Does Perceived Job Insecurity Affect Mental Health? Evidence from the 2021 Chinese General Social Survey

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Introduction

With rising global competition, industrial shifts, and economic recessions, an increasing number of employees face concerns about layoffs. The instability and unpredictability of labor markets impose significant psychological burdens on workers, often resulting in adverse health outcomes linked to job insecurity. Understanding the relationship between job insecurity and mental health is essential for designing interventions to enhance workers' well-being and for uncovering the underlying causes of health inequalities across diverse social groups.

Previous research has established a connection between perceived job insecurity and poor health outcomes. After accounting for demographic, socioeconomic, and job characteristics, as well as prior health conditions, perceived job insecurity was found associated with deteriorating health among U.S. workers (Burgard et al. 2009). Similarly, McDonough (2000), using a national sample of Canadian adults, reported that high levels of job insecurity lead to lower self-rated health, increased psychological distress, and increased use of medication for symptom relief. In China, higher job insecurity could similarly bring more stress and anxiety, leading to negative mental health outcomes. Based on this, we propose the following hypothesis:

H1: Perceived job insecurity is negatively associated with mental health.

Within China's unique cultural and political context, membership in the Chinese Communist Party (CCP) provides individuals with political capital, enhancing opportunities for upward mobility in political and managerial positions for occupations (Bian et al. 2001). CCP membership is also associated with income premiums (Dickson and Rublee 2000; Liu 2003; Xie and Hannum 1996), higher wealth accumulation (Jin and Xie 2017), and increased life satisfaction in urban areas (Appleton and Song 2008). These advantages may buffer CCP members from the negative effects of job insecurity on mental health compared to non-CCP members. Therefore, we propose the following hypothesis:

H2: The negative relationship between perceived job insecurity and mental health is different between CCP members and non-CCP members.

Data and Methods

Data

We use the data from the 2021 Chinese General Social Survey (CGSS), a nationally representative survey conducted in mainland China. CGSS uses multi-stage stratified sampling design, selecting county-level primary sampling units (PSUs) and community-level secondary sampling units (SSUs) using probability proportional to size (PPS) methods. Households are sampled within each SSU, and one adult per household is selected using the Kish grid (Chinese General Social Survey 2024). CGSS ensures that our sample is representative of the Chinese population, allowing us to generalize our findings to the broader population.

Measures

Job insecurity is modeled as a latent variable to capture its multidimensional nature, integrating both objective factors and subjective perceptions (Burgard et al. 2009). Treating job insecurity as a latent construct reduces measurement error and brings a more robust representation of the underlying concept. For objective measures, weekly work hours reflect the stability and predictability of an individual's employment. Higher values in this analysis may indicate potential irregularity or overwork, which are linked to greater job insecurity. Employment contract type captures the stability of an individual's formal employment relationship, with "No contract" representing the most insecure arrangement. The recoded variable is treated as a categorical factor to align with the conceptualization of job insecurity. For subjective measures, job autonomy reflects the degree of control individuals perceive they have over their work processes. Lower autonomy (greater control exerted by others) is associated with higher job insecurity. Work-related stress measures the frequency of stress experienced in the work environment, while job satisfaction reflects the respondent's overall contentment with their current job. In this analysis, lower satisfaction corresponds to higher levels of job insecurity. Based on the measurement above, we construct a continuous latent variable for perceived job insecurity. The larger the value holds, the higher the perceived job insecurity is.

Besides job insecurity, mental health is also treated as a continuous latent variable, measured using three self-reported indicators: feel depressed, feel happy, and health affects work/daily life. These indicators capture distinct yet interrelated dimensions of psychological well-being. "Feel depressed" reflects the frequency of depressive symptoms, with higher values indicating fewer symptoms and better mental health. "Feel happy" captures overall emotional positivity, with higher

values representing greater happiness. "Health" affects work/daily life assesses the frequency of health-related disruptions to work or daily activities, with higher values reflecting better perceived health. The larger the latent mental health holds, the better the mental health is.

Party membership is included as the group variable to explore potential differences in the relationship between perceived job insecurity and mental health across subgroups. Individuals are divided into two groups, CCP members and non-CCP members.

Table 1 provides a comprehensive overview of the measures for job insecurity, mental health, and the group variable.

Analytical approach

We use SEM to evaluate the relationship between two latent constructs: perceived job insecurity and mental health. The SEM framework allows the integration of multiple observed indicators into latent constructs, reducing measurement error and providing a robust method for understanding complex relationships. The Weighted Least Squares Mean and Variance Adjusted (WLSMV) estimator is used for parameter estimation. WLSMV is particularly suited for handling ordinal categorical data, such as job satisfaction, work-related stress, and happiness in this study. This estimator accounts for the non-normality of categorical variables, provides robust standard errors, and adjusts chi-square values to better evaluate model fit (DiStefano and Morgan 2014). These features make WLSMV ideal for our models where the data includes ordinal or categorical responses.

Figure 1 shows the structural equation model for perceived job insecurity and mental health. The path coefficient linking perceived job insecurity and mental health is the key coefficient for H1. If the coefficient is negative and statistically significant, it would indicate that higher perceived job insecurity is associated with poorer mental health.

To explore whether the relationship between perceived job insecurity and mental health is

Table 1: Overview of Survey Measures and Variable Coding

Variable	Survey Question	Response Type
Weekly Work Hours	A53a: When you are employed, how many hours do you usually work in a week, including overtime?	Continuous
Type of Work Contract	A59b: Have you signed a written labor contract with your employer for your current job?	Ordinal Categorical (3 levels)
Job Autonomy	A59g: In your current job, to what extent can you independently decide the specific methods of your work?	Ordinal Categorical (4 levels)
Work Stress	L11_c: How often do you feel significant work-related stress in your job?	Ordinal Categorical (4 levels)
Job Satisfaction	L17: Overall, how satisfied are you with your current job?	Ordinal Categorical (5 levels)
Feel Depressed	A17: In the past four weeks, how often did you feel depressed or down?	Ordinal Categorical (5 levels)
Feel Happy	A36: Overall, do you feel happy with your life?	Ordinal Categorical (5 levels)
Health Affects Work/Daily Life	A16: In the past four weeks, how often did health problems affect your work or other daily activities?	Ordinal Categorical (5 levels)
Party Membership	A10: What is your current political affiliation?	Binary

invariant across different groups, we conduct a multiple group analysis (MGA) for party membership. First, we estimate the model separately for CCP members and non-CCP members without imposing any constraints to examine the relationship. Next, we test the invariance of this relationship by constraining the structural coefficient to be equal across different groups. If the constrained models show a significantly worse fit compared to the unconstrained models, it indicates that the relationship between perceived job insecurity and mental health varies across groups.

The distribution of survey weights in the analytical sample is similar to the original distribution, indicating that the sample remains representative of the population. Survey weights are
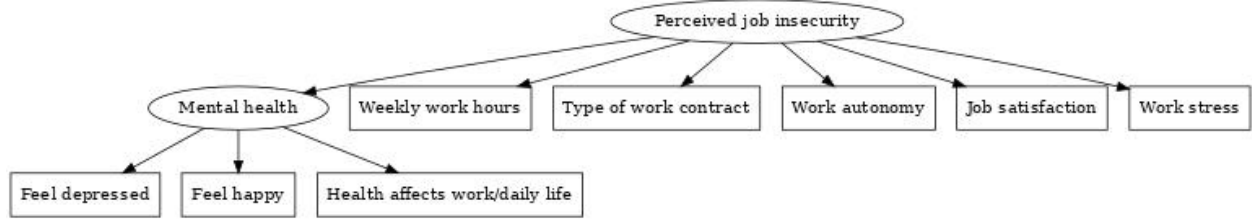
Figure 1: structural equation model for perceived job insecurity and mental health

used for descriptive statistics to ensure the representativeness of the sample. For the SEM analysis, CGSS only provides survey weights and SSU information, while the PSU information and strata information are not available. Additionally, there are limited packages in R that can handle the complex survey design with SEM[1]. Therefore, we will only account for the survey weights in the following analysis. As for missing data, we use listwise deletion under the assumption that the data is missing completely at random (MCAR).

Results

Table 2 presents the weighted descriptive statistics of the variables used in the analysis. The sample consists of 993 respondents after adopting pairwise deletion for missing data. The average weekly work hours are around 49.92 hours. A small proportion of respondents have an indefinite term work contract, while the majority have a fixed-term contract. Most respondents report that they have main control over their work and are satisfied with their jobs. The majority of respondents report that they rarely or sometimes experience work stress. Regarding mental health, most respondents report that they rarely or sometimes feel depressed and often or always feel happy. The majority of respondents indicate that their health never affects their work or daily life. The sample is almost evenly split by sex, with around 86% of respondents not being members of the Chinese Communist Party.

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[1]For example, `lavaan` is not able to handle clusters with categorical data; the archived `lavaan.survey` package only supports several estimators, which do not include WLSMV.

Table 2: Weighted descriptive statistics (N = 993)

Variable	Mean (SD) / Percent
Weekly work hours	49.92 (16.15)
Type of work contract	
Infinite term	26.0%
Fixed term	40.5%
No contract	33.5%
Work autonomy	
Completely controlled by self	13.2%
Mainly controlled by self	51.0%
Mainly controlled by others	22.5%
Completely controlled by others	13.2%
Job satisfaction	
Very satisfied	12.1%
Satisfied	50.0%
Neutral	30.7%
Dissatisfied	5.2%
Very dissatisfied	2.0%
Work stress	
Rarely	41.0%
Sometimes	32.9%
Often	17.7%
Always	8.3%
Feel depressed	
Always	0.8%
Often	3.7%
Sometimes	20.5%
Rarely	28.6%
Never	46.4%
Feel happy	
Never	0.7%
Rarely	3.1%
Sometimes	13.1%
Often	61.2%
Always	21.8%
Health affects work/daily life	
Always	0.2%
Often	1.8%
Sometimes	9.9%
Rarely	24.7%

Never	63.4%			
Party membership				
CCP	13.1%			
Non-CCP	86.9%			

Table 3 presents the results of the SEM examining the relationship between perceived job insecurity and mental health with the WLSMV estimation. The model exhibits a Comparative Fit Index (CFI) of 0.94 and a Root Mean Square Error of Approximation (RMSEA) of 0.07, both of which are considered acceptable. For the measurement models, all factor loadings for the latent variable mental health are significant at the 0.01 level, while three out of four factor loadings are significant for the latent variable perceived job insecurity at the 0.1 level. The analysis reveals that perceived job insecurity negatively affects mental health, with a coefficient of -0.11 at the 0.01 significance level. We also use modification indices to identify potential areas for model improvement. There are 6 modification indices greater than 10, but none of them are theoretically meaningful. Additionally, the estimation with survey weights gives similar results to the unweighted estimation. Therefore, we conclude that the model is robust and the result is reliable. The findings support H1, indicating that perceived job insecurity is negatively associated with mental health.

Table 3: Structural equation model results for the relationship between perceived job insecurity and mental health

	Estimate	Std. Err.	z	p
		Factor Loadings		
Perceived job insecurity				
Weekly work hours	1.00^{+}			
Type of work contract	-0.01	0.01	-0.49	0.624
Work autonomy	0.02	0.01	1.88	0.060
Job satisfaction	0.14	0.02	6.75	0.000
Work stress	0.13	0.02	6.85	0.000
Mental health				
Feel depressed	1.00^{+}			
Feel happy	0.64	0.06	11.65	0.000
Health affects work/daily life	0.93	0.08	12.32	0.000
		Regression Slopes		

Mental health				
Perceived job insecurity	−0.11	0.02	−6.60	0.000
		Fit Indices		
$\chi^2(\mathrm{df})$	102.92			
CFI	0.94			
TLI	0.91			
RMSEA	0.07			
Scaled $\chi^2(\mathrm{df})$	130.71(19)			0.000

[+]Fixed parameter

The relationship between perceived job insecurity and mental health is further analyzed among CCP and non-CCP members. Table 4 provides the results of the SEM for the two groups without any constraints. The model reports a CFI of 0.93 and an RMSEA of 0.07, signifying a good fit. The analysis shows that perceived job insecurity has a significantly negative effect on mental health for both CCP and non-CCP residents. However, the negative impact is stronger for non-CCP members with a coefficient of -0.12, compared to CCP members with a coefficient of -0.05. To determine whether this relationship is invariant between CCP and non-CCP members, a constrained model equalizing the structural coefficient is estimated. The constrained model, which maintains the same CFI of 0.93 and RMSEA of 0.07 as the unconstrained model, has the structural coefficient of -0.09. However, the scaled chi-squared difference test indicates that the constrained model is significantly worse than the unconstrained model, with a p-value less than 0.01, suggesting that the relationship is not invariant between CCP members and non-CCP members. The MGA analysis with survey weights yields similar results to the unweighted estimation, indicating the robustness of the results. Therefore, H2 is supported, indicating that the negative relationship between perceived job insecurity and mental health differs between CCP members and non-CCP members.

Table 4: Perceived job insecurity and mental health of CCP Members Vs. Non-Members without constraints

	Non-CCP		CCP	
	Estimate	Std. Err.	Estimate	Std. Err.
		Factor Loadings		
Perceived job insecurity				
Weekly work hours	1.00[+]		1.00[+]	

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Type of work contract	0.00	0.01	−0.03	0.02
Work autonomy	0.02	0.01	−0.03*	0.01
Job satisfaction	0.15***	0.03	0.12***	0.02
Work stress	0.14***	0.03	0.13***	0.02
<u>Mental health</u>				
Feel depressed	1.00^{+}		1.00^{+}	
Feel happy	0.69***	0.06	0.25**	0.10
Health affects work/daily life	0.94***	0.08	0.73***	0.21
Regression Slopes				
<u>Mental health</u>				
Perceived job insecurity	−0.12***	0.02	−0.05***	0.01
Fit Indices				
$\chi^2(\mathrm{df})$	135.64			
CFI	0.93			
TLI	0.90			
RMSEA	0.07			
Scaled $\chi^2(\mathrm{df})$	154.83(38)***			

$^{+}$Fixed parameter

* p<0.1, ** p<0.05, ***p<0.01

Discussion

This study examines the impact of perceived job insecurity on mental health and how this relationship varies between CCP and non-CCP members, motivated by the psychological distress employees experience in response to job uncertainty and the role of political capital in this context within China. Utilizing an SEM approach, the analysis found that perceived job insecurity is negatively associated with mental health, with a significant difference in its impact between CCP and non-CCP members. Specifically, non-CCP members experienced a greater negative effect of job insecurity on mental health compared to CCP members. This difference may be attributed to the income, wealth, and career mobility advantages of CCP members. Future research could explore additional factors other than CCP membership, such as family background, individual abilities, and social networks, influencing the relationship between job insecurity and mental health. These considerations could provide a deeper understanding of the the job insecurity impact disparities on well-being across CCP and non-CCP members in China.

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Appendix

See more infomation on GitHub: https://github.com/petertbz/SurvMeth687Project

```r
library(haven)
library(dplyr)
library(lavaan)
library(ggplot2)
library(stargazer)
library(survey)
library(lavaan.survey)

# 1. data clean
# import data
CGSS2021 = read_dta("CGSS2021.dta")

# select variables and rename
# consider split job insecurity into objective and subjective well-being:
CGSS = CGSS2021 %>%
  select(id, A53aa, A59b, A59g, A17, A36, L17, L11_c, L16_a, A45, A58a,
       A16, A2, A3_1, A18, A10, A7a, A62,
        provinces, community_i, weight, weight_raking) %>%
  rename(
    workhours = A53aa,      # Weekly work hours
    workcontract = A59b,    # Employment contract type
    workself = A59g,        # Job autonomy
    depressed = A17,        # Depression feelings
    happy = A36,            # Happiness level
    satisfaction = L17,     # job satisfaction
    workstress = L11_c,      # have work-related stress
    wlb = L16_a,             # Impact of work on family or personal life
    union = A45,            # Whether a member of a labor union.
    parttime = A58a,        # have multiple part-time job

    health = A16,           # Health impact on work
    sex = A2,               # Gender
    year = A3_1,            # Year of birth
    urban = A18,            # Urban or rural residence
    party = A10,            # Party membership
    education = A7a,        # Education level
    income = A62            # total family Income in last year
  )
```

```r
# check sampling weight
CGSS %>%
  ggplot(aes(x = weight)) +
  geom_histogram(binwidth = 0.1, fill = "skyblue", color = "black") +
  labs(title = "Distribution of Sampling Weight",
       x = "Sampling Weight",
       y = "Frequency")

ggsave("weight_full.png", width = 6, height = 4)

# recode variables
CGSS = CGSS %>%
  mutate(
    # job insecurity
    # workhours: working hours per week
    workhours = ifelse(
      workhours == 998 | workhours == 999 | workhours == 168, NA, workhours), # remove
    # workcontract: type of work contract
    workcontract = case_when(
      workcontract == 98 | workhours == 99 ~ NA,
      workcontract == 2 ~ 1, # 1. infinite term (most stable)
      workcontract == 3 ~ 2, # 2. fixed term (stable)
      workcontract == 1 ~ 3, # 3. no contract (least stable)
    ),
    # workself: job atonomy
    # 1 = completely controlled by self, 4 =  completely controlled by others
    workself = ifelse(workself == 98 | workself == 99, NA, workself),
    # satisfaction
    # 1 = very satisfied , 2 = satisfied, 3 = normal, 4 = not satisfied, 5 = not satis
    satisfaction = ifelse(satisfaction == 98 | satisfaction == 99, NA, satisfaction),
    # workstress
    # 1 = rarely, 2 = sometimes, 3 = often, 4 = always
    workstress = case_when(
      workstress == 98 | workstress == 99 ~ NA,
      workstress == 1 ~ 4,
      workstress == 2 ~ 3,
      workstress == 3 ~ 2,
      workstress == 4 ~ 1
    ),
    # wlb Impact of work on family or personal life
    # 1 = always, 2 = often, 3 = sometimes, 4 = rarely, 5 = never
    wlb = ifelse(wlb == 98 | wlb == 99, NA, wlb),
    #union
    # 1 = currently yes, 2 = previously yes, 3 = never
```

```r
  union = ifelse(union == 98 | union == 99, NA, union),
  #parttime
  # 1 = yes, 2= no
  parttime = ifelse(parttime == 98 | parttime == 99, NA, parttime),

  # mental health
  # depressed: feeling depressed
  # 1 = all the time, 2 = often, 3 = sometimes, 4 = rarely, 5 = never
  depressed = ifelse(depressed == 98 | depressed == 99, NA, depressed),
  # happy: feeling happy
  # 1 = very not happy, 2 = not happy, 3 = normal, 4 = happy, 5 = very happy
  happy = ifelse(happy == 98 | happy == 99, NA, happy),
  # health: did health affect your work or daily life
  # 1 = always, 2 = often, 3 = sometimes, 4 = rarely, 5 = never
  health = ifelse(health == 98, NA, health),

  # demographic variables
  # age
  age = 2021 - year,
  # sex: 0 = female  1 = male
  sex = ifelse(sex == 2, 0, 1),
  # urban: 0 = rural  1 = urban
  urban = case_when(
    urban == 1 | urban == 3 ~ 0,
    urban == 2 | urban == 4 ~ 1,
    TRUE ~ NA
  ),
  # party: 0 = not CCP member  1 = CCP member
  party = case_when(
    party == 4 ~ 1,
    party == 98 | party == 99 ~ NA,
    TRUE ~ 0
  ),
  # education
  # 1 = no, 2= home, 3= primary, 4=middle, 5,6=high, 78= technical, 9,12=college, 13
  ####"should we combine some of the category?"###
  # 1= no, 2= college and under, 3=beyond college
  education = case_when(
    education == 1 ~ 1,
    education %in% c(2, 3, 4, 5, 6, 7, 8, 9, 12) ~ 2,
    education == 13 ~ 3,
    education == 98 | education == 99 ~ NA,
    TRUE ~ 0
  )
```

```r
    # income
    ## consder splitting into categories##
  )

# select variables of interest and remove incomplete cases
CGSS = CGSS %>%
  select(id,
         workhours, workcontract, workself, satisfaction, workstress,
         depressed, happy, health,
         party,
         provinces, community_i, weight, weight_raking) %>%
  na.omit()

# remove the observation that has workhours == 168
CGSS = CGSS[CGSS$workhours != 168, ]

nrow(CGSS)

# we have 993 cases

# recode sex and party
CGSS = CGSS %>%
  mutate(# sex = recode(sex, "0" = "Female", "1" = "Male"),
         party = recode(party, "0" = "Non-CCP", "1" = "CCP"))

# 2. descriptive statistics
# check distribution of each variable
# workhours
CGSS %>%
    ggplot(aes(x = workhours)) +
    geom_histogram(binwidth = 5, fill = "skyblue", color = "black") +
    labs(title = "Distribution of Working Hours per Week",
         x = "Working Hours per Week",
         y = "Frequency")

# workcontract
CGSS %>%
    ggplot(aes(x = workcontract)) +
    geom_bar(fill = "skyblue", color = "black") +
    labs(title = "Distribution of Work Contract",
         x = "Type of Work Contract",
         y = "Frequency")

# workself
```

```r
CGSS %>%
    ggplot(aes(x = workself)) +
    geom_bar(fill = "skyblue", color = "black") +
    labs(title = "Distribution of Job Autonomy",
         x = "Job Autonomy",
         y = "Frequency")

# depressed take log or cubic root
CGSS %>%
    ggplot(aes(x = depressed)) +
    geom_bar(fill = "skyblue", color = "black") +
    labs(title = "Distribution of Feeling Depressed",
         x = "Feeling Depressed",
         y = "Frequency")

# log, still not
CGSS %>%
  ggplot(aes(x = log(depressed))) +
  geom_bar(fill = "skyblue", color = "black") +
  labs(title = "Distribution of Feeling Depressed",
       x = "Feeling Depressed",
       y = "Frequency")

#(depressed)^(1/3): still not
CGSS %>%
  ggplot(aes(x = (depressed)^(1/3))) +
  geom_bar(fill = "skyblue", color = "black") +
  labs(title = "Distribution of Feeling Depressed",
       x = "Feeling Depressed",
       y = "Frequency")

# happy
CGSS %>%
    ggplot(aes(x = happy)) +
    geom_bar(fill = "skyblue", color = "black") +
    labs(title = "Distribution of Feeling Happy",
         x = "Feeling Happy",
         y = "Frequency")

# health
CGSS %>%
    ggplot(aes(x = health)) +
    geom_bar(fill = "skyblue", color = "black") +
    labs(title = "Distribution of Health Affecting Work or Daily Life",
```

```r
          x = "Health Affecting Work or Daily Life",
          y = "Frequency")


# party
CGSS %>%
    ggplot(aes(x = party)) +
    geom_bar(fill = "skyblue", color = "black") +
    labs(title = "Distribution of CCP Membership",
            x = "CCP Membership",
            y = "Frequency")


###### new:
# satisfaction
CGSS %>%
  ggplot(aes(x =satisfaction)) +
  geom_bar(fill = "skyblue", color = "black") +
  labs(title = "Distribution of Job Satisfaction",
        x = "Job Satisfaction",
        y = "Frequency")
# workstress
CGSS %>%
  ggplot(aes(x =workstress)) +
  geom_bar(fill = "skyblue", color = "black") +
  labs(title = "Distribution of workstress",
        x = "workstress",
        y = "Frequency")


# sampling weight
CGSS %>%
    ggplot(aes(x = weight)) +
    geom_histogram(binwidth = 0.1, fill = "skyblue", color = "black") +
    labs(title = "Distribution of Sampling Weight",
          x = "Sampling Weight",
          y = "Frequency")
ggsave("weight_subset.png", width = 6, height = 4)


# descriptive statistics
CGSS %>% select(-c(id, weight, weight_raking)) %>%
    as.data.frame() %>%
    stargazer(., type = "text",
              title = "Descriptive Statistics of Variables",
              digits = 2)


# 3. SEM
```

```r
# overall model
model1 = '
    # measurement model

    insecurity =~ workhours + workcontract + workself + satisfaction + workstress
    mental =~ depressed + happy + health

    # structural model

    mental ~ insecurity
    '

# equal regression coefficient
model2 = '
    # measurement model
    insecurity =~ workhours + workcontract + workself + satisfaction + workstress
    mental =~ depressed + happy + health

    # structural model (with constrained regression coefficient)
    mental ~ c(b1, b1)*insecurity
'

fit1 = sem(model1,
           data = CGSS,
           estimator = "WLSMV",
           ordered = c("workcontract", "workself", "satisfaction", "workstress",
                       "depressed", "happy", "health"))
summary(fit1)

# account for survey design
## treat each individual as independent and ignore cluster
design = svydesign(ids = ~1, weights = ~weight, data = CGSS)

## treat each community as a cluster (SSU-level)
design2 = svydesign(ids = ~community_i, weights = ~weight, data = CGSS)

# only WLS is supported, account for survey weights
fit1_survey = lavaan.survey(fit1, design, estimator = "WLS")
summary(fit1_survey)

# account for survey weights and cluster
fit1_survey2 = lavaan.survey(fit1, design2, estimator = "WLS")
summary(fit1_survey2)
```

```r
# account for survey weights using lavaan
fit1_survey3 = sem(model1,
  data = CGSS,
  estimator = "WLSMV",
  ordered = c(
    "workcontract", "workself", "satisfaction", "workstress",
    "depressed", "happy", "health"
  ),
  sampling.weights = "weight"
)
summary(fit1_survey3)

# the result from unweighted and weighted data are similar

# check modifiication indices
modindices(fit1, minimum = 10, sort = TRUE)

# the suggestion from modification indices does not make sense
# but we still try one to see the result
model4 = '
    # measurement model

    insecurity =~ workhours + workcontract + workself + satisfaction + workstress
    mental =~ depressed + happy + health

    # structural model

    mental ~ insecurity

    # covariance
    depressed ~~ health
    '

fit2 = sem(model4,
        data = CGSS,
        estimator = "WLSMV",
        ordered = c("workcontract", "workself", "satisfaction", "workstress",
                    "depressed", "happy", "health"))
summary(fit2)
# this result is similar to the previous one

# party
fit3_party = sem(model1,
            data = CGSS,
```

```r
                estimator = "WLSMV",
                group = "party",
                ordered = c("workcontract", "workself", "satisfaction",
                "workstress",
                           "depressed", "happy", "health"))
summary(fit3_party)

fit3_party_coef = sem(model2,
                data = CGSS,
                estimator = "WLSMV",
                group = "party",
                ordered = c("workcontract", "workself", "satisfaction",
                "workstress",
                           "depressed", "happy", "health"))
summary(fit3_party_coef)

lavTestLRT(fit3_party, fit3_party_coef)

## if we use survey weights
fit3_party_survey = sem(model1,
                   data = CGSS,
                   estimator = "WLSMV",
                   group = "party",
                   ordered = c("workcontract", "workself", "satisfaction",
                   "workstress",
                             "depressed", "happy", "health"),
                   sampling.weights = "weight")

summary(fit3_party_survey)

fit3_party_coef_survey = sem(model2,
                      data = CGSS,
                      estimator = "WLSMV",
                      group = "party",
                      ordered = c("workcontract", "workself", "satisfaction",
                              "workstress",
                               "depressed", "happy", "health"),
                      sampling.weights = "weight")
summary(fit3_party_coef_survey)

lavTestLRT(fit3_party_survey, fit3_party_coef_survey)
# the result is similar to the unweighted data

# save the results
```

```r
rm(CGSS2021)
save(list = ls(), file = "FinalResults.RData")
```