohibits the ability to study trends over time and investigate causation. This would be an important aspect to include in related studies, particularly because certain time-sensitive variables, such as how long an employee has worked a nonstandard

schedule or if a person has transitioned into or out of marriage, may be influential. There are also a variety of health behaviors that would be beneficial to include in this study, such as amount of exercise, smoking and drinking behavior, diet, or having preexisting health conditions. Nonstandard workers are a self-selective population, and controlling for these behaviors, which could be impacted by marriage as well, could help better explain shift workers health (Harrington 2001).

This study contributes to the literature by finding that the effect between work schedule and health is explained when marital status is included as a moderator. This result suggests that the dynamics between work and health go beyond a biological relationship. Instead, the social interaction and support gained from marriage provides health benefits or protections for nonstandard workers. The social support that cohabiting and divorced or separated individuals lose when they sever their union can be harmful for the health of nonstandard workers. This effect is significantly pronounced for divorced or separated women without standard work schedules. The demography, technology, and economic changes that moved the United States from a production to a service economy contributed to a rise in nonstandard work schedules (Presser 1999). As companies continue to hire workers to fill these less desirable shifts, they need to consider factors that will help protect their workers' well-being. Therefore, it is important to include marital status when examining how nonstandard works schedules influence health.

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Table 1. Descriptive Statistics of Variables (N=6774)			
	Percentage		Percentage
Self-reported health		Employment Type	
Poor (*ref*)	1.68	Self-employed (*ref*)	15.63
Fair	15.85	Not self-employed	84.37
Good	49.73	Education	
Excellent	32.73	College graduate (*ref*)	52.07
Work Schedule		Some College	22.35
Standard (*ref*)	72.41	HS diploma or less	25.58
Nonstandard	27.59	Parental Status	
Marital Status		Not a parent (*ref*)	34.84
Married (*ref*)	59.57	Parent	65.16
Cohabiting	6.20	Family Income	
Single, never married	15.63	$32,000 of less (*ref*)	20.74
Divorced/Separated	15.22	$32,001 - $54,000	19.40
Widowed	3.38	$54,001 - $80,000	21.69
Sex		$80,001 - $100,000	18.20
Male (*ref*)	45.78	$100,001 and higher	19.97
Female	54.22	Year	
Race		2002 (*ref*)	50.00
White (*ref*)	82.74	2008	50.00
Black	8.70	Age	
Other	8.56	Mean: 44.81	
		SD: 12.89	
Source: 2002 and 2008 National Study of the Changing Workforce			

Table 2. Odds Ratios of Ordinal Logistic Regression of Nonstandard Work on Self-Reported Health (N=6774)

	Model 1	Model 2	Model 3
Nonstandard Work Schedule (NSWS)	0.897*	0.898*	0.994
Cohabiting	0.688***	0.692***	0.789
Single, never married	0.894	0.935	0.921
Divorced/Separated	0.669***	0.848*	0.956
Widowed	0.640**	0.936	0.961
Cohabiting X NSWS			0.657*
Single X NSWS			1.018
Divorced/Separated X NSWS			0.640**
Widowed X NSWS			0.889
Female		0.878**	0.878**
Race: Black		0.776**	0.775**
Race: Other		0.876	0.876
Age		0.990***	0.990***
Education			
Some College		0.764***	0.760***
HS Diploma or less		0.648***	0.650***
Not self-employed		0.849*	0.859*
Is a parent		0.853**	0.855**
Family Income			
$32,300 - $54,000		1.207*	1.208*
$55,000 - $80,000		1.286**	1.295**
$81,000 - $100,000		1.576***	1.582***
$100,030 and higher		1.700***	1.711***
Year: 2008		0.729***	0.727***
Cut 1	68.738	160.742	153.393
Cut 2	5.490	12.515	11.917
Cut 3	0.559	1.197	1.135
AIC	14503.52	14295.74	14291.57
BIC	14558.09	14438.98	14462.09
LR Test prob>chi^2		0.000	0.0161

Source: 2002 and 2008 National Study of the Changing Workforce

****p<0.001 ** p<0.01, * p<0.05*

Table 3: Odds Ratios of Ordinal Logistic Regression of Nonstandard Work on Self-Reported Health by Gender

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Nonstandard Work Schedule	0.919	0.904	0.917	0.869*	0.894	1.092
Cohabiting	0.743*	0.744	0.870	0.654**	0.667**	0.755
Single, never married	1.031	1.000	0.890	0.787**	0.895	0.971
Divorced/Separated	0.736**	0.863	0.994	0.657***	0.842	0.951
Widowed	0.437**	0.562*	0.463*	0.731*	1.053	1.142
Cohabiting X NSWS†			0.626			0.640
Single X NSWS			1.372			0.747
Divorced/Separated X NSWS			0.624			0.616*
Widowed X NSWS			1.730			0.718
Race: Black		0.825	0.823		0.746**	0.747**
Race: Other		1.021	1.02		0.762*	0.765*
Age		0.988***	0.989***		0.992**	0.992**
Education						
Some College		0.689***	0.686***		0.819*	0.821*
HS Diploma or less		0.628***	0.631***		0.648***	0.651***
Not self-employed		0.843	0.853		0.852	0.868
Is a parent		0.852	0.849		0.880	0.880
Family Income						
$32,300 - $54,000		1.19	1.210		1.221*	1.210
$55,000 - $80,000		1.244	1.264		1.332**	1.342**
$81,000 - $100,000		1.461**	1.483**		1.689***	1.696***
$100,030 and higher		1.703***	1.728***		1.708***	1.732***
Year: 2008		0.640***	0.636***		0.811**	0.809**
Cut 1	0.014	0.005	0.005	0.016	0.008	0.009
Cut 2	0.170	0.063	0.066	0.193	0.110	0.118
Cut 3	1.745	0.702	0.795	1.840	1.112	1.195
Sample Size	3101	3101	3101	3673	3673	3673
AIC	6536.9	6435.6	6432.9	7962.7	7873.4	7873.4
BIC	6585.3	6556.4	6577.9	8012.3	7997.6	8022.4
LR Test prob>chi2		0.000	0.031		0.000	0.090

Source: 2002 and 2008 National Study of the Changing Workforce

****p<0.001, **p<0.01, *p<0.05; †NSWS = Nonstandard Work Schedule*