Work Stress*

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Abstract

This paper discusses data from some survey, which can gather data that is linked to how people face work stress. It uses uses the original data from the survey which determines the relationships between respondent work stress levels by satisfaction, status, sectors, and work time. There will be some strong connections between the analysis and figures of the work stress. This paper will provide a strong analysis about the work stress that people are facing.

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1 Introduction

Work is the most common cause of many people to get stress. Work stress can be found in many forms for people. In this paper, we will examine job status, work hours, industry sector, satisfaction rate of your job into the correlation of work stress levels. There will be context that will motivate such as the data that is representing the factors of work stress and how people feel based on the real dataset. There are many analysis to talk about relevant to work stress, that can later conclude the next steps that workplace should consider to reduce work stress for many employees. All of the data are being collected through GSS, which

*Code, and data are available at: https://github.com/YoungKim164/workstress

allowed us to create different figures of job status, work hours, industry sector, and satisfaction rates. They were all written as code within the Quarto document. We saw some data that shows how the work stress occurs from the these factors. All of these information within the paper is very important because it will let the readers and others in the public to be aware of how people are facing work stress, and the analysis can provide some strong points that can lead everyone to know what employers and managers can do to avoid work stress for all employees working.

In this paper, we gathered data from (Publisher Name), (Data Name). With the gathered data, we generated figures to observe the trend in work stress of different categories using R (R Core Team 2020). We also uploaded and cleaned data using R (R Core Team 2020), tidyr (Wickham 2021), dplyr (Wickham et al. 2021), tidyverse (Wickham et al. 2019), and haven (Wickham and Miller 2021) packages. Figures and tables were created with knitr (Xie 2014), ggplot2 (Wickham 2016), kableExtra (Zhu 2021), and dplyr (Wickham et al. 2021).

In section 2 we discuss the source of the data used in this paper, the strengths and weaknesses the source and methodology contains, and potential blind spots that the data misses. Section 3 discusses the results that is being produced from the figure and what it tells us by its visualization. Section 4, we would provide a brief discussion about what we get from all figures, and make some thoughts. In section 5 there is an optional survey used to gather more information about stress caused by job status, work hours, industry sector, satisfaction rate of your job into the correlation of work stress levels.

2 Data

2.1 Data Source and Collection

The dataset for this paper were obtained from the US General Social Survey ("US General Social Survey" 2021) from NORC at the University of Chicago. The dataset was published in the year 2021. The raw dataset includes data from 568 Survey Questions for 4032 Survey Participants. GSS monitors pubic opinion and behavior in the United States of America. This survey has been conducted since 1972 by the NORC at the University of Chicago and funded by the National Science Foundation(NSF). We have selected 10 items from the raw dataset, and only extracted selected variables. These selected variables were imported in R using the package haven(Wickham and Miller 2021) and readxl(Wickham and Bryan 2023). Using the R(R Core Team 2020) package tidyverse(Wickham et al. 2019) and dplyr(Wickham et al. 2021), we cleaned and performed exploratory data analysis on the selected dataset to get insights into the data. The insights gained from this data set is shown throughout all of the figures we created in this paper. The some of the selected items are year, travel time to work, labor force status, number of hours worked, and etc. The analysis of these collected information is available on section 2.3 Data Visualization and Analysis.

2.2 Data Cleaning and Modification

The data used in this paper were cleaned to get an accurate representation and remove any unnecessary information in this paper. Data were cleaned to remove data of some of results that does not have responds on specific items that we are looking into. Some of participants refused to answer or skipped some of the questions for various reasons. We filtered out data that would not have meaningful result on the graphs.

For each figures, we selected certain items that are closely related to work condition and explored how they affects the work stress. The Data set is divided into categories and range, like working 20 or less, 20-29, 30-39, 40-49, 50-59, 60 over hours of working per week, or partime/fulltime worker. Eachfigures explores different categorization to see how they effect personal stress of work.

2.3 Data Visualization and Analysis

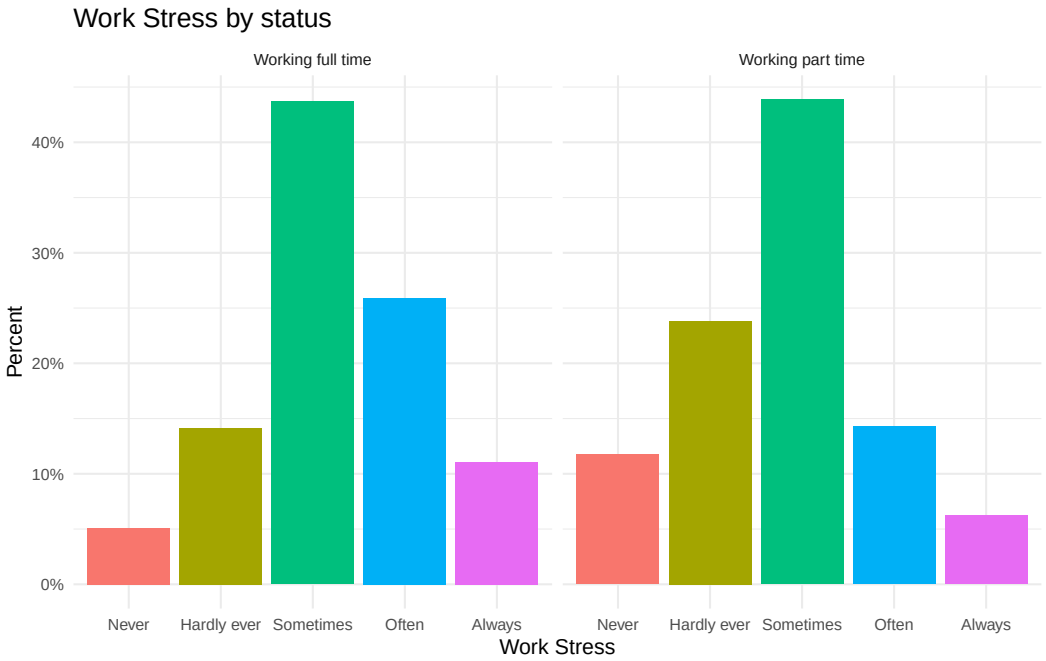

Figure 1: Work Stress by Job Status

Figure 1 shows the work stress by work status. To visualize this figure, work stress and work status data was selected and grouped by the response. With the cumulative results by responds, two separate bar graph was created to show the work stress people experienced based on their working status.

Figure 1 shows that the full-time workers have tendency to experience more work stress then the part-time workers. The full-time workers often have more work experience therefore have more responsibility then the part-time workers. This would expose them to more stressful situation often compared to the part-time workers. Also, part-time workers have other aspects of life and often focuses more on those, for examples school or house work. It makes them to care less about the work and receives less stress from it. Last but not least, part-time workers have much more flexible work schedule then the full-time workers. This prevents them from burn out from the work and potentially reduces stress.

3 Results

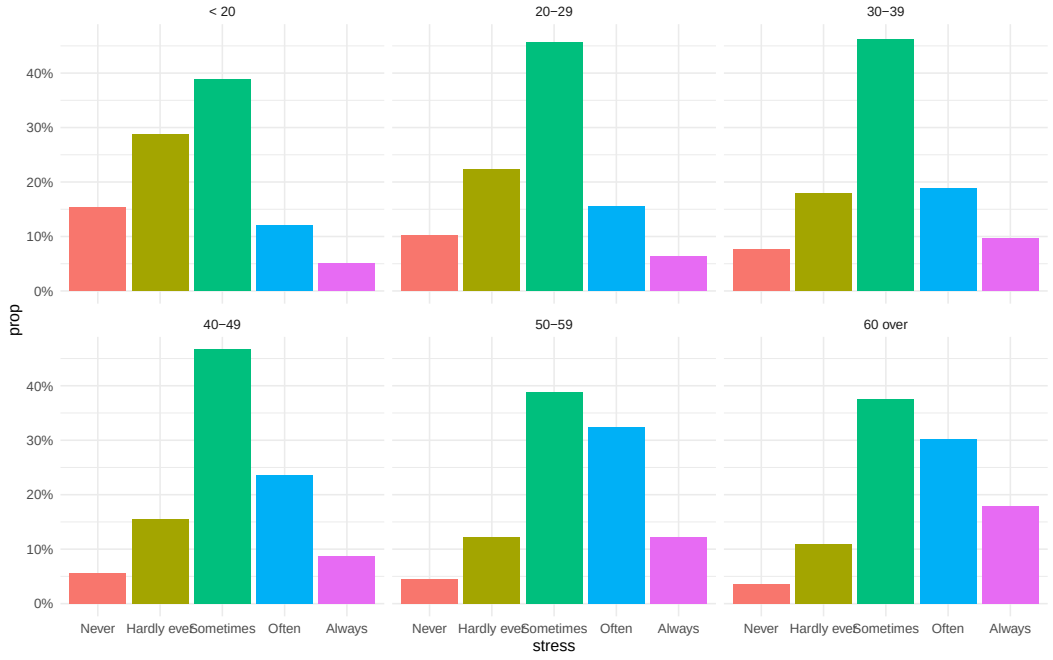

Figure 2: Work Stress by Work Hours

Figure 2 shows more detailed categorization based on the working hours. Work hour and work stress are selected to visualized this data. Generally, 35 hours per week is the standard to separate part-time workers and full-time workers. However, labeling a person who works 8 hours per week and 30 hours per week as same as part-time worker does not provides insightful results. Therefore we further categorized into more detailed range. It shows the work stress of workers based on the 6 categories of working hours. Answers that are no aplicable to this sections is cleaned to represent best result.

It is clearly visible that work stress has linear relationship with the working hours. As more hours workers work every week, they have more chance to experience stress. Working hours have close relationship with the burn out issues of the worker. More work hours leads them to less time to spend for self development and interest which is a great source of the stress.

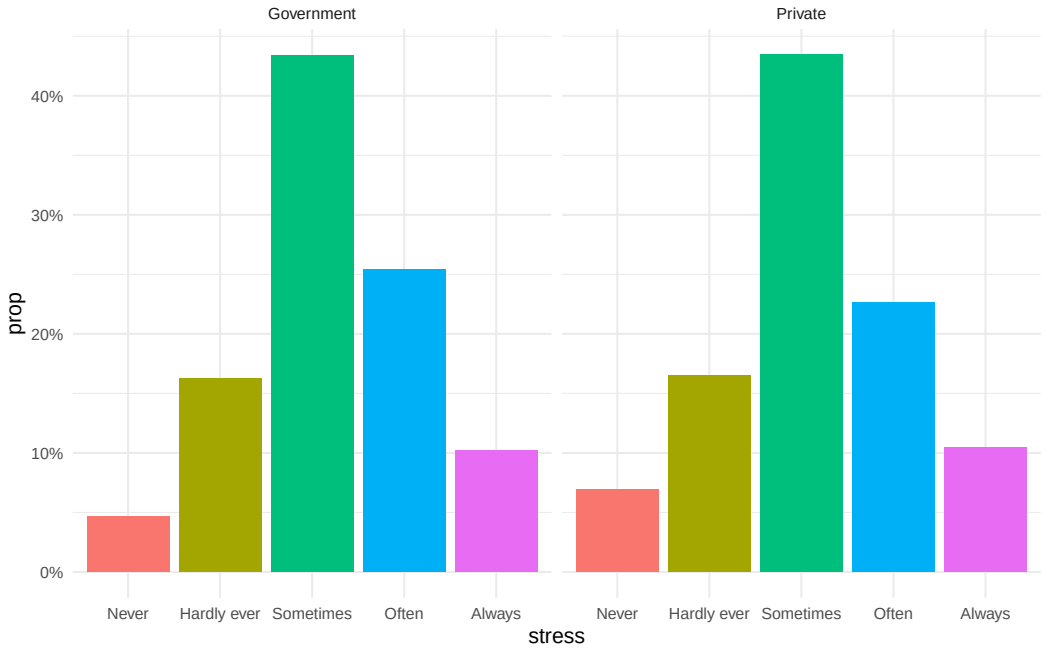

Figure 3: Work Stress by Industry Sector

Figure 3 shows the work stress received for a people who works in the government sector and private sector. working government sector and work stress are selected for this visualization. Some of industries are hard to categorize into either government or non-government, therefor any answers that are not clear or unanswered were eliminated to have clear vision on this category. The data is grouped based on the responds on working sector.

This graph show that people who works in a government sector is more likely to get stress then the people who works in a private sector. The key difference between the government sector and the private sector is the salary. Government jobs tend to have lower salary then the same level jobs in the private sector. However, the difference evens out with benefits like a pension and stable work condition. This results work stress is more affected by current status of the work and pay, rather then the future benefit or the work safety.

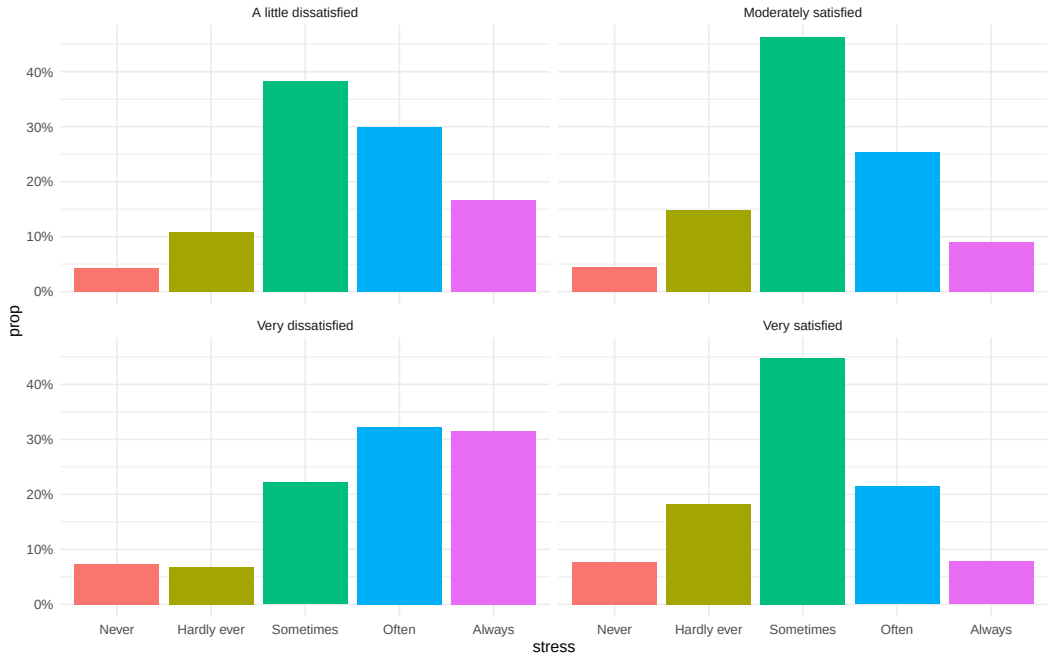

Figure 4: Work Stress by Job Satisfaction

Figure 4 shows the relationship between job satisfaction and the work stress. These two items are selected and grouped by answers. The survey on the job satisfaction is done with 4 steps from very satisfied to very dissatisfied, and the work stress is done with 5 steps from Never to Always. To visualize different work stress by job satisfaction, four graphs are drawn based on the levels of satisfaction on the job.

For the people who either very satisfies or very dissatisfies on their job has clear differences on work stress. As expected, people who are very satisfied on their job gets significantly less stress then the people who are very dissatisfied. This trend continues on the little satisfied and moderately satisfied, but there is a finding worth to look at. Although people who are a little dissatisfied with their jobs have little higher chance to get more stress, but there is a little to no difference in a chance to get no stress. This finding shows that job satisfaction has clear relationship with work stress but if its satisfaction is not extreme in either way people who have resistance to the work stress have little effect from it.

4 Discussion

4.1 Work Stress Levels

Even though work stress have different causes. We believe that the major cause or initial step into work stress would traffic delays. There are always traffic delays that most commuters would face almost every day. Most of these commuters are people going for work especially during rush hour time. Satisfaction rate is very important for jobs, and most people are sometimes not satisfy, its mainly due to these traffic delays. For example, if you are taking Greater Toronto Area commuters, most jobs are found in downtown Toronto, North York, and Mississauga. The GTA is going far west as Hamilton to east as Durham Region. Most of these commuters will be spending at least 1 hour of commuting to their workplace either by car or public transit. In an anonymized therapy session in 2014, a client expressed: "by the the time I get home from work, I'm just, you know, after that drive, I'm just so dead, it's like, you know, shaking and don't want to drive anymore. I don't want to do anything else. . . sometimes I like if there's been lots of traffic or like if I've been tired and like been forcing myself to stay awake so I can get home." Traffic is the main issue that we believe that is is impacting the job satisfaction rate, which is why lots of people are facing work stress. We need to find a solution that can reduce the traffic, increase job satisfaction, and if possible these can expect to reduce the work stress for everyone.

4.2 Work Hours of a Work Shift & Weekly Schedule

Right now most professionalists are working 40 hours a week, 8 hours shift each day. There is a plan of increasing work hours to 10 hours shift, and work only 4 days each week. But, based on some data, it is definitely not recommended to increase work hours because currently lots of people are always facing work stress when the number of hours are higher. So, if the work shift gets extended longer to reduce the total number of work days, this may cause more work stress because lots of people will be stress over number of tasks to complete during work. Other alternatives that can be used to reduce work stress can be reducing the total number of hours per week from 40 hours to 35 hours. This will allow people to face less work stess because it will reduce the number of hours for them working, and we believe 7 hours work shift can be enough to complete important tasks in a job.

4.3 Conclusion

Work stress seems to be the main problem for everyone in both physical and mental health. Through our data, there was a lots of things to imaginate about the causes of work stress which is revealed throughout the paper. The causes in correlation into work stress are by factors such as job status, work hours, industry sector, and satisfaction rates. Half of the people working either full time or part time are facing work stress, and this could be because of their assigned tasks that they have to do every day. Under work hours, the higher the hours people work for, the higher amount of people facing work stress. This could be because of people working for too long, which is affecting their health condition, and that causes them to face higher levels of work stress. Government sector tends to be slightly higher than private sector for work stress, but this could be because government sectors tends to pay a bit less compared to bigger private sectors. For job satisfaction, there are some people that are often disatisfied, which reflects their work stress and this could be because they job they are working for is not suitable for them, lack of interst, commute issues, traffic delays, work schedule, etc. So, there are lots of issues in work, which is the main issue of work stress. After looking over everything, we believe that if companies within the same job industry pays the same salary, reducing the work hours to 35 hours a week, and trying to make some jobs hybrid or remote. Then, this can reduce the number of work stress people are facing every day.

References

R Core Team. 2020. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.

"US General Social Survey." 2021. *NORC*. https://gss.norc.org/Get-The-Data.

Wickham, Hadley. 2016. *Ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. https://ggplot2.tidyverse.org.

———. 2021. *Tidyr: Tidy Messy Data*.

Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D'Agostino McGowan, Romain François, Garrett Grolemund, et al. 2019. "Welcome to the tidyverse." *Journal of Open Source Software* 4 (43): 1686. https://doi.org/10.21105/joss.01686.

Wickham, Hadley, and Jennifer Bryan. 2023. *Readxl: Read Excel Files*. https://CRAN.R-project.org/package=readxl.

Wickham, Hadley, Romain François, Lionel Henry, and Kirill Müller. 2021. *Dplyr: A Grammar of Data Manipulation*.

Wickham, Hadley, and Evan Miller. 2021. *Haven: Import and Export 'SPSS', 'Stata' and 'SAS' Files*.

Xie, Yihui. 2014. "Knitr: A Comprehensive Tool for Reproducible Research in R." In *Implementing Reproducible Computational Research*, edited by Victoria Stodden, Friedrich Leisch, and Roger D. Peng. Chapman; Hall/CRC. http://www.crcpress.com/product/isbn/9781466561595.

Zhu, Hao. 2021. *kableExtra: Construct Complex Table with 'Kable' and Pipe Syntax*.