

Quantifying Gendered Differences in Invisible Labor:

Is She Just a Worried Wife, or Is She Picking Up Your Mental Load?

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Abstract:

There is increasing discourse in the literature and media on the greater mental load women take on in the running of a household than men. We use 2022 US General Social Survey data to test this theory by using self-reported worry as a proxy for mental load to quantify the gendered differences in mental load across married individuals. First we show that when controlling for share of conspicuous household work, women are more worried than men. Next, we control for various socioeconomic, demographic, and mental health indicators, and find that women are, on average, 7% more worried in their day-to-day lives than men.

Introduction

Women in relationships frequently take on many forms of invisible (and, thus, unpaid) labor within the household. As this labor is not always physical, there is increasing discussion in both the literature and media of the “mental load” these women take on in order to maintain the day-to-day functioning of the household. The most widely accepted definition of mental load refers to tasks that require forethought and anticipation of needs, such as meal planning, enrolling children in extracurriculars, remembering events and appointments, and creating trip itineraries. In essence, mental load refers to the non-physical “managing” of the household.

To understand the economic value of gendered differences of mental burden, we ask whether married women take on a greater proportion of the mental load than married men. Mental load is a latent variable, as it is not directly measurable. As such, we measure the mental load through a proxy: self-reported levels of worry when controlling for share of physical household labor. We start by showing that there is a baseline difference in worry levels based solely on gender, which is clearly subject to omitted variable bias. We then extend the model to show that, when controlling for work done in the household, women’s self-reported worriedness fails to become equal to that of men. We run this regression both with and without controls and observe that female worriedness levels are most significantly impacted by non-financial controls.

While this issue is acknowledged and discussed in fields such as the social and behavioral sciences, there is no existing measure to quantify mental load or its impact on mental health. Current literature explores the concept of mental load in a strictly descriptive sense, concluding that mental load exists within the context of household labor, but is perceived differently between partners (Daminger 2019; Horowitz 2015). While existing studies have attempted to measure cognitive load and other forms of invisible labor, all forms of current measurement are self-described and are subject to extraordinary levels of personal respondent bias (Ouweland et al 2021). As such, current literature fails to build causal models for the empirical measurement and prediction of an individual’s mental burden based on outside factors. The goal of this study is to develop a model to more accurately quantify mental load experienced by women in married relationships based on empirical data, as opposed to the theoretical and subjective measures used in current literature.

GSS Survey Data

We use cross-sectional survey data on individuals in the United States. This data is from the 2022 General Social Survey (GSS) through NORC at the University of Chicago. NORC is a non-partisan, non-governmental research agency. The GSS is a nationally representative survey conducted every other year, with topics of question including socioeconomics, race, government, family, and well-being, as well as including common demographic questions. The target population of the American GSS survey is the American adult population, and as such only targets individuals over the age of 18. The sample of respondents is limited to those who can complete the online or in-person survey questions in English or Spanish. We further limit the sample to married individuals, for comparison purposes.

The household sampling method employed is a multi-stage stratified quota sampling method. Households across the United States are stratified by region, age, and race. Those units are then stratified into smaller enumeration districts, and then stratified once again into smaller block groups. The block groups are then sampled proportionally, according to their size. For women, there must be an equal representation of employed and unemployed women. For men, there must be an equal representation of men under and over 35.

Once households are selected, the respondent is chosen from within the sampled households through a Kish grid. A person in the household notes the adults living in that household on a roster, unranked. The Kish grid is then used to randomly select a respondent. This method of selecting respondents eliminates bias by age, although the Kish grid fails to eliminate bias that individuals in larger households are less likely to be selected.

Table 1 is a table summary that indicates proportion differences by control variables between males and females. 46.2% of the survey respondents are male and 53.8% are female. The US Census Bureau (2023) has indicated that in 2020, the American population was 50.9% female and 49.1% male. Although there is a difference between males and females and men and women, we use these terms to mean the same gender identity since the GSS notes sex based on the respondents indication of their current identification.

41.7% of the respondents are married, as shown in Table 1. These married respondents are the observations we use to test whether there are gendered differences in worry. Although we use data from all marriages, 96.7% of those married in the sample are in heterosexual marriages.

The variable divorced or separated is only asked of married individuals, so 27.6% of married adults in this sample have been married at least once before.

Simple Linear Regression

We use a simple linear regression of worry on gender as a baseline to test whether there are generalized gender differences in overall worry:

$$worry_i = \beta_0 + \beta_1 fem_indicator_i + X_p \Gamma + u_i,$$

where *worry* is the i^{th} respondent's self-reported overall worriedness. The respondent is asked to rate how much time they spend worrying on a scale from 1 to 4, of increasing time spent worrying. *fem_indicator* notes the respondent's gender, and is turned on when they identify as a female. We use a matrix of GSS post-stratification weights, represented by $X_p \Gamma$. This is used in all regressions in order to control for population, given that the design of the survey uses a two-stage sub-sampling method for non-respondent households. We use robust standard errors to account for heteroscedasticity in the range of worriedness between men and women.

We can assume that the respondents are independently and identically distributed given that the stratified sampling method for selecting households is unbiased. Further, the respondents within selected households are selected using a Kish grid for random selection so the individual respondents are I.I.D, with outliers unlikely. Table 1 indicates that there is variation in the independent variable, as the proportion of women versus men is 53.8% to 46.2%, respectively.

In this simple regression with 852 observations, the estimated coefficient is 0.234 (Table 2, column (1)), indicating that women are, on average, 5.855% more worried overall than men. This estimate is significant at all conventional levels, but this regression is not a good proxy for mental load. It is likely that worry is biased towards zero from random noise given that life is a gendered experience, and women may worry more due to societal pressures or safety concerns.

Multiple Linear Regressions

A. Single Control Model

We extend on our simple linear regression in three ways. We first add the respondent's perceived share of household work as a control variable to the original regression model, creating a new model to measure mental load through the proxy variable worry as follows:

$$worry_i = \beta_0 + \beta_1 fem_indicator_i + \beta_2 sharehhw_i + X_p \Gamma + u_i,$$

where *sharehhw* is the i^{th} respondent's self-reported perception of how equally the burden of household labor is distributed with their partner. The respondent is asked to rate what scenario applies best to the sharing of household work from 1 to 5, with 1 representing the respondent doing far more than their fair share, and 5 representing the respondent doing far less than their fair share. All assumptions in the simple model are held in the first extended model, and robust standard errors are used.

This regression is noted in column 2 of Table 2. The estimated coefficient for this model is 0.2986, indicating that women are, on average, 7.465% more worried than men when controlling for perceived share of work undertaken within the household. This estimate is significant at all conventional levels and is a better proxy for mental load differences. We believe that an increase in self-reported worriedness experienced by married women even when accounting for perceived share of household work represents the invisible mental load responsible for the differences in worry reported between men and women. However, people experience many other sources of worry beyond what is captured in this model. It may be the case that worry is still biased towards zero in this model, given that factors influencing worry and worry may not be limited to household labor alone.

B. Comprehensive Controls Model

In order to account for other factors that may influence a person's overall worriedness, we control for various socioeconomic, demographic, and mental health indicators. The model containing comprehensive controls is as follows:

$$worry_i = \beta_0 + \beta_1 fem_indicator_i + \beta_2 sharehhw_i + \beta_3 hapmar_i + \beta_4 realinc_i + \beta_5 realrinc_i + \beta_6 SEI_i + \beta_7 satjob_i + \beta_8 satfin_i + \beta_9 polviews_i + \beta_{10} div_indicator_i + \beta_{11} age_i + X_p \Gamma + u_i.$$

In this model, *hapmar* is the i^{th} respondent's self-reported satisfaction in their marriage on a 3-point scale with 1 being very happy and 3 being not too happy; *realinc* is the i^{th} respondent's family income in constant dollars (base=1986); *realrinc* is the i^{th} respondent's income in constant dollars (base=1986); *SEI* is the i^{th} respondent's socioeconomic index (using 2010 Census categories); *satjob* is the i^{th} respondent's self-reported satisfaction with their day job on a

4-point scale, decreasing satisfaction; *satfin* is the i^{th} respondent's satisfaction with their present financial situation on a 3-point scale, decreasing satisfaction; *polviews* is the i^{th} respondent's self-reported placement on a 7-point ideological scale, with 1 being extremely liberal and 7 being extremely conservative; *divorced* represents if the currently married respondent has ever been divorced prior to their current relationship; and *age* is the i^{th} respondent's age in years, 18 and older. These controls are important to include because they theoretically account for a vast number of stressors that may influence mental load outside of gender and household work alone, and are therefore included to mitigate omitted variable bias. All assumptions in the simple model are held in the comprehensive extended model, and robust standard errors are used. The use of interaction terms or logarithmic models beyond the linear regression was not deemed necessary for the purposes of this study since all variables exhibited approximately homoscedastic distribution around the observed X values.

The coefficient estimates for all the controls are noted in column 3 of Table 2. The estimated coefficient for the association of gender on worriedness using the comprehensive model is 0.2317. This indicates that women are, on average, 5.793% more worried than men, and therefore experiencing that degree of increased mental load, even when accounting for comprehensive socioeconomic and mental health controls. With an indicated p-value of 0.072, this estimate is only significant at a 10% significance level and is therefore a weaker model when compared to Model A which is significant at the 1% significance level, meaning that some included variables in Model B are not good predictors of the mental load.

C. Significant Controls Simplified Model

As reported in Table 2, all financial coefficients in Model B are statistically insignificant along with history of divorce and political views. We found this interesting, and dropped these controls not relating to present personal, non-financial circumstances to create a final model while retaining *sharehww* to continue using self-reported worriedness as a proxy for mental load. Divorce relates to the respondent's past circumstances, and political views are more related to their upbringing and can differ within a relationship. The simplified MLR model is as follows:

$$worry_i = \beta_0 + \beta_1 fem_indicator_i + \beta_2 sharehww_i + \beta_3 hapmar_i + \beta_7 satjob_i + \beta_{11} age_i + X_p \Gamma + u_i,$$

where only *hapmar*, *satjob*, and *age* are retained from Model B. All assumptions made in the simple model are held in the simplified extended model, and robust standard errors are used.

In the simplified multiple regression containing 273 observations, the estimated coefficient is 0.2765 (Table 2, column 4)), indicating that women are, on average, 6.913% more worried than men when accounting for the respondent's self-reported: happiness in marriage, perception of share of household work, job satisfaction, and age. This result is statistically significant at the 10%, 5% and 1% significance levels.

Limitations of Results

Omitted Variable Bias

The primary limitation of this study is a possible problem with the specification of mental load. Our definition and measurement of mental load is a theoretical attempt to quantify mental load empirically; we measure mental load by assigning its influence to omitted variable influence on the difference in self-reported worriedness experienced between men and women. Future studies must find more objective measures of mental load. Further, in considering mental load to be the sole source of omitted variable bias, we aren't able to control for other innately gendered experiences that may influence worry that are unrelated to mental load.

Another limitation of this study is that perceived share of household labor is potentially a poor control variable. According to Pew Research Centre, mothers are more likely to perceive an unequal division of household labor in families where both parents work outside the home full-time (Horowitz 2015). Therefore, perceived share of household labor may be biased, as fathers may be more likely to overestimate their household contribution. Additionally, mothers may underestimate male household contribution. In both cases, these subjective estimations may lead to a biased coefficient on the female indicator for worry.

Interpretability and Validity

Our model cannot claim causality between worry levels and gender as it only uses one set of observational data. Further research should compare unmarried and married women to determine if there is a causal effect of marriage on mental strain. Further regressions should be run to determine if the causal effect of marriage is different for men and women.

Limited threats to internal validity exist as the data meets all assumptions and analyzes a large sample size. However, internal validity is threatened to a degree as there are limited variables measuring mental load and time use of respondents directly. Future studies would need to compare this data to data from different time periods in order to confirm the validity of the design, methods, and analysis using this study's proposed model. Further, future studies should utilize time use data in order to make causal claims and identify precisely the varying components of mental load.

External validity for this model is limited. The data used only samples Americans, and the cultural effect of gendered differences on mental load is likely strong. As such, to increase external validity of the findings, the regressions should be run with variation in country to account for cultural differences.

Conclusion

Being a woman in a marriage is significantly associated with experiencing higher levels of worry compared to being a married man, even when controlling for happiness within marriage, perceived share of household work undertaken, happiness with one's job, and age.

We associate this difference in self-reported worriedness levels to be an indicator for the increased undertaking of mental load by married women within their households. No financial variables had significant impact on worry, which we found to be surprising. We assumed that financial status or stability would have a significant effect on how worried a woman may be within a relationship, as financial status may relate to levels of administrative duties required for the functioning of a household (outsourcing of household tasks). Dropping these financial variables made the model far more significant and increased the coefficient on the female indicator, showing that household finances don't predict the burden of the mental load. This makes sense considering that all other variables are related to respondent perceptions of labor satisfaction and equality within the household, showing that mental load is related more heavily to unpaid labor and management-related tasks that occur regardless of financial circumstance.

Areas for future research include the integration of time-use data into our models for more accurate and empirical measure of time spent on household management that may contribute to differences in mental load experienced by men and women in married relationships.

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APPENDIX

Table 1. Descriptive Summary Statistics

	Total	Men	Women
N	3,498	1,617 (46.2%)	1,881 (53.8%)
Age of Respondent	49.325 (17.937)	49.530 (17.694)	49.147 (18.147)
Marital Status			
Married	1,452 (41.7%)	748 (46.4%)	704 (37.6%)
Widowed	254 (7.3%)	74 (4.6%)	180 (9.6%)
Divorced	601 (17.3%)	233 (14.4%)	368 (19.7%)
Separated	101 (2.9%)	42 (2.6%)	59 (3.2%)
Never Married	1,075 (30.9%)	516 (32.0%)	559 (29.9%)
Marital Type			
Man & Woman	682 (96.7%)	363 (97.6%)	319 (95.8%)
Same Gender	3 (0.4%)	0 (0.0%)	3 (0.9%)
Not Sure	20 (2.8%)	9 (2.4%)	11 (3.3%)
Total Family Income (1986 dollars)	39,069.89 (40,489.25)	42,685.60 (42,312.53)	35,926.18 (38,572.81)
Respondent's Income (1986 dollars)	29,526.67 (33,330.96)	35,251.71 (37,948.10)	29,526.67 (27,105.37)
Political Views			
Extremely Liberal	180 (5.3%)	79 (5.0%)	101 (5.6%)
Liberal	481 (14.2%)	183 (11.7%)	298 (16.5%)
Slightly Liberal	392 (11.6%)	181 (11.6%)	211 (11.6%)
Moderate	1,234 (36.5%)	539 (34.4%)	695 (38.3%)
Slightly Conservative	428 (12.7%)	234 (14.9%)	194 (10.7%)
Conservative	511 (15.1%)	275 (17.6%)	236 (13.0%)
Extremely Conservative	156 (4.6%)	75 (4.8%)	81 (4.5%)
Ever Been Divorced or Separated (of married respondents)			
Yes	470 (27.6%)	221 (27.0%)	249 (28.2%)
No	1,231 (72.4%)	598 (73.0%)	633 (71.8%)

Notes. Data are from the 2022 US GSS through NORC at the University of Chicago. Observations for Men and Women are determined by the variable SEXNOW1, which codes the respondent's sex as their self-identified gender.

Table 2. Regression Results

	(1)	(2)	(3)	(4)
fem_indicator	0.2342*** (0.0555)	0.2986*** (0.1063)	0.2317* (0.1284)	0.2765*** (0.1057)
sharehhw		0.0723 (0.0545)	0.0662 (0.0653)	0.0745 (0.0542)
hapmar			0.1786* (0.1010)	0.2804*** (0.0931)
realinc			0.000 (0.000)	
realrinc			0.000 (0.000)	
SEI			0.0002 (0.0026)	
satjob			0.1508** (0.0765)	0.1709** (0.0664)
satfin			0.0900 (0.0908)	
polviews			-0.0535 (0.0348)	
div_indicator			0.2073 (0.1362)	
age			-0.0082* (0.0279)	-0.0084** (0.0041)
Stratification Controls	Yes	Yes	Yes	Yes

Notes. Data are from the 2022 US GSS through NORC at the University of Chicago. Standard errors are robust to account for heteroscedasticity between men and women. Regressions control for population differences and are weighted according to sampling proportion to account for differences when sub-sampling nonresponsive households. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.