

## ORIGINAL

# Gender differences of the influential factors on the mental health condition of teachers in the A university

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**Abstract :** The purpose of this research was to investigate the gender differences of the influential factors on the mental health condition among university teachers in the A university in Japan. A questionnaire survey was mailed to 924 university teachers in Japan, with a survey return rate of 43.8% (N=405). The General Health Questionnaire 28 (GHQ-28), Multidimensional Scale of Perceived Social Support (MSPSS), the Japanese version of the Brief Coping Orientation to Problems Experienced (COPE) and the Work Situation Questionnaire (WSQ) developed by the authors were administered to subjects. The GHQ-28 total score and all of sub-score of the woman was significantly higher than men. In the correlated factor of mental health, level of job satisfaction and job control, social support of significant others was observed in the both sexes. However, gender differences was observed in the coping style. Some copings including self-distraction and self-blame were related to the men, but the woman was related to the substance use. University teachers had some gender differences in the factors affecting their mental health condition. In order to improve university teacher's mental health condition, it is necessary to increase their level of job satisfaction and feeling of job control in the workplace. Especially, it was considered women's coping using substance use was important. *J. Med. Invest.* 62 : 56-61, February, 2015

**Keywords :** mental health condition, gender differences, university teachers

## INTRODUCTION

According to a report released in 2013 by Japan's Ministry of Education, Culture, Sports, Science and Technology (1), the Japanese economic environment has dramatically changed. The job workloads and standards demand has increased, the need for socialization of diverse student population has increased, and the poor mental health condition of workers in the workplace is becoming an important social issue. In addition, there is a decline in personal coping behaviors and changes in personal relations. As a result, early identification and treatment of depression is changing. Educational activities related to depression are more prevalent and early-stage medical treatment for depression is accelerating.

The educational field is experiencing similar patterns. According to a 2011 Ministry of Education, Culture, Sports, Science, and Technology (2) survey, there are 5,407 teachers at public elementary and middle schools who have taken a leave from their job due to mental problems. In addition, mental health problems accounted for 62.4% of sick leave. As a result, mental health measures are a pressing issue in the enrichment of school education. However, there is no mental health measures specific for university teachers even though stress factors are prevalent in the university setting.

Teaching and research performance in the University are directly related to teachers' promotion. The occupational stress arising from issues of tenure and research fund acquisition have received attention (3-5). Therefore, these issues are suspected of contributing factors to a university teachers' mental burden.

In addition to the traditional teaching and research roles at

research institutions, there are further challenges related to changes in work content such as regional contribution, globalization, and diversification of entrance exam systems. Beginning in 2007, student diversity changed ; in that if one wasn't particular about a university or department anyone could get accepted, and universities had become a place where more diverse young people gathered than in the past (6). The mental health condition of university teachers who participate in the socialization of diverse students is an important issue, but there is little research in this area (7-8).

Another factor to consider when examining the mental health issues of university teachers is the change in the law related to gender. In 1999, Japan enacted the *Basic Act for Gender-Equality Society*, which requires gender specific diagnosis and treatment for various ailments and conditions. In the past, treatment was based on men standards, but with the change in the law, gender specific diagnosis and treatment have received much attention.

The purpose of this research was to investigate the gender differences of the influential factors on the mental health condition among university teachers in Japan.

## METHODS

### Subjects

The subjects were 924 university teachers in Japan, working for the same university. This university has about 1,900 staff members, five faculties, six graduate schools, and some institutes and hospital. Subjects work for the arts and sciences, engineering, medicine, dentistry, and pharmaceutical. Surveys were returned by 405 subjects yielding a response rate of 43.8%. Due to incomplete returns, data from 337 surveys were analyzed.

### Survey methods

The self-administered questionnaire survey was mailed, returned

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and analyzed from November 2010 to January 2011.

#### Instruments

The following instruments were used for data collection.

- 1) Individual parameters surveyed were gender, age, professional position, and length of teaching experience.
- 2) The Work Situation Questionnaires (WSQ) developed by authors, was consisted of five questions : working hours, hours of homework per week, conditions of taking paid leave, job satisfaction and job control level.
- 3) Mental health conditions were evaluated using a modified version of the Japanese General Health Questionnaire (GHQ-28) (9-10). Scores range from 0 to 28 with a score 6 or over considered poor mental well-being.
- 4) Social support perceived by the teachers was assessed using the Japanese version of the Multidimensional Scale of Perceived Social Support (MSPSS) (11-14). Total and sub-scores range from 1 to 7, with higher scores suggesting greater levels of perceived social support.
- 5) The coping style of teachers was assessed using the Japanese version of the Brief Coping Orientation to Problems Experienced (COPE) (15-17). Sub-scores range from 1 to 8, with higher scores suggesting greater levels of used coping skills.

#### Data analysis

- 1) The variables of individual parameters, work situation (Work Situation Questionnaire), mental health (GHQ-28 total and 4 sub-scores), social support (MSPSS total and 3 sub-scores), and coping styles (14 sub-scores of Brief COPE) were calculated and an analysis using the chi-square test, and t-test were conducted. Differences between "Professional position" and "gender", were analyzed using the chi-square test, supplemented by residual analysis, and two-way analysis of variance.
- 2) With GHQ total score and sub-scores as standard variables, and individual parameters, work situation, social support, and coping styles as explanatory variables, multiple regression analysis via the stepwise method was conducted. Data were analyzed using IBM SPSS Statistics Version 20.0 for Windows. A p-value of less than 0.05 was considered significant.

#### Ethical considerations

This research was approved by the Ethics Committees of the University of Tokushima Hospital (approval number 1032). No harm could be identified to the subjects and the return of the survey implied consent by the subjects. Subjects were notified that privacy would be protected, as only aggregate data would be utilized in reporting of findings.

## RESULTS

#### Demographic Data

The subjects included 270 men (80.1%) and 67 women (19.9%). There were significant differences in age ( $p=0.001$ ), professional position ( $p<0.001$ ), and length of teaching experience ( $p<0.001$ ).

The number of professors (adjusted residual of 3.9,  $p<0.01$ ) and associate professors (adjusted residual of 2.0,  $p<0.05$ ) were significantly higher for men than women, but the assistant professor (adjusted residual of 5.9,  $p<0.01$ ) was significantly higher for women than man. Findings yielded no significant interaction between the two variables of professional position and gender by the two-way analysis of variance.

#### The gender differences in the each variable

Gender differences were found in the following items ; the conditions of taking paid leave, level of job satisfaction and job control,

the mental health condition and coping style. Men scored significantly higher with the conditions of taking paid leave ( $p=0.002$ ), level of job satisfaction and job control ( $p=0.001$ ,  $p=0.037$ ).

Women scored significantly higher in all items : GHQ-28 total score ( $p<0.001$ ), and GHQ-28 sub-scores : somatic symptoms ( $p<0.001$ ), anxiety and insomnia ( $p=0.004$ ), social dysfunction ( $p=0.011$ ), and severe depression ( $p=0.048$ ).

In the coping style, women scored significantly higher : self-distraction ( $p<0.001$ ) ; use of emotional support ( $p<0.001$ ), use of instrumental support ( $p<0.001$ ), behavioral disengagement ( $p<0.001$ ), venting ( $p<0.001$ ), and self-blame ( $p=0.003$ ) (See, Table1).

#### Gender Difference Individual Parameters, Work Situation, Social support, and Coping Styles with GHQ as standard variable

The stepwise multiple-regression analysis revealed GHQ was significantly associated with numerous variables. In the men's GHQ total score ( $R^2=0.313$ ,  $p<0.001$ ), somatic symptoms ( $R^2=0.175$ ,  $p<0.001$ ), anxiety and insomnia sub-score ( $R^2=0.221$ ,  $p<0.001$ ), social dysfunction sub-scores ( $R^2=0.359$ ,  $p<0.001$ ), severe depression ( $R^2=0.169$ ,  $p<0.001$ ) : In the women's GHQ total score ( $R^2=0.421$ ,  $p<0.001$ ), somatic symptoms ( $R^2=0.199$ ,  $p<0.001$ ), anxiety and insomnia sub-score ( $R^2=0.533$ ,  $p<0.001$ ), social dysfunction sub-scores ( $R^2=0.422$ ,  $p<0.001$ ), severe depression ( $R^2=0.286$ ,  $p<0.001$ ). In the men's GHQ-28 sub-scores : anxiety and insomnia, significant standard partial regression coefficients were level of job control ( $\beta=-0.231$ ), self-blame of the Cope ( $\beta=0.271$ ).

Also, in men's GHQ-28 sub-scores : social dysfunction, significant standard partial regression coefficients were job satisfaction level ( $\beta=-0.440$ ), self-blame of the Cope ( $\beta=0.176$ ), and MSPSS sub-scales : significant other subscale ( $\beta=-0.418$ ) and in the men's GHQ total score, it was job satisfaction level ( $\beta=-0.319$ ), the sub-scores of COPE : self-distraction ( $\beta=0.161$ ), and self-blame ( $\beta=0.257$ ).

In the women's GHQ-28 sub-scores : anxiety and insomnia, significant standard partial regression coefficients were level of job control ( $\beta=-0.459$ ), homework ( $\beta=0.293$ ), MSPSS subscales : friends subscales ( $\beta=-0.404$ ), the sub-scores of COPE : substance use ( $\beta=0.326$ ), self-distraction ( $\beta=0.212$ ), religion ( $\beta=0.211$ ), and teaching experiences ( $\beta=-0.209$ ). Also, in women's GHQ-28 sub-scores : social dysfunction, it was job satisfaction level ( $\beta=-0.472$ ), substance use of the COPE, working hours per week ( $\beta=-0.250$ ), and MSPSS sub-scales : significant other subscale ( $\beta=-0.214$ ) and in the women's GHQ total score, it was substance use of the COPE ( $\beta=0.457$ ), job satisfaction level ( $\beta=-0.342$ ), and MSPSS subscales : significant others subscale ( $\beta=-0.259$ ) (See table 2).

## DISCUSSION

Since the two way analysis of variance yielded no significant interaction between the two variables of professional position and gender by the by the two-way analysis of variance. Therefore, we consider only sex difference, regardless of professional position.

Mental health conditions as measured by the GHQ-28 total score revealed that the women university teaching staff of Japan could be called a "somewhat unhealthy group". Men scored 6.21 (SD=5.59) and women scored 9.10 (SD=5.61) with a cut-off point of 6 points (10, 18). In addition, findings revealed that the GHQ-28 subscale scores for women on somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression were significantly higher than the men's score.

In several studies on academic stress, findings revealed that women have higher stress levels than men (7, 19, 20). Some studies (5, 10, 21-22) have not identified any significant gender differences. However, in this study, some survey items related with GHQ-28 in the both sex.

Table 1. The gender differences in the each variables (N=337)

| Variables                       | Total<br>N=337<br>(100.0%) | Men<br>N=270<br>(80.1%)                | Women<br>N=67<br>(19.9%)               | p-value <sup>a)</sup> | p-value <sup>b)</sup> |
|---------------------------------|----------------------------|--|--|-----------------------|-----------------------|
|                                 | Mean ± SD / n (%)          | Adjusted residual<br>Mean ± SD / n (%) | Adjusted residual<br>Mean ± SD / n (%) |                       |                       |
| Individual Parameters           |                            |  |  |                       |                       |
| Age (yrs)                       | 44.0 ± 9.7                 | 44.9 ± 9.6                             | 40.4 ± 9.3                             | 0.001                 | 0.308                 |
| Professional position           |                            |  |  |                       |                       |
| Professor                       | 101(30.0)                  | 94(34.8)<br><u>3.9</u>                 | 7(10.4)<br>-3.9                        | < 0.001               | < 0.01                |
| Associate professor             | 52(15.4)                   | 47(17.4)<br><u>2.0</u>                 | 5(7.5)<br>-2.0                         | < 0.05                |                       |
| Lecturer                        | 53(15.7)                   | 45(16.7)<br>1.0                        | 8(11.9)<br>-1.0                        |                       |                       |
| Assistant professor             | 131(38.9)                  | 84(31.3)<br>-5.9                       | 47(70.1)<br><u>5.9</u>                 | < 0.01                |                       |
| Teaching experiences (yrs)      | 15.6 ± 10.2                | 16.7 ± 10.2                            | 11.1 ± 8.9                             | < 0.001               | 0.611                 |
| Work Situation (WSQ)            |                            |  |  |                       |                       |
| Working hours per week          | 60.8 ± 16.6                | 61.6 ± 16.2                            | 57.4 ± 18.0                            | 0.065                 | 0.255                 |
| Homework Yes                    | 230(68.2)                  | 181(67.0)                              | 49(73.1)                               | 0.337                 |                       |
| No                              | 107(31.8)                  | 89(33.0)                               | 18(26.9)                               |                       |                       |
| Conditions of taking paid leave |                            |  |  |                       |                       |
| Always                          | 48(14.2)                   | 46(17.0)<br><u>2.9</u>                 | 2(3.0)<br>-2.9                         | 0.002                 | < 0.01                |
| Often                           | 136(40.4)                  | 99(36.7)<br>-2.8                       | 37(55.2)<br><u>2.8</u>                 | < 0.01                |                       |
| Seldom                          | 153(45.4)                  | 125(46.3)<br>0.7                       | 28(41.8)<br>-0.7                       |                       |                       |
| Job satisfaction level (%)      | 63.1 ± 17.9                | 64.7 ± 16.9                            | 56.5 ± 20.3                            | 0.001                 | 0.450                 |
| Job control level (%)           | 60.3 ± 19.8                | 61.5 ± 19.3                            | 55.8 ± 21.4                            | 0.037                 | 0.302                 |
| Mental Health (GHQ-28)          |                            |  |  |                       |                       |
| Total score                     | 6.78 ± 5.70                | 6.21 ± 5.59                            | 9.10 ± 5.61                            | < 0.001               | 0.501                 |
| Somatic symptoms                | 2.62 ± 2.23                | 2.39 ± 2.22                            | 3.55 ± 2.04                            | < 0.001               | 0.675                 |
| Anxiety and insomnia            | 2.36 ± 2.01                | 2.20 ± 2.04                            | 3.00 ± 1.74                            | 0.004                 | 0.789                 |
| Social dysfunction              | 1.21 ± 1.60                | 1.10 ± 1.50                            | 1.66 ± 1.92                            | 0.011                 | 0.057                 |
| Severe depression               | 0.59 ± 1.42                | 0.51 ± 1.38                            | 0.90 ± 1.56                            | 0.048                 | 0.690                 |
| Social Support (MSPSS)          |                            |  |  |                       |                       |
| Total score                     | 5.26 ± 1.05                | 5.24 ± 1.02                            | 5.36 ± 1.15                            | 0.396                 | 0.911                 |
| Family subscale                 | 5.61 ± 1.18                | 5.59 ± 1.14                            | 5.71 ± 1.32                            | 0.460                 | 0.974                 |
| Significant other subscale      | 5.34 ± 1.20                | 5.33 ± 1.17                            | 5.41 ± 1.31                            | 0.594                 | 0.978                 |
| Friends subscale                | 4.82 ± 1.20                | 4.79 ± 1.17                            | 4.95 ± 1.29                            | 0.331                 | 0.603                 |
| Coping styles (COPE)            |                            |  |  |                       |                       |
| Self-distraction                | 4.66 ± 1.29                | 4.50 ± 1.26                            | 5.30 ± 1.21                            | < 0.001               | 0.955                 |
| Active coping                   | 5.68 ± 1.02                | 5.67 ± 1.04                            | 5.72 ± 0.92                            | 0.761                 | 0.597                 |
| Denial                          | 2.60 ± 0.88                | 2.60 ± 0.91                            | 2.61 ± 0.76                            | 0.896                 | 0.708                 |
| Substance use                   | 3.48 ± 1.65                | 3.54 ± 1.64                            | 3.24 ± 1.64                            | 0.174                 | 0.747                 |
| Use of emotional support        | 4.61 ± 1.36                | 4.37 ± 1.26                            | 5.60 ± 1.32                            | < 0.001               | 0.604                 |
| Use of instrumental support     | 4.89 ± 1.31                | 4.73 ± 1.28                            | 5.54 ± 1.26                            | < 0.001               | 0.713                 |
| Behavioral disengagement        | 3.59 ± 1.02                | 3.49 ± 1.05                            | 4.01 ± 0.77                            | < 0.001               | 0.237                 |
| Venting                         | 4.40 ± 1.20                | 4.19 ± 1.13                            | 5.25 ± 1.11                            | < 0.001               | 0.581                 |
| Positive reframing              | 5.24 ± 1.18                | 5.21 ± 1.21                            | 5.39 ± 1.04                            | 0.264                 | 0.553                 |
| Planning                        | 6.12 ± 1.03                | 6.15 ± 1.05                            | 6.01 ± 0.95                            | 0.345                 | 0.396                 |
| Humor                           | 4.02 ± 1.32                | 3.99 ± 1.29                            | 4.15 ± 1.47                            | 0.376                 | 0.526                 |
| Acceptance                      | 6.05 ± 0.93                | 6.02 ± 0.97                            | 6.16 ± 0.77                            | 0.254                 | 0.644                 |
| Religion                        | 3.00 ± 1.13                | 2.94 ± 1.09                            | 3.22 ± 1.27                            | 0.066                 | 0.287                 |
| Self-blame                      | 4.28 ± 1.28                | 4.18 ± 1.21                            | 4.70 ± 1.49                            | 0.003                 | 0.642                 |

Abbreviations : Work Situation Questionnaires (WSQ), General Health Questionnaire (GHQ-28), Multidimensional Scale of Perceived Social Support (MSPSS), brief Coping Orientation to Problems Experienced (COPE), and Standard deviation (SD).

a) Two tailed Student's t test was used for continuous variables, and Pearson chi-square test was used for categorical variables.

b) Interaction between two variables of professional position and gender by the two-way analysis of variance.

Table 2. Multiple regression analyses of predictors of the General Health Questionnaire

| GHQ-28  | Total score $\beta$ (p-value) |                | Somatic symptoms $\beta$ (p-value) |               | Anxiety and insomnia $\beta$ (p-value) |                | Social dysfunction $\beta$ (p-value) |                | Severe depression $\beta$ (p-value) |               |
|---|-------------------------------|----------------|------------------------------------|---------------|--|----------------|--------------------------------------|----------------|-------------------------------------|---------------|
|   | Men                           | Women          | Men                                | Women         | Men                                    | Women          | Men                                  | Women          | Men                                 | Women         |
| Individual Parameters                         |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Age (yrs)                                     |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Professional position                         |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Professor                                     |                               |                | Standard                           |               |  |                |                                      |                |                                     |               |
| Associate professor                           |                               |                | 0.144(0.023)                       |               |  |                |                                      |                |                                     |               |
| Lecturer                                      |                               |                | 0.108(0.084)                       |               |  |                |                                      |                |                                     |               |
| Assistant professor                           |                               |                | -0.028(0.665)                      |               |  |                |                                      |                |                                     |               |
| Teaching experiences (yrs)                    |                               |                |                                    |               |  |                | -0.209(0.032)                        |                |                                     |               |
| Work Situation (WSQ)                          |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Working hours per week                        |                               |                |                                    |               |  |                |                                      | -0.250(0.015)  |                                     |               |
| Homework                                      |                               |                |                                    |               |  |                | 0.293(0.003)                         |                |                                     |               |
| Conditions of taking paid leave <sup>a)</sup> | 0.118(0.025)                  |                | 0.135(0.022)                       |               | 0.134(0.018)                           |                |                                      |                |                                     |               |
| Job satisfaction level (%)                    | -0.319(<0.001)                | -0.342(0.001)  |                                    |               |  |                | -0.440(<0.001)                       | -0.472(<0.001) | -0.196(0.001)                       |               |
| Job control level (%)                         |                               |                | -0.223(<0.001)                     |               | -0.269(0.021)                          | -0.231(<0.001) | -0.459(<0.001)                       |                |                                     |               |
| Social Support (MSPSS)                        |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Total Score                                   |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Family  |                               |                |                                    |               |  |                | 0.223(0.015)                         |                |                                     | -0.191(0.001) |
| Significant others                            | -0.174(0.001)                 | -0.259(0.010)  |                                    |               |  |                | -0.418(<0.001)                       | -0.214(0.032)  | -0.432(<0.001)                      |               |
| Friends                                       |                               |                |                                    |               |  |                | -0.404(<0.001)                       |                |                                     |               |
| Coping styles (COPE)                          |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Self-distraction                              | 0.161(0.002)                  |                | 0.178(0.002)                       |               |  |                | 0.212(0.017)                         | 0.132(0.010)   |                                     |               |
| Active coping                                 |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Denial  |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Substance use                                 |                               | 0.457(<0.001)  |                                    | 0.331(0.005)  | 0.153(0.006)                           | 0.326(<0.001)  |                                      | 0.408(<0.001)  |                                     | 0.338(0.002)  |
| Use of emotional support                      |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Use of instrumental support                   |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Behavioral disengagement                      |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Venting                                       |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Positive reframing                            |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Planning                                      |                               |                | 0.170(0.003)                       |               |  |                |                                      |                |                                     |               |
| Humor   |                               |                |                                    |               |  |                |                                      |                |                                     |               |
| Acceptance                                    |                               |                |                                    |               |  |                |                                      |                |                                     | 0.266(0.015)  |
| Religion                                      |                               |                |                                    |               |  |                | 0.211(0.024)                         |                |                                     |               |
| Self-blame                                    | 0.257(<0.001)                 |                | 0.126(0.034)                       |               |  | 0.271(<0.001)  | 0.176(0.001)                         |                | 0.259(<0.001)                       |               |
| multiple correlation coefficient              | 0.571                         | 0.669          | 0.447                              | 0.473         | 0.482                                  | 0.775          | 0.609                                | 0.676          | 0.422                               | 0.564         |
| coefficient of determination R <sup>2</sup>   | 0.313                         | 0.421          | 0.175                              | 0.199         | 0.221                                  | 0.553          | 0.359                                | 0.422          | 0.169                               | 0.286         |
| F value (p-value)                             | 25.520(<0.001)                | 17.012(<0.001) | 8.154(<0.001)                      | 9.216(<0.001) | 20.068(<0.001)                         | 12.659(<0.001) | 31.176(<0.001)                       | 13.070(<0.001) | 19.257(<0.001)                      | 9.805(<0.001) |

$\beta$  : standardized partial regression coefficient

a) Conditions of taking paid leave : (1)Always,(2)Often,(3)Seldom

The findings of this research study supports earlier research related to the relationship between work conditions and mental health (23). The fact that the level of job satisfaction influences mental health has been made clear by studies on nursing university teachers (24-25) and other occupations (26-29).

Similar to the findings of this research study, previous research related to level of demand from work and job control measured by the Job Demand-Control Model (30-31) have revealed the relationship between social support (32), level of job satisfaction and coping style. Yasumi *et al.* reported that in order to reduce psychological stress responses and increase job satisfaction, improving the level of job control is more effective than improving the level of job burden (33). Other studies have shown that the lack of control has an impact on work (34-35). Other findings (14) have revealed a difference in gender and age. Therefore, in order to improve the mental health of teachers, interventions to increase a

sense of control over their jobs would be beneficial.

Regarding social support in this research study, the support of significant other was associated with GHQ-28 total score, GHQ-28 sub score ; social dysfunction in the both sexes. In the women university teachers, the support of significant other was significant rerated with GHQ-28 sub score ; severe depression. In this way, much social support including association between GHQ-28 sub score ; anxiety and insomnia, and “the support of the friend” of the woman university teachers.

Furthermore, gender differences (36, 37) was observed in the coping style. Some copings including self-distraction and self-blame were related to the men, but the woman was related to the substance use. In the men’s coping style have showed higher issue-priority coping which deals with problems calmly and assertively (38), women have higher coping with changes of mood, emotional expression, and which seeks resolutions from others (39). Also, it

was conjectured that social support was utilized as a coping resource (40).

In general, assertive coping is related to mental and physical health (41), and a relation was also seen between emotion-priority coping and a decline in mental health (42). However, there are many workplace stressors which cannot be solved by the efforts of individual workers. Coping is least effective in areas of life, such as in a work setting, that are impersonally organized and in which the forces affecting people are beyond the kinds of personal coping controls that this research study examines (43). In this research study, the primary factors influencing the mental health conditions of university teachers of both sexes were, level of job satisfaction and job control, social support of significant others. However, gender differences was observed in the male/female coping style. Some copings styles, including self-distraction and self-blame, were related to the men, but woman related to the substance use.

The GHQ total score was related to level of job satisfaction, significant others, and coping with substance use. Therefore, the coping style scale indicated that the women subjects in this research study use substance use to cope, thus possibly impacting their mental health condition. In order to improve the mental health condition of women, it is necessary to increase their level of job satisfaction and feeling of job control in their work place. Also, it is so important to reduce the use of the substance use as a coping style. Learning a healthy copying style, such as cognitive-behavioral intervention should be considered in future interventions as well as future research related to coping styles and specific substance use.

## LIMITATIONS

Generalization of the results is limited since only 1 university was studied. In the future, research that targets a greater number of universities teaching staff is needed.

## CONCLUSION

As gender-specific medical treatment is receiving attention, this research study focused on the primary factors influencing the mental health of Japan's A university teachers by gender. Mental health conditions as measured by the GHQ-28 total score revealed that the women university teachers were found to be "somewhat unhealthy group". The primary factors influencing the mental health of university teachers were level of job satisfaction and job control, social support, and coping style. In order to improve the mental health condition, it is necessary to increase their level of job satisfaction and feeling of job control in the workplace.

The GHQ-28 total score and all of sub-score of the woman was significantly higher than men. In the correlated factor of mental health, level of job satisfaction and job control, social support of significant others was observed in the both sexes. However, gender differences was observed in the coping style. Some copings including self-distraction and self-blame were related to the men, but the woman was related to the substance use. University teachers had some gender differences in the factors affecting their mental health condition. In order to improve university teacher's mental health condition, it is necessary to increase their level of job satisfaction and feeling of job control in the workplace. Especially, it was considered women's coping using substance use was important. Cognitive behavioral interventions have been found to be useful in treating stress and anxiety.

## CONFLICT OF INTEREST

None of the authors have any conflicts of interest associated with this research study.

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