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職場健康促進活動與勞工自覺健康狀況和個人過勞之相關性

Relationship between workplace health promotion and self-perceived health and personal burnout in workers

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過勞之相關性

Relationship between workplace health promotion
and self-perceived health and personal burnout in
workers

本論文係黃尹岑（R09852008）在國立臺灣大學環境與
職業健康科學研究所完成之碩士學位論文，於民國 111 年 06
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鄧育良

（簽名）

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（指導教授）

何俊傑

楊孝友

序&致謝

自大學畢業後即投入醫師的工作，緊接著進入家庭、照顧兩個小孩，一直很希望能念研究所卻分身乏術。直到 2019 年陪先生到美國 Stanford 進修，暫辭去所有工作，全心陪著小孩，才有空檔沉澱思考自己的人生。感謝好友盈瑩的大力鼓勵，我才能有勇氣從美國飛回台灣考試，進入台大環職所就讀。還記得在面試時一位考官老師問我：「妳能兼顧研究所的學業、工作跟家庭小孩嗎？」我當時回覆：「我準備好了，我會盡力。」

雖是準備好了，時隔十幾年重新回到校園生活，仍是懷著誠惶誠恐的心情，感謝盈瑩的引薦，認識了我的指導教授郭育良老師。郭老師風度翩翩，是個很有氣質令人尊敬的學者、師長和醫者，老師非常有耐心並尊重每位學生，在詳盡的面談後老師了解到我平時工作接觸到的領域，於是經思考後建議我做「職場健康促進活動」相關的研究。我非常感謝老師的適性教育，因為跟自己工作切身相關，的確這兩年間在研究此議題時，都能抱著極大的興趣去探究，很幸運能進入郭育良老師的實驗室「郭家」學習。

這篇研究從蒐集資料、整理資料、進行統計分析到最後的探討。首先要感謝勞研所，提供了珍貴的問卷，這是我整份研究最重要的素材，其中關於與勞研所的溝通與資料的取得，我要感謝何俊傑所長的大力支持，何所長曾經來我們環職所演講，其令人敬佩的學者風範讓我印象深刻；也很感謝「勞動環境安全衛生狀況認知調查-2016 年」的研究主持人謝曼麗，在資料蒐集方面多引用自這本書籍。而這篇研究中會使用到的統計分析，因為學生時期記憶久遠，很多知識與軟體操作技能都要從零開始，感謝親切細心的楊孝友老師，了解我的學習狀況後直接請教學助理坐在我旁邊一步一步的教導，並常即時解答回覆我統計中遇到的難題，由衷感謝楊老師；還有環職所的各位老師，教導了我很多關於職業醫學、環境與健康的知識，能重新坐在學術的殿堂裡學習，讓我如沐春風、心裡滿滿的感恩。到後期論文的撰寫階段，我要感謝我的先生吳卓鏞，提供英文與醫學的專業協助；還有日本東京大學的川上憲人教授，給予許多寶貴的建議，讓我的論文架構更為完整。最後感謝蕭淑銖老師幫忙協助審閱指導我的論文，真的很感謝疼愛我的每位師長。還有一定要提的是這兩年間每個禮拜不間斷的郭家 meeting，雖然全程英文壓力真的很大，但著實讓我成長很多，謝謝郭家每一位學長姊的指導，尤其謝謝我的指導教授郭老師。

一份論文的完成不僅代表著這兩年的學習成果，也須同時兼顧著工作與家庭，能寫到致謝這一頁真的不容易。我最要感謝的是林盈瑩，陪我一路走來最好的摯友，不論是在研究所或是人生的道路上，沒有妳我無法自己完成這一切。還有我研究所的夥伴們：謝宜靜、林義哲，我們一起度過了很多天昏地暗的報告與考試，尤其感謝宜靜像秘書般的貼心。感謝我的家人，我最親愛的爸媽、可靠的先生與兩位最寶貝的女兒，謝謝你們一直以來的支持與鼓勵，我很努力地完成了並且得到傑出畢業生的殊榮，獻給我的爸媽。😊

尹岑 2022.04.22

一、職場健康促進活動與勞工自覺健康狀況之相關性



摘要

背景與目的

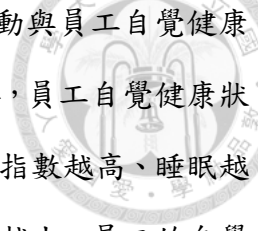
職場健康促進活動是指在職場環境中，藉由雇主、員工自身跟整個社會的支持努力來改善工作者的健康跟福祉。職場健康促進活動行之有年，然而國外文獻卻顯示成效不一致。因此我們的研究是針對台灣的勞工，希望能了解職場健康促進活動是否對台灣的勞工健康有幫助。

方法

勞動部勞動及職業安全衛生研究所每三年會對全國工作者進行問卷的訪查，我們申請使用 2016 年的問卷資料。研究對象收案了 15735 名勞工，研究的主要架構 X 變項是職場健康促進活動，Y 變項是員工自覺健康狀況（以分數評比）；校正因子為性別、年齡、睡眠狀況、工作時數、身體質量指數、月薪、運動頻率、抽煙、喝酒、公司規模與員工職級。我們進一步根據分數將職場健康促進活動分為兩組：高分組與低分組，及四分位組，並依據行業別分層，使用軟體 SPSS 統計做相關性與複線性回歸的分析。

結果

本研究收案了 15735 名勞工，平均年齡約 40 歲，男女性員工各佔 53.85%與 46.15%。員工自覺健康分數（1-5 分）平均為 3.68 分，標準差 0.79。相關性分析顯示職場健康促進活動與員工自覺健康狀況呈現有意義的正相關，其他變項包含月薪、運動頻率亦呈現有意義的正相關；相反地，年齡、工作時數、身體質量指數、睡眠狀況、抽煙、喝酒與員工自覺健康狀況呈現負相關。



複線性回歸的分析顯示在調整其他變項後，職場健康促進活動與員工自覺健康狀況仍呈現有意義的正相關，亦即職場健康促進活動做得越完善，員工自覺健康狀況的分數越高；而其他因子如年紀較大、性別為女性、身體質量指數越高、睡眠越不足夠、有抽煙喝酒習慣、月薪較低、運動頻率較少及公司規模越大，員工的自覺健康分數越低。且將職場健康促進活動分為四組後，可看到其與自覺健康狀況分數呈現劑量效應。此外，對行業別做分層分析後，也可看到職場健康促進活動在主要四個行業別（製造業、零售與批發業、營造業、服務業）皆與自覺健康狀況呈現顯著正相關。

結論

我們的研究顯示職場健康促進活動與員工自覺健康狀況呈現有意義且獨立的正相關，且有劑量效應，亦即職場健康促進活動做得越完善，員工自覺健康狀況的分數越高。在主要四個行業別亦看到一樣的結果。目前統計上看到的效應不大，未來我們應該去思考如何調整健康促進活動的內容來更符合員工的需求。

關鍵字：職場健康促進活動，員工，勞工，自覺健康狀況

二、職場健康促進活動與勞工個人過勞之相關性



摘要

背景與目的

近年來，勞工過勞的議題已經越來越受到重視，因為過勞會影響勞工的健康與工作的表現。職場健康促進活動行之有年，且根據國外的文獻表示，職場健康促進活動能有效改善勞工的過勞情形。我們的研究對象是針對台灣的勞工，想了解職場健康促進活動是否對台灣勞工的過勞也有幫助。

方法

勞動部職業安全衛生研究所每三年會對全國工作者進行問卷的訪查，我們申請使用 2016 年的問卷資料，研究對象收案了 15735 名勞工，研究的主要架構 X 變項是職場健康促進活動，Y 變項是員工過勞程度（以分數評比）；校正因子為工作控制、工作時數、就業缺乏保障、工作負荷、性別、年齡、公司規模與員工職級。我們進一步根據分數將職場健康促進活動分為兩組：高分組與低分組，使用軟體 SPSS 統計做相關性與複線性回歸的分析。

結果

本研究收案了 15735 名勞工，平均年齡約 40 歲，男女性員工各佔 53.85%與 46.15%。勞工過勞分數（5-25 分）平均為 10.87 分，標準差 3.99。相關性分析顯示職場健康促進活動與勞工過勞呈現有意義的負相關，而其他變項包含工作控制、工作時數、就業缺乏保障、工作負荷、性別、年齡皆與勞工過勞呈現有意義的正相關。

複線性回歸的分析顯示在調整其他變項後，職場健康促進活動與勞工過勞仍呈

現有意義的負相關，亦即職場健康促進活動能減少勞工過勞的程度，而其他因子如需要較多的工作控制、較長的工作時數、就業缺乏保障的不安全感較高、工作負荷較大、年紀較大、性別為女性及較大的公司規模，皆會增加勞工的過勞情形。



結論

我們的研究顯示職場健康促進活動與勞工過勞呈現有意義且獨立的負相關，亦即職場健康促進活動能減少勞工過勞的程度。由於目前勞工過勞的情形越來越受到重視，雇主與工作職場應考慮適切的健康促進活動來改善勞工的過勞情況。

關鍵字：職場健康促進活動，員工，勞工，過勞

Part I. Relationship between workplace health promotion and self-perceived health in workers.



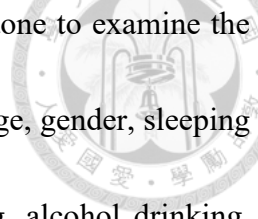
Abstract

Background

Workplace health promotion (WHP) is the combined efforts of employers, employees and society to improve the health and well-being of people at work. WHP programs have been performed for years but with controversial outcomes in terms of the effectiveness on employees' health. We conducted a study to determine the relationship between WHP and employees' self-perceived health in Taiwan.

Methods

A national representative survey of employees' perceptions of safety and health in the workplaces was conducted in 2016 in Taiwan. A total of 28,638 candidates who were working at the survey were selected from all households in Taiwan by stratified random sampling. WHP was scored for nine items, namely, health examination, health data provision and security, health promotion, exercise equipment, employee assistance, mental assessment, hazard prevention, and safety and health activities, with a four-point response option. Self-perceived health was obtained by a 5-point Likert scale from very



poor (1) to very good (5). Multiple linear regression analysis was done to examine the relationship between WHP and self-perceived health, adjusting for age, gender, sleeping condition, working hours, BMI, monthly salary, exercise, smoking, alcohol drinking, enterprise size and employment grade. Further stratification analysis was done by industry.

Results

Among all selected candidates, 22,068 (78.21%) completed the survey satisfactorily, and 15735 workers employed by private sectors were included for the data analysis. Their mean age was 40.64 ± 11.99 years; 46.15% were females; and average score of perceived health was 3.68 ± 0.79 . Monthly salary, exercise, and WHP were positively associated with health score. Age, female gender, working hours per week, BMI, poor sleep, smoking and alcohol drinking were negatively associated with health. After adjusting for potential confounders, self-perceived health was positively related to WHP, in a dose-dependent manner. The relations remain robust for manufacturing, service, construction, and retail industries.

Conclusion

The large-scale nationally representative study showed that WHP was positively

associated with better self-perceived health in a dose-related manner among employees.



Keywords: workplace health promotion, employee, laborer, self-perceived health

Part II. Relationship between workplace health promotion and personal burnout in workers.



Abstract

Background

Recently, it has been highlighted the importance of burnout to affect work performance and worker's health. WHP programs have been performed for years and seemed to be helpful for burnout in some populations. We conducted a study to determine the relationship between WHP and employees' personal burnout in Taiwan.

Methods

A national representative survey of employees' perceptions of safety and health in the workplaces was conducted in 2016 in Taiwan. A total of 28,638 candidates who were working at the survey were selected from all households in Taiwan by stratified random sampling. WHP was scored for nine items, namely, health examination, health data provision and security, health promotion, exercise equipment, employee assistance, mental assessment, hazard prevention, and safety and health activities, with a four-point response option. Personal burnout was obtained by Copenhagen burnout inventory from never (5) to always (25). Multiple linear regression analysis was done to examine the

relationship between WHP and personal burnout, adjusting for age, gender, working hours, job control, job demands, employment insecurity, enterprise size and employment grade.



Results

Among all selected candidates, 22,068 (78.21%) completed the survey satisfactorily, and 15735 workers employed by private sectors were included for the data analysis. Their mean age was 40.64 ± 11.99 years; 46.15% were females; and average score of personal burnout was 10.87 ± 3.99 . WHP were negatively associated with burnout score. Age, gender, working hours, job control, job demands and employment insecurity were positively associated with burnout score. After adjusting for potential confounders, personal burnout was negatively related to WHP.

Conclusion

The large-scale nationally representative study showed that WHP was negatively associated with lower personal burnout among employees.

Keywords: workplace health promotion, employee, laborer, personal burnout

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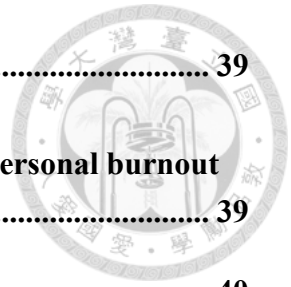


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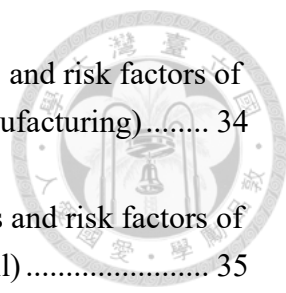


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二、職場健康促進活動與勞工個人過勞之相關性



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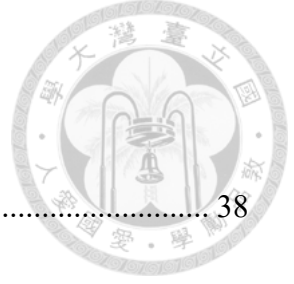


Figure 1. Flow chart of study subject 38

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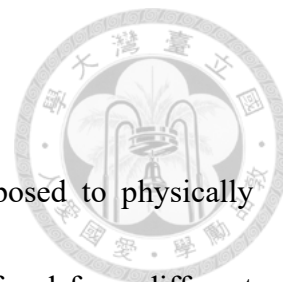
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一、職場健康促進活動與勞工自覺健康狀況之相關性

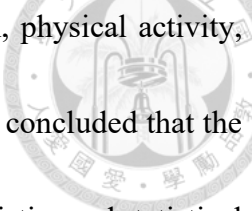
Part I. Relationship between workplace health promotion and self-perceived health in workers.

Introduction



Compared with the general population, workers are often exposed to physically demanding work tasks and those devote to high tech industry suffered from different physical efforts. These work-loads include the lifting of heavy loads, working in awkward postures and sitting upright for long-time. High physical work demands increase the risk of the development of musculoskeletal symptoms and fixed position might bring health problems such as deep vein thrombosis.^{1,2} Other common health problems developed in workers were overweight and obesity which might lead to the high risk of developing health disorders and associated adverse work-related outcomes compared with workers in other industries and the general population.³⁻⁵ Workplace Health Promotion (WHP) is the combined efforts of employers, employees and society to improve the health and well-being of people at work. With the introduction of WHP, the employers can create a supportive management under and upon the efforts of employees to care for their own well-being and to protect and enhance the health of employees.

It has been generally accepted that WHP aimed at physical activity and diet were found to be effective on weight-related outcomes and WHP that improve physical activity levels have been shown to also reduce the risk of muscle skeletal symptoms.^{6,7} Nevertheless, previous meta-analysis and review article showed controversial results. According to a systematic literature search enrolled recent randomized control trials



(RCTs) evaluating the effect of a WHP aimed at smoking cessation, physical activity, healthy nutrition, and/or obesity on self-perceived health, the authors concluded that the effectiveness of WHPs are partly determined by intervention characteristics and statistical methods while high-quality RCTs reported lower effect sizes.⁸ Another research focused on WHP and older workers showed that there is limited effect that WHP programs can improve lifestyles and concur to maintain the health condition of older workers.⁹ The main limitation for the conflicting results may due to the heterogeneity of previous studies that makes it difficult to perform a synthesis of the literature, and the low quality of most of the studies weakens the evidence obtained. Some previous interventions were conducted on small samples and cannot be applied to the entire working population. Moreover, there was little comprehensive research focused on different industries and most studies were performed for regional industries (cities or villages) which increased the possible selection bias.

In order to understand the actual effect of WHP for all industries in Asian, Taiwan government conducted surveys every three years since 1994. Therefore, in current study, we would like to know that whether WHP improve the health of the employees in Taiwan and to find out the relationship between WHP and health outcome through a large national-wide cohort survey.

Methods



Study population

The Institute of Labor, Occupational Safety and Health (ILOSH) of Taiwan has conducted surveys every three years since 1994 to characterize demand and perception of employees, employers and self-employed people for safety and health in the workplace. A questionnaire survey was conducted along with the Human Resources Survey of the Department of Statistics, Executive Yuan, in August 2016. This survey included workers in each county and city, throughout the nation. The participants of the survey were selected through a two-stage random sampling process. All districts and villages throughout Taiwan were enrolled and divided into strata according to their levels of urbanization. Some samples of districts and villages were chosen from each stratum randomly. In the second stage, some households were then selected randomly within each district or village. Residents of the sampled households who were currently acted as paid employees at the time of survey were then identified and asked to join the survey.^{10,11} Our current study was a cross section study which adopted the questionnaire to evaluate the association between WHP and health condition in these employees.

A questionnaire was administered to 28,638 workers reporting on their workplace, working conditions, life conditions, health and stress. The effective questionnaire recovery rate was 78.21% (22,397 of the 28,638 workers). After eliminating missing

personal data, employers, self-employed, teacher, civil servant, we enrolled 15735 labor workers. A flow diagram was showed as figure 1.



Questionnaire and measures

This questionnaire was designed by the government and was previous proved to have well internal consistency.¹¹ Based on existing questionnaires, nine items for WHP were selected. The nine items were whether the health examination meet employee's requirement? Did the workplace properly store health examination data? Did the workplace provide various health promotion programs? Did the workplace have adequate gym and entertainment facilities? Did the workplace provide employee assistance program? Did the workplace provide mental health assessment programs? Did the workplace deliver enough health information? Did the employers implement workplace hazardous assessment and protective program and did the workplace provide safety and health activities? Each item was listed as a question description, and the response was recorded on a four-point Likert scale. The scale ranged from 1 (strongly disagree) to 4 (strongly agree). The health outcome was represented by self-perceived health condition ranged from 1 (the worst) to 5 (the best). The detailed information regarding the psychometric properties of this scale was published before.¹¹



Data analysis

Descriptive analyses of WHP and the study population by gender, age, exercise frequency, smoking status, alcohol drinking status, working hours, sleeping period, monthly salary, self-perceived health condition, employment grade, size of enterprises and selected work factors were performed. Since the WHP questionnaire included nine items and each item was scored on the scale of one to four, we evaluated the quality of WHP by the summation of these scores (score 9-36). We further divided all participants into two groups, the low score group (score 9-22) and the high score group (score 23-36). Data were expressed as mean \pm SD or as frequencies and percentages. To enable a comparison of health scores, gender, sleeping quality, smoking, alcohol drinking, employment grade and size of enterprises were performed by t-test and ANOVA test. Pearson's correlation test was applied to compare correlations between WHP and age, BMI, working hours, monthly salary, and exercise frequencies. The associations between self-perceived health condition and WHP (with scores classified into binary or quartiles) were examined by multivariable linear regression models. Age, gender, sleeping condition, working hours, BMI, monthly salary, exercise, smoking, alcohol drinking, enterprise size, employment grade which were confounding factors were adjusted in different models. Statistical analysis was performed using IBM SPSS Statistics version 26.0 (IBM, Armonk, New York). Two-sided p values <0.05 were considered to indicate

statistical significance.



Results



Characteristics of study subjects

Table 1 summarized the demographic characteristics of the study population. We had a final total of 15,735 subjects, with 8474 male which was 53.85%. The average age was 40.64 ± 11.99 years old. Their mean body mass index (BMI) was 23.18 ± 3.53 . 49.37% workers stated that they had never exercise within a month. A majority of 79.31% workers were non-smokers. 86.30% workers had no alcohol drinking. The average working hours were 8.11 ± 1.30 hours. Most of the workers had enough sleeping period (79.08%). As for the WHP, the low score group (score 9-22) had 8937 people whereas the high score group (score 23-36) had 6439 people. About self-perceived health condition, ranging from 1 to 5, the mean score was 3.68 ± 0.79 . There were 4161 workers worked for companies with enterprise size less than five persons. Those workers in the companies between 5-50 people accounts for the largest components with 6953 subjects. The majorities of labor workers were non-manual low-skilled workers (28.6%). Non-manual skilled workers accounted for 16.8%. Manual skilled and manual low-skilled accounted for 18.5% and 23.5% of workers, respectively. Only 2.5% and 10% were administrator and professional workers.

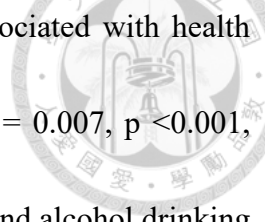


Correlation between self-perceived health and factors

Table 2a showed the Pearson correlation coefficients of self-perceived health with WHP and other factors. Higher self-perceived health scores were found to be associated with higher WHP, lower age, lower working hours, lower BMI, higher monthly salary and higher exercise (all $p < 0.05$). Table 2b described the association between self-perceived health with other factors. Higher self-perceived health scores were found to be significantly associated with enough sleeping period, non-smoking, and no alcohol drinking. Female sex seemed to have a non-significant trend to have worse self-perceived health condition. Table 2c presented ANOVA analysis of self-perceived health condition with other factors. Higher self-perceived health scores were found to be significantly associated with the enterprise size with 5-50 employees. As for employment grade, manager level had the highest self-perceived health scores, the second one was professional, and the third one was non-manual skilled, respectively. There was a negative correlation trend with the employment grade.

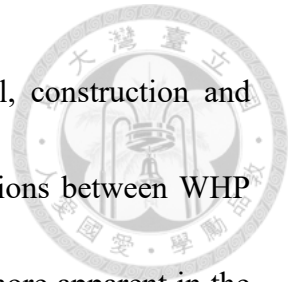
WHP was associated with better self-perceived health condition

The multivariate regression analyses indicated that WHP was still significantly positively associated with self-perceived health condition after adjusted for other confounding factors (table 3, $\beta = 0.159$, $SE = 0.013$, $p < 0.001$). For other factors, monthly

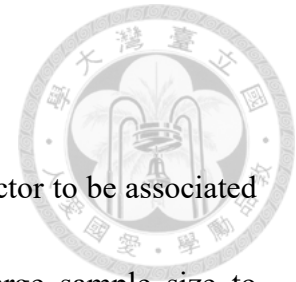


salary and exercise condition were still significantly positively associated with health condition (table 3, $\beta = 0.054$, $SE = 0.007$, $p < 0.001$; $\beta = 0.084$, $SE = 0.007$, $p < 0.001$, respectively). Nevertheless, age, sleeping condition, BMI, smoking and alcohol drinking were negatively associated with health condition (table 3, $\beta = -0.013$, $SE = 0.001$, $p < 0.001$; $\beta = -0.401$, $SE = 0.015$, $p < 0.001$; $\beta = -0.017$, $SE = 0.002$, $p < 0.001$; $\beta = -0.051$, $SE = 0.018$, $p = 0.006$; $\beta = -0.051$, $SE = 0.020$, $p = 0.011$, respectively). Female sex was associated with a significant worse self-perceived health condition after multiple linear regression (table 3, $\beta = -0.052$, $SE = 0.015$, $p = 0.001$). As for enterprise size, we took the group with 5-50 as reference. The group with larger people had lower self-perceived health and the group with less than five people had higher-self-perceived health score. As for the employment grade, we took manual low skilled as reference, administrator/manager, non-manual skilled, non-manual low-skilled had higher and significant self-perceived health score. The results from multivariate regression analyses indicated that WHP scores in the highest quartile had increased scores in self-perceived health as compared to those WHP in the lowest quartile (table 4), after controlling for age, gender, sleeping condition, BMI, monthly salary, exercise, smoking, alcohol drinking, enterprise size and employment grade. There was a dose-dependent trend for WHP. Employees with higher WHP scores had better self-perceived health (table 4, Q2 VS Q1, $\beta = 0.041$, $SE = 0.019$, $p < 0.028$; Q3 VS Q1, $\beta = 0.172$, $SE = 0.020$, $p < 0.001$; Q4 VS Q1, $\beta = 0.359$, $SE = 0.034$, $p < 0.001$). The

main four industries by labor numbers were manufacturing, retail, construction and service. When further stratified by industry categories, the associations between WHP and self-perceived health were still significantly positive, and was more apparent in the construction industry (table 5, $\beta = 0.165$, SE = 0.022, $p < 0.001$; $\beta = 0.182$, SE = 0.036, $p < 0.001$; $\beta = 0.185$, SE = 0.043, $p < 0.001$; $\beta = 0.142$, SE = 0.021, $p < 0.001$, respectively).

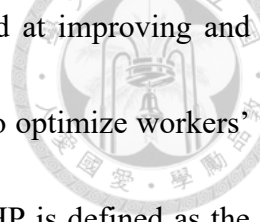


Discussion

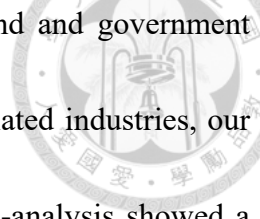


In our current study, we found that WHP was an independent factor to be associated with self-perceived health condition. We included a relatively large sample size to demonstrate WHP to have a beneficial association with self-perceived health outcome. We also did subgroup analysis to show that WHP was effective among different industries, gender and age groups to further validate the positive relationship of WHP and health outcome in this large labor cohort. Second, this is a formal survey from the government with consistent formats for years, therefore, the results generally have better reliability and validity. For example, there are experts from the government to confirm the reliability and validity of the questionnaires. Owing to the large participants, we were also able to demonstrate that the highest self-perceived health scores generally appeared in enterprise size with 5-50 employees and in subjects in manager level. However, these factors had no interaction for health scores and WHP. To our best knowledge, this was the largest Asian national-wide cohort study to delineate the detail association between WHP and self-perceived health scores. From our current results, we may speculate that introducing adequate WHP can have a positive effect for long-term health outcomes.

This study demonstrated that WHP to be associated with self-perceived health of the employees independently in different levels of enterprise and industries. WHP is a concept that is promoted by the European Network for WHP. The WHP concept includes

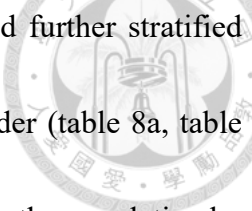


all the processes and structures in an organization that are directed at improving and developing the work environment, work community or work itself to optimize workers' health, work ability and well-being.¹² Therefore, the concept of WHP is defined as the combined efforts of employers, employees and society to improve the health and well-being of people at work. Several years ago, Viester et al conducted a randomized control trial to enroll 314 construction workers and divided them into an intervention group (n = 162) receiving personal coaching, tailored information, and materials and the control group.¹³ The results showed that the intervention improved physical activity, dietary, and weight-related outcomes, it was not successful in decreasing musculoskeletal symptoms and improving other work-related measures. The major differences between our current study and this randomized control trial would be the population size and outcome measurements. Some previous studies revealed scarce intervention effects for musculoskeletal symptoms for the health promotion programs.^{14,15} It has been suggested that multi-component interventions and longer intervention time are potentially more effective for these symptoms.¹⁶ Taiwan has conducted the WHP since 1974. It is regulated by the government that business entities employing 50 or more laborers shall employ or contract medical personnel to conduct health management, occupational disease prevention, health promotion, and other activities to ensure the health and protection of laborers. Hence, WHP including multi-component interventions has been performed in



Taiwan for years. Since Taiwan is a high population density island and government regulations could be more easily to implement and monitored in related industries, our current results are in line with previous meta-analysis.¹⁷ This meta-analysis showed a small positive effect, suggesting that workplace interventions might improve work ability. However, some previous meta-analysis also emphasized the importance of multilevel interventions and WHP programs may not be effective for older workers to improve their work ability.⁹ The average age of our subjects was only 40 years old and could follow the instruction of the WHP program more efficiently and thus WHP are prone to have significant potency in these participants.

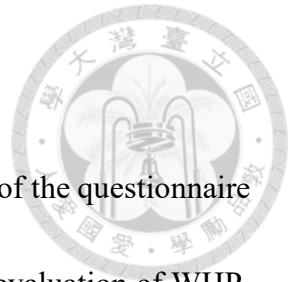
We separate WHP scores into quartiles and we could notice that the coefficients for health outcome generally increases according to the WHP scores (table 4). WHP in this regard, has a dose-dependent effects for self-perceived health. Ingrid et al, examined the effectiveness of a 5-month multilevel WHP program for 502 employees. The authors concluded that WHP showed improvements in the health and well-being of employees and could enhance individual and business performance.¹⁸ Therefore, the more comprehensive WHP was performed, the higher health condition for the labors could achieve. Besides, we evaluated the association of each item of the WHP measure with outcome variables. In table 7, each WHP revealed similar significant positive association with self-perceived health condition. Each WHP had similar beta coefficient which may



imply that all of them were with similar importance. Hence, we did further stratified stepwise analysis. Interestingly, there were differences between gender (table 8a, table 8b) and industries (table 9a, table 9b, table 9c, table 9d). If we separate the population by gender and examine the significant WHP items to be associated with health outcome, we can find that more gym and entertainment facilities and mental health assessment program were more associated with health outcome in male group (table 8a). This could be explained by the higher mental stress and more gym usage rates in the male workers. On the other hand, various health programs and health information were significant factors to related to outcomes in female gender (table 8b). It has been proposed that emotional and intellectual aspects (qualitative demands) are more important for women which can also apply to our current findings.¹⁹ Furthermore, if we stratified the population by four major industries, mental health assessment program was one of important items in the service industry (table 9d), the manufacture industry preferred adequate gym and entertainment facilities (table 9a). The above findings consisted with general understanding that the service industry may have higher stress and the manufacture industry suffered more of physical loads. We may thus provide WHP sequentially according to the demands of different industrial subjects.

Limitation

There were some limitations in the study. First, due to the design of the questionnaire used in the national surveys, we can only include nine items for the evaluation of WHP. Hence, it was not possible to conduct analyses for different domains of WHP with health outcome. Second, we only use cross-sectional data to infer longitudinal relationship. A precise causal relationship should be relied on further prospective studies. Third, we evaluated the health status by self-perceived health condition. A more objective definition for health status could further increase the reliability of current analysis. In addition, we cannot avoid selection bias either. However, we enrolled a large sample size, and the subjects were stratified to represent the national-wide labor cohort and could thus minimize the bias.



Conclusion

In this study, we concluded that WHP correlated to self-perceived health condition.

The employees who received well WHP seemed to have better self-perceived health condition. The employees with higher monthly salary and exercise frequencies were more likely to have better health condition while those with elder age, worse sleeping condition, higher BMI, smoking and alcohol drinking were more likely to have worse self-perceived health condition. Given the importance of health condition in the workplace, worksite activities for the prevention of health problems should not just focus on job characteristics or diseases, but should also consider introducing better WHP programs for the employees. The underlying mechanisms for the observed stronger associations and long-term effects between WHP and self-perceived health condition warrants further investigation.



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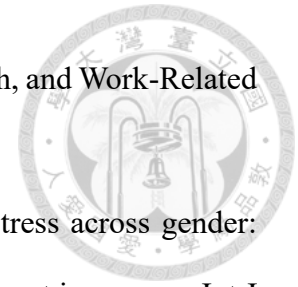
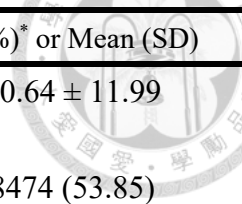


Table 1. Demographic data of study population (N = 15,735)



| Variable | N (%) [*] or Mean (SD) |
|--|---------------------------------|
| Age (yrs) | 40.64 ± 11.99 |
| Gender | |
| Men | 8474 (53.85) |
| Women | 7261 (46.15) |
| BMI (kg/m ²) | 23.18 ± 3.53 |
| Exercise frequency within a month | |
| None | 7713 (49.37) |
| Once a week | 3563 (22.80) |
| Two to four times a week | 3559 (22.78) |
| More than five times a week | 789 (5.05) |
| Smoking status within a month | |
| Non-smoking | 12260 (79.31) |
| Smoking | 3199 (20.69) |
| Alcohol drinking status within a month | |
| No | 13395 (86.30) |
| Yes | 2126 (13.70) |
| Working hours (hrs/day) | 8.11 ± 1.30 |
| Whether sleeping period is enough or not | |
| Enough | 12368 (79.08) |
| Not enough | 3271 (20.92) |
| Monthly salary (NTD) | |
| Below 20,007 | 2100 (13.66) |
| 20,008-29,999 | 5217 (33.94) |
| 30,000-39,999 | 4501 (29.28) |
| 40,000-49,999 | 2010 (13.08) |
| 50,000-99,999 | 1393 (9.06) |
| Above 100,000 | 151 (0.98) |
| The grouping of WHP (by score, range 9-36) | |
| Low score group (score 9-22) | 8937 (58.12) |
| High score group (score 23-36) | 6439 (41.88) |
| Self-perceived health condition (by score, range: 1-5) | 3.68 ± 0.79 |
| Enterprise size | |
| <5 | 4161 (26.4) |
| 5-50 | 6953 (44.2) |
| 51-300 | 2540 (16.1) |

Table 1. Demographic data of study population (N = 15,735)

| Variable | N (%) [*] or Mean (SD) |
|------------------------|---------------------------------|
| >300 | 2031 (12.9) |
| Employment grade | |
| Administrator/manager | 390 (2.5) |
| Professional | 1579 (10.0) |
| Non-manual skilled | 2645 (16.8) |
| Non-manual low-skilled | 4508 (28.6) |
| Manual skilled | 2918 (18.5) |
| Manual low-skilled | 3695 (23.5) |

WHP, workplace health promotion; BMI, body mass index



Table 2a. Correlations between variables by Pearson correlation

| | Self - perceived health | WHP | Age | Working hours | BMI | Monthly salary | Exercise |
|--------------------------|-------------------------------|-----------|-----------|------------------|-----------|-------------------|----------|
| Self-perceived health | 1 | | | | | | |
| WHP | 0.128*** | 1 | | | | | |
| Age | -0.184*** | -0.050*** | 1 | | | | |
| Working hours | -0.016* | 0.037*** | -0.072*** | 1 | | | |
| BMI | -0.114*** | -0.024** | 0.157*** | 0.009 | 1 | | |
| Monthly salary | 0.076*** | 0.144*** | 0.053*** | 0.135*** | 0.046*** | 1 | |
| Exercise | 0.136*** | 0.107*** | 0.029*** | -0.027** | -0.051*** | 0.119*** | 1 |

WHP, workplace health promotion; BMI, body mass index

* p < 0.05; ** p < 0.01; *** p < 0.001

Table 2b. Correlations between variables by t-test

| Variable | Mean ± SD | p value |
|--|--------------|---------|
| Gender | | 0.106 |
| Men | 3.69 (0.791) | |
| Women | 3.67 (0.784) | |
| Whether sleeping period is enough or not | | <0.0001 |
| Enough | 3.77 (0.770) | |
| Not enough | 3.35 (0.766) | |
| Smoking status within a month | | <0.0001 |
| Non-smoking | 3.71 (0.782) | |
| Smoking | 3.58 (0.804) | |
| Alcohol drinking status within a month | | <0.0001 |
| No | 3.70 (0.786) | |
| Yes | 3.57 (0.787) | |

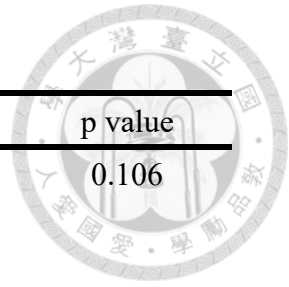


Table 2c. Correlations between variables by ANOVA

| Variable | Mean ± SD | p value |
|------------------------|--------------|---------|
| Enterprise size | | <0.001 |
| <5 | 3.64 (0.823) | |
| 5-50 | 3.71 (0.775) | |
| 51-300 | 3.69 (0.779) | |
| >300 | 3.67 (0.766) | |
| Employment grade | | <0.001 |
| Administrator/manager | 3.78 (0.758) | |
| Professional | 3.77 (0.769) | |
| Non-manual skilled | 3.76 (0.767) | |
| Non-manual low-skilled | 3.71 (0.793) | |
| Manual skilled | 3.62 (0.790) | |
| Manual low-skilled | 3.58 (0.790) | |

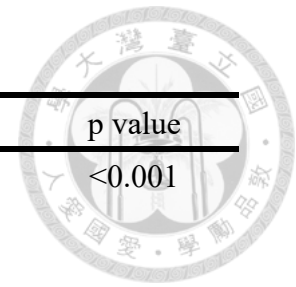


Table 3. Multiple linear regression model for risk factors of self-perceived health condition.

| Variable | β | SE | 95 % CI | p value |
|---|---------|-------|-------------------|---------|
| (Intercept) | 4.877 | 0.071 | (4.739 ; 5.016) | <0.001 |
| WHP (High score group vs. low score group) | 0.159 | 0.013 | (0.133 ; 0.184) | <0.001 |
| Age (yrs) | -0.013 | 0.001 | (-0.014 ; -0.012) | <0.001 |
| Gender (female vs. male) | -0.052 | 0.015 | (-0.082 ; -0.021) | 0.001 |
| Sleeping condition (not enough vs. enough) | -0.401 | 0.015 | (-0.431 ; -0.371) | <0.001 |
| BMI (kg/m ²) | -0.017 | 0.002 | (-0.020 ; -0.013) | <0.001 |
| Monthly salary (linear trend: from low to high) | 0.054 | 0.007 | (0.041 ; 0.067) | <0.001 |
| Exercise (linear trend: from low to high) | 0.084 | 0.007 | (0.071 ; 0.097) | <0.001 |
| Smoking (yes vs. no) | -0.051 | 0.018 | (-0.087 ; -0.015) | 0.006 |
| Alcohol drinking (yes vs. no) | -0.051 | 0.020 | (-0.091 ; -0.012) | 0.011 |
| Enterprise size | | | | |
| <5 | 0.033 | 0.016 | (0.001 ; 0.066) | 0.043 |
| 5-50 (ref.) | 0 | | | |
| 51-300 | -0.066 | 0.018 | (-0.101 ; -0.030) | <0.001 |
| >300 | -0.130 | 0.021 | (-0.170 ; -0.090) | <0.001 |
| Employment grade | | | | |
| Administrator/manager | 0.106 | 0.043 | (0.021 ; 0.191) | 0.015 |
| Professional | 0.023 | 0.025 | (-0.027 ; 0.072) | 0.369 |
| Non-manual skilled | 0.072 | 0.021 | (0.031 ; 0.112) | 0.001 |
| Non-manual low-skilled | 0.049 | 0.018 | (0.013 ; 0.085) | 0.007 |
| Manual skilled | 0.010 | 0.020 | (-0.029 ; 0.050) | 0.601 |
| Manual low-skilled (ref.) | 0 | | | |

WHP, workplace health promotion; BMI, body mass index

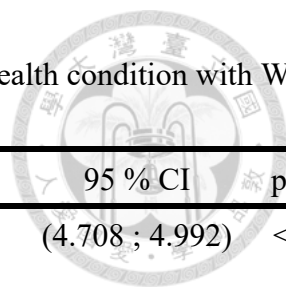


Table 4. Multiple linear regression model for risk factors of self-perceived health condition with WHP stratified into quartile

| Variable | β | SE | 95 % CI | p value |
|---|---------|-------|-------------------|---------|
| (Intercept) | 4.850 | 0.072 | (4.708 ; 4.992) | <0.001 |
| WHP | | | | |
| WHP Q1 (score 9-15) (ref.) | 0 | | | |
| WHP Q2 (score 16-22) | 0.041 | 0.019 | (0.004 ; 0.078) | 0.028 |
| WHP Q3 (score 23-29) | 0.172 | 0.020 | (0.134 ; 0.211) | <0.001 |
| WHP Q4 (score 30-36) | 0.359 | 0.034 | (0.292 ; 0.427) | <0.001 |
| Age (yrs) | -0.013 | 0.001 | (-0.014 ; -0.011) | <0.001 |
| Gender (female vs. male) | -0.051 | 0.015 | (-0.081 ; -0.021) | 0.001 |
| Sleeping condition (not enough vs. enough) | -0.400 | 0.015 | (-0.430 ; -0.370) | <0.001 |
| BMI (kg/m ²) | -0.017 | 0.002 | (-0.020 ; -0.013) | <0.001 |
| Monthly salary (linear trend: from low to high) | 0.052 | 0.007 | (0.039 ; 0.066) | <0.001 |
| Exercise (linear trend: from low to high) | 0.083 | 0.007 | (0.070 ; 0.097) | <0.001 |
| Smoking (yes vs. no) | -0.049 | 0.018 | (-0.085 ; -0.013) | 0.007 |
| Alcohol drinking (yes vs. no) | -0.054 | 0.020 | (-0.093 ; -0.014) | 0.007 |
| Enterprise size | | | | |
| <5 | 0.033 | 0.016 | (0.001 ; 0.066) | 0.043 |
| 5-50 (ref.) | 0 | | | |
| 51-300 | -0.067 | 0.018 | (-0.102 ; -0.031) | <0.001 |
| >300 | -0.137 | 0.021 | (-0.177 ; -0.096) | <0.001 |
| Employment grade | | | | |
| Administrator/manager | 0.109 | 0.043 | (0.024 ; 0.194) | 0.012 |
| Professional | 0.023 | 0.025 | (-0.027 ; 0.072) | 0.368 |
| Non-manual skilled | 0.073 | 0.021 | (0.032 ; 0.114) | <0.001 |
| Non-manual low-skilled | 0.049 | 0.018 | (0.013 ; 0.085) | 0.007 |
| Manual skilled | 0.011 | 0.020 | (-0.029 ; 0.050) | 0.587 |
| Manual low-skilled (ref.) | 0 | | | |

WHP, workplace health promotion; BMI, body mass index

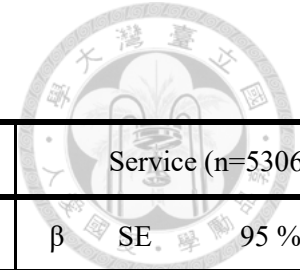


Table 5. Multiple linear regression model for risk factors of self-perceived health condition, stratified by industry

| | Manufacturing (n=4904) | | | Retail (n=1980) | | | Construction (n=1414) | | | Service (n=5306) | | |
|---|------------------------|-------|----------------------|-----------------|-------|----------------------|-----------------------|-------|----------------------|------------------|-------|----------------------|
| | β | SE | 95 % CI | β | SE | 95 % CI | β | SE | 95 % CI | β | SE | 95 % CI |
| (Intercept) | 4.680 | 0.117 | (4.451 ; 4.910)*** | 4.832 | 0.194 | (4.451 ; 5.212)*** | 4.607 | 0.248 | (4.120 ; 5.094)*** | 5.037 | 0.120 | (4.802 ; 5.272)*** |
| WHP (High score group vs. low score group) | 0.165 | 0.022 | (0.122 ; 0.207)*** | 0.182 | 0.036 | (0.112 ; 0.252)*** | 0.185 | 0.043 | (0.100 ; 0.269)*** | 0.142 | 0.021 | (0.100 ; 0.184)*** |
| Age (yrs) | -0.012 | 0.001 | (-0.015 ; -0.010)*** | -0.011 | 0.001 | (-0.014 ; -0.008)*** | -0.014 | 0.002 | (-0.017 ; -0.011)*** | -0.012 | 0.001 | (-0.014 ; -0.01)*** |
| Gender (female vs. male) | -0.064 | 0.026 | (-0.115 ; -0.012)* | -0.062 | 0.042 | (-0.144 ; 0.021) | 0.060 | 0.077 | (-0.092 ; 0.212) | -0.054 | 0.025 | (-0.103 ; -0.005)* |
| Sleeping condition (not enough vs. enough) | -0.399 | 0.026 | (-0.450 ; -0.348)*** | -0.425 | 0.042 | (-0.507 ; -0.343)*** | -0.332 | 0.054 | (-0.437 ; -0.226)*** | -0.403 | 0.024 | (-0.451 ; -0.355)*** |
| BMI (kg/m ²) | -0.008 | 0.003 | (-0.014 ; -0.002)** | -0.010 | 0.005 | (-0.020 ; 0.000)* | -0.012 | 0.007 | (-0.025 ; 0.001) | -0.027 | 0.003 | (-0.033 ; -0.021)*** |
| Monthly salary (linear trend: from low to high) | 0.037 | 0.012 | (0.012 ; 0.061)** | 0.026 | 0.019 | (-0.011 ; 0.062) | 0.060 | 0.021 | (0.020 ; 0.100)** | 0.072 | 0.011 | (0.051 ; 0.092)*** |
| Exercise (linear trend: from low to high) | 0.089 | 0.011 | (0.067 ; 0.111)*** | 0.135 | 0.018 | (0.099 ; 0.170)*** | 0.068 | 0.024 | (0.021 ; 0.116)** | 0.068 | 0.011 | (0.046 ; 0.089)*** |
| Smoking (yes vs. no) | -0.043 | 0.029 | (-0.101 ; 0.014) | 0.031 | 0.054 | (-0.075 ; 0.137) | -0.144 | 0.046 | (-0.235 ; -0.053)** | -0.017 | 0.034 | (-0.083 ; 0.049) |
| Alcohol drinking (yes vs. no) | -0.041 | 0.034 | (-0.108 ; 0.027) | -0.217 | 0.062 | (-0.338 ; -0.095)** | 0.028 | 0.047 | (-0.064 ; 0.119) | -0.038 | 0.036 | (-0.108 ; 0.032) |
| Enterprise size | | | | | | | | | | | | |
| <5 | 0.023 | 0.041 | (-0.057 ; 0.103) | 0.021 | 0.039 | (-0.054 ; 0.097) | -0.006 | 0.043 | (-0.090 ; 0.078) | 0.022 | 0.027 | (-0.031 ; 0.074) |
| 5-50 (ref.) | 0 | | | 0 | | | 0 | | | 0 | | |
| 51-300 | -0.035 | 0.026 | (-0.087 ; 0.016) | -0.173 | 0.063 | (-0.296 ; -0.051)** | -0.174 | 0.106 | (-0.381 ; 0.033) | -0.055 | 0.031 | (-0.116 ; 0.006) |
| >300 | -0.107 | 0.029 | (-0.164 ; -0.051)*** | -0.241 | 0.105 | (-0.447 ; -0.035)* | -0.387 | 0.193 | (-0.766 ; -0.008)* | -0.124 | 0.037 | (-0.196 ; -0.052)** |

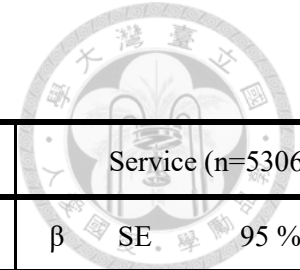


Table 5. Multiple linear regression model for risk factors of self-perceived health condition, stratified by industry

| | Manufacturing (n=4904) | | | Retail (n=1980) | | | Construction (n=1414) | | | Service (n=5306) | | |
|---------------------------|------------------------|-------|------------------|-----------------|-------|------------------|-----------------------|-------|------------------|------------------|-------|------------------|
| | β | SE | 95 % CI | β | SE | 95 % CI | β | SE | 95 % CI | β | SE | 95 % CI |
| Employment grade | | | | | | | | | | | | |
| Administrator/manager | 0.137 | 0.065 | (0.009 ; 0.266)* | 0.068 | 0.126 | (-0.179 ; 0.316) | -0.270 | 0.211 | (-0.684 ; 0.143) | 0.116 | 0.073 | (-0.028 ; 0.259) |
| Professional | 0.057 | 0.040 | (-0.022 ; 0.136) | 0.000 | 0.120 | (-0.235 ; 0.235) | 0.256 | 0.161 | (-0.059 ; 0.572) | -0.006 | 0.040 | (-0.085 ; 0.074) |
| Non-manual skilled | 0.062 | 0.031 | (0.001 ; 0.123)* | 0.068 | 0.068 | (-0.065 ; 0.202) | 0.014 | 0.086 | (-0.155 ; 0.184) | 0.086 | 0.037 | (0.013 ; 0.159)* |
| Non-manual low-skilled | 0.063 | 0.038 | (-0.011 ; 0.137) | -0.003 | 0.059 | (-0.119 ; 0.113) | -0.072 | 0.119 | (-0.306 ; 0.163) | 0.054 | 0.032 | (-0.007 ; 0.116) |
| Manual skilled | 0.015 | 0.029 | (-0.043 ; 0.072) | -0.040 | 0.091 | (-0.219 ; 0.139) | 0.048 | 0.055 | (-0.060 ; 0.155) | 0.074 | 0.060 | (-0.044 ; 0.192) |
| Manual low-skilled (ref.) | 0 | | | 0 | | | 0 | | | 0 | | |

WHP, workplace health promotion; BMI, body mass index

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

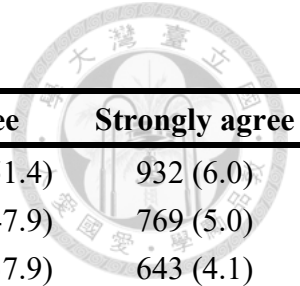


Table 6. WHP questionnaire analysis

| No. | Questionnaire | Strongly disagree | Disagree | Agree | Strongly agree |
|-----|---|-------------------|-------------|-------------|----------------|
| 1 | Health examination meet employee's requirement | 1795 (11.6) | 4805 (31.0) | 7979 (51.4) | 932 (6.0) |
| 2 | Properly store health examination data | 1865 (12.0) | 5438 (35.1) | 7410 (47.9) | 769 (5.0) |
| 3 | Provide various health promotion programs | 2148 (13.9) | 6837 (44.1) | 5868 (37.9) | 643 (4.1) |
| 4 | Adequate gym and entertainment facilities | 2820 (18.2) | 7725 (49.8) | 4377 (28.2) | 594 (3.8) |
| 5 | Provide EAP programs | 2676 (17.3) | 7783 (50.2) | 4539 (29.3) | 513 (3.3) |
| 6 | Provide mental health assessment programs | 2583 (16.7) | 7174 (46.3) | 5247 (33.8) | 506 (3.3) |
| 7 | Deliver enough health information | 2288 (14.8) | 5949 (38.4) | 6661 (43.0) | 608 (3.9) |
| 8 | Implement workplace hazardous assessment and protective program | 2137 (13.8) | 5752 (37.1) | 6948 (44.8) | 676 (4.4) |
| 9 | Provide safety and health activities | 2267 (14.6) | 6243 (40.3) | 6329 (40.8) | 659 (4.3) |

EAP: employee assistance program

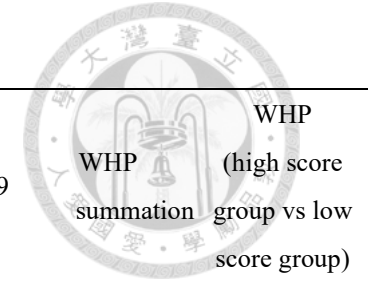


Table 7. Correlations between each item of WHP and self-perceived health condition

| Self-perceived health condition | WHP item 1 | WHP item 2 | WHP item 3 | WHP item 4 | WHP item 5 | WHP item 6 | WHP item 7 | WHP item 8 | WHP item 9 | WHP summation | WHP (high score group vs low score group) |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|---------------|---|
| Self-perceived health condition | | | | | | | | | | | |
| WHP item 1 | 1 | | | | | | | | | | |
| WHP item 2 | .119** | 1 | | | | | | | | | |
| WHP item 3 | .099** | .874** | 1 | | | | | | | | |
| WHP item 4 | .125** | .747** | .792** | 1 | | | | | | | |
| WHP item 5 | .132** | .622** | .633** | .743** | 1 | | | | | | |
| WHP item 6 | .123** | .645** | .677** | .776** | .844** | 1 | | | | | |
| WHP item 7 | .137** | .656** | .683** | .775** | .789** | .869** | 1 | | | | |
| WHP item 8 | .135** | .685** | .703** | .764** | .715** | .781** | .831** | 1 | | | |
| WHP item 9 | .112** | .699** | .719** | .735** | .680** | .730** | .775** | .825** | 1 | | |
| WHP summation | .126** | .685** | .707** | .768** | .717** | .777** | .798** | .842** | .840** | 1 | |
| WHP(high score group vs low score group) | .141** | .836** | .857** | .896** | .851** | .895** | .906** | .903** | .885** | .901** | 1 |
| | .128** | .625** | .659** | .728** | .675** | .725** | .746** | .735** | .702** | .743** | .799** |

WHP, workplace health promotion ; * p < 0.05; ** p < 0.01

Table 8a. Multiple linear regression model for individual WHP items and risk factors of self-perceived health condition, stratified by gender (gender=male)

| Variable* | β | SE | p value |
|--|---------|-------|---------|
| (Intercept) | 4.687 | 0.084 | <0.001 |
| Sleeping condition (not enough vs. enough) | -0.388 | 0.021 | <0.001 |
| Age (yrs) | -0.014 | 0.001 | <0.001 |
| Exercise (linear trend: from low to high) | 0.086 | 0.009 | <0.001 |
| WHP No.6 Provide mental health assessment programs | 0.072 | 0.018 | <0.001 |
| Monthly salary (linear trend: from low to high) | 0.064 | 0.008 | <0.001 |
| BMI | -0.014 | 0.003 | <0.001 |
| Enterprise size | -0.042 | 0.008 | <0.001 |
| Alcohol drinking (yes vs. no) | -0.052 | 0.022 | 0.018 |
| WHP No.4 Adequate gym and entertainment facilities | 0.047 | 0.018 | 0.008 |
| Smoking (yes vs. no) | -0.043 | 0.019 | 0.027 |

WHP, workplace health promotion; BMI, body mass index

*Stepwise multiple linear regression models were applied to evaluate individual WHP items and other confounding factors for self-perceived health.

Table 8b. Multiple linear regression model for individual WHP items and risk factors of self-perceived health condition, stratified by gender (gender=female)

| Variable* | β | SE | p value |
|--|---------|-------|---------|
| (Intercept) | 4.715 | 0.098 | <0.001 |
| Sleeping condition (not enough vs. enough) | -0.401 | 0.022 | <0.001 |
| Age (yrs) | -0.011 | 0.001 | <0.001 |
| Exercise (linear trend: from low to high) | 0.088 | 0.010 | <0.001 |
| WHP No.7 Deliver enough health information | 0.067 | 0.018 | <0.001 |
| BMI | -0.020 | 0.003 | <0.001 |
| Monthly salary (linear trend: from low to high) | 0.060 | 0.009 | <0.001 |
| Enterprise size | -0.045 | 0.009 | <0.001 |
| WHP No.3 Provide various health promotion programs | 0.060 | 0.019 | 0.001 |
| Smoking (yes vs. no) | -0.169 | 0.056 | 0.003 |

WHP, workplace health promotion; BMI, body mass index

*Stepwise multiple linear regression models were applied to evaluate individual WHP items and other confounding factors for self-perceived health.

Table 9a. Multiple linear regression model for individual WHP items and risk factors of self-perceived health condition, stratified by industry (industry= manufacturing)

| Variable* | β | SE | p value |
|--|---------|-------|---------|
| (Intercept) | 4.244 | 0.095 | <0.001 |
| Sleeping condition (not enough vs. enough) | -0.390 | 0.026 | <0.001 |
| Age (yrs) | -0.013 | 0.001 | <0.001 |
| Exercise (linear trend: from low to high) | 0.092 | 0.011 | <0.001 |
| WHP No.4 Adequate gym and entertainment facilities | 0.081 | 0.019 | <0.001 |
| Monthly salary (linear trend: from low to high) | 0.056 | 0.010 | <0.001 |
| Enterprise size | -0.037 | 0.009 | <0.001 |
| WHP No.7 Deliver enough health information | 0.069 | 0.019 | <0.001 |
| BMI | -0.007 | 0.003 | 0.017 |

WHP, workplace health promotion; BMI, body mass index

*Stepwise multiple linear regression models were applied to evaluate individual WHP items and other confounding factors for self-perceived health.

Table 9b. Multiple linear regression model for individual WHP items and risk factors of self-perceived health condition, stratified by industry (industry= retail)

| Variable* | β | SE | p value |
|--|---------|-------|---------|
| (Intercept) | 4.388 | 0.112 | <0.001 |
| Sleeping condition (not enough vs. enough) | -0.433 | 0.041 | <0.001 |
| Exercise (linear trend: from low to high) | 0.137 | 0.018 | <0.001 |
| Age (yrs) | -0.011 | 0.001 | <0.001 |
| WHP No.4 Adequate gym and entertainment facilities | 0.107 | 0.023 | <0.001 |
| Alcohol drinking (yes vs. no) | -0.174 | 0.056 | 0.002 |

WHP, workplace health promotion

*Stepwise multiple linear regression models were applied to evaluate individual WHP items and other confounding factors for self-perceived health.

Table 9c. Multiple linear regression model for individual WHP items and risk factors of self-perceived health condition, stratified by industry (industry= construction)

| Variable* | β | SE | p value |
|--|---------|-------|---------|
| (Intercept) | 4.623 | 0.205 | <0.001 |
| Age (yrs) | -0.014 | 0.002 | <0.001 |
| Sleeping condition (not enough vs. enough) | -0.332 | 0.054 | <0.001 |
| Smoking (yes vs. no) | -0.127 | 0.041 | 0.002 |
| WHP No.3 Provide various health promotion programs | 0.091 | 0.027 | 0.001 |
| Exercise (linear trend: from low to high) | 0.065 | 0.024 | 0.006 |
| Monthly salary (linear trend: from low to high) | 0.050 | 0.019 | 0.008 |
| BMI | -0.013 | 0.006 | 0.044 |

WHP, workplace health promotion; BMI, body mass index

*Stepwise multiple linear regression models were applied to evaluate individual WHP items and other confounding factors for self-perceived health.

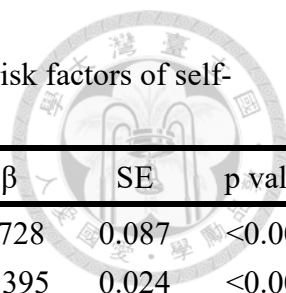


Table 9d. Multiple linear regression model for individual WHP items and risk factors of self-perceived health condition, stratified by industry (industry= service)

| Variable* | β | SE | p value |
|---|---------|-------|---------|
| (Intercept) | 4.728 | 0.087 | <0.001 |
| Sleeping condition (not enough vs. enough) | -0.395 | 0.024 | <0.001 |
| Age (yrs) | -0.012 | 0.001 | <0.001 |
| Monthly salary (linear trend: from low to high) | 0.076 | 0.009 | <0.001 |
| BMI | -0.026 | 0.003 | <0.001 |
| WHP No.6 Provide mental health assessment programs | 0.104 | 0.018 | <0.001 |
| Exercise (linear trend: from low to high) | 0.071 | 0.011 | <0.001 |
| Enterprise size | -0.038 | 0.010 | <0.001 |
| WHP No.1 Health examination meet employee's requirement | 0.101 | 0.028 | <0.001 |
| WHP No.2 Properly store health examination data | -0.084 | 0.029 | 0.004 |

WHP, workplace health promotion; BMI, body mass index

*Stepwise multiple linear regression models were applied to evaluate individual WHP items and other confounding factors for self-perceived health.

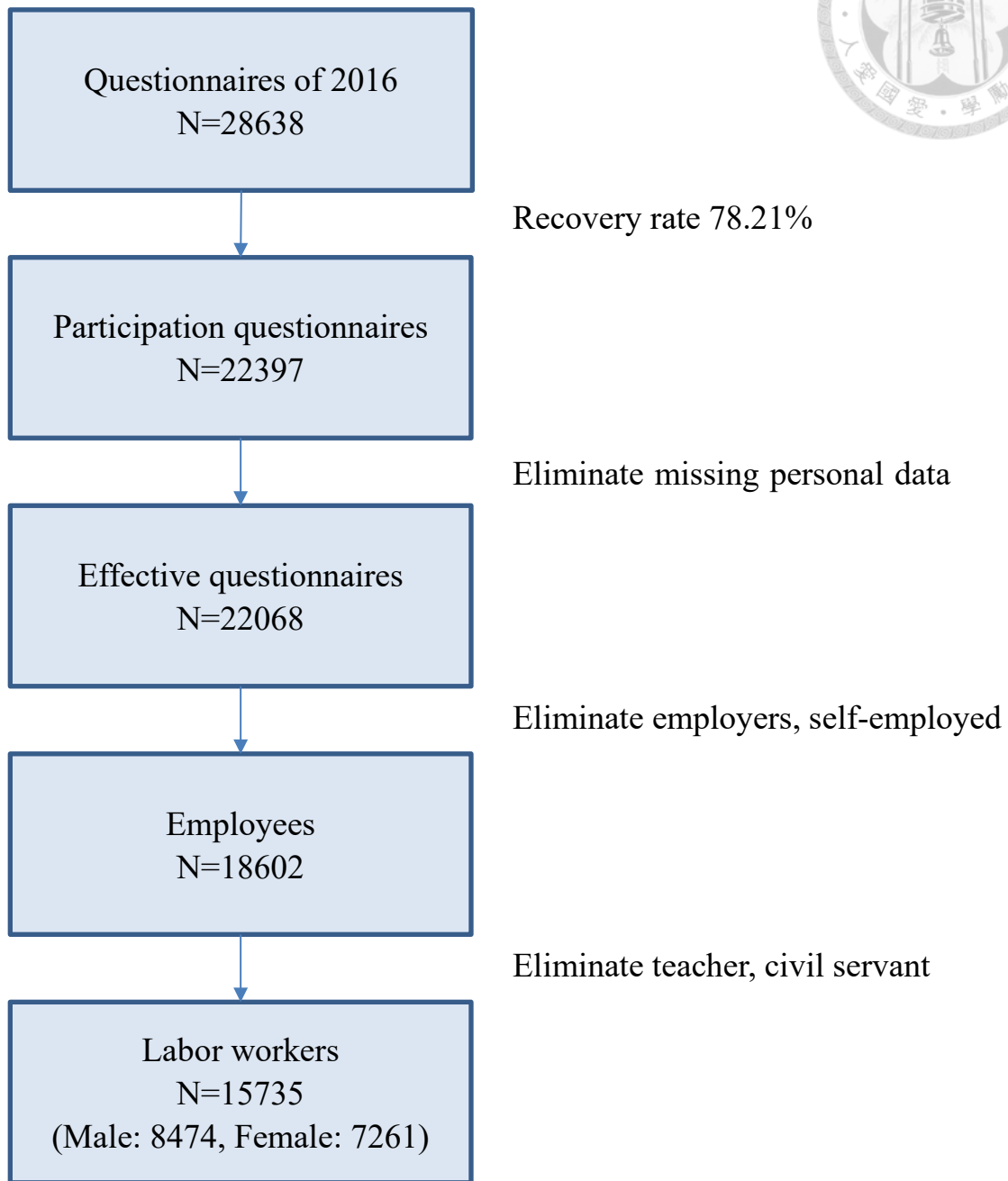


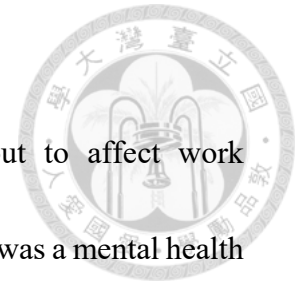
Figure 1. Flow chart of study subject



二、職場健康促進活動與勞工個人過勞之相關性

Part II. Relationship between workplace health promotion and personal burnout in workers.

Introduction

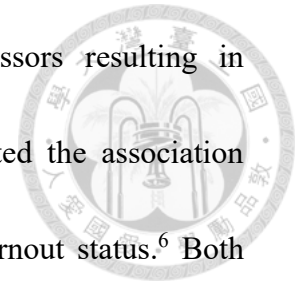


Recently, it has been highlighted the importance of burnout to affect work performance and worker's health.¹ Burnout was related to work and was a mental health condition included three components, emotional exhaustion, depersonalization and reduced personal accomplishment. Generally, emotional exhaustion is that the subjects was deprived of one's emotional resources, depersonalization means detachment to people or social connection and reduced personal accomplishment refers to a sense of low self-efficacy and negative feelings towards one's self.² Burnout usually resulted from stress usually found in asymmetrical professional relationships and are detrimental to workers. Burnout could reduce employers' productivity, lost work time and increased workers' compensation claims.³

A previous study found that intervention programs which include refresher courses resulted in longer lasting positive effects on burnout.⁴ Recent review paper even suggested that near 82% of all person-directed interventions led to a significant reduction in burnout or positive changes in its risk factors.¹ Furthermore, organization-directed intervention could be even helpful for a significant reduction in burnout lasting up to 1 year.¹

Many healthcare agencies are now engaging in work health promotional program (WHP) to support employees in the workplace. WHP are increasingly available to

employers to offset the negative consequences of daily stressors resulting in compassion fatigue.⁵ One previous study in Taiwan has evaluated the association between employment insecurity, workplace justice scales and burnout status.⁶ Both scales were found to have satisfactory reliability and validity; nevertheless, there was no attempt to analyze the association between WHP and burnout status in Taiwan. Therefore, in current study, we would like to know that whether WHP improve the burnout status of the employees in Taiwan through a large national-wide cohort survey.



Methods

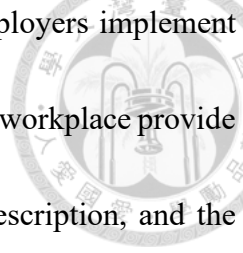


Study population

The study population was the same as the first study. In brief, the population was from the surveys of the Institute of Labor, Occupational Safety and Health throughout Taiwan.^{6,7} Our current study adopted the questionnaire to evaluate the association between WHP and personal burnout in these employees. A questionnaire was administered to 28,638 workers reporting on their workplace, working conditions, life conditions, health and stress. The effective questionnaire recovery rate was also 78.21% (22,397 of the 28,638 workers). After eliminating missing personal data, employers, self-employed, teacher, civil servant, we enrolled 15735 labor workers.

Questionnaire and measures

This questionnaire was designed by the government and was previous proved to have well internal consistency, too.⁶ Based on existing questionnaires, nine items for WHP were selected. The nine items were whether the health examination meet employee's requirement? Did the workplace properly store health examination data? Did the workplace provide various health promotion programs? Did the workplace have adequate gym and entertainment facilities? Did the workplace provide employee assistance program? Did the workplace provide mental health assessment programs?



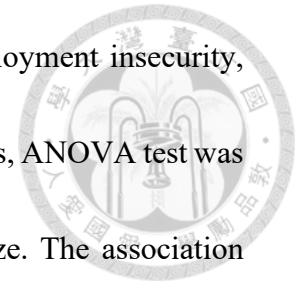
Did the workplace deliver enough health information? Did the employers implement workplace hazardous assessment and protective program and did the workplace provide safety and health activities? Each item was listed as a question description, and the response was recorded on a four-point Likert scale. The scale ranged from 1 (strongly disagree) to 4 (strongly agree). We use Copenhagen burnout inventory as personal burnout evaluation. Each item was listed as a statement and the response was recorded on a five-point scale, ranging from 1 to 5. Total scores ranged from 5 to 25. The questionnaire of the confounding factors, including job control, employment insecurity, job demands, were Job Content Questionnaire (JCQ).

(Appendix) (<http://homepage.ntu.edu.tw/~ycheng/questionnaire/>)

Data analysis

Descriptive analyses of WHP and the study population by gender, age, working hours, job control, employment insecurity, job demands, enterprise size, employment grade and personal burnout were performed. The confounding factors were selected according to previous study.⁶ All participants were also divided into two groups according to the summation of WHP scores, the low score group (score 9-22) and the high score group (score 23-36). Data were expressed as mean \pm SD or as frequencies and percentages. Pearson's correlation test was applied to compare correlations

between WHP, and gender, age, working hours, job control, employment insecurity, and job demands. To enable a comparison of personal burnout scores, ANOVA test was performed between different employment grade and enterprise size. The association between personal burnout and WHP was examined by multivariable linear regression model. Age, gender, working hours, job control, employment insecurity, job demands, enterprise size and employment grade which were possible confounding factors were adjusted. Statistical analysis was performed using IBM SPSS Statistics version 26.0 (IBM, Armonk, New York). Two-sided p values <0.05 were considered to indicate statistical significance.



Results

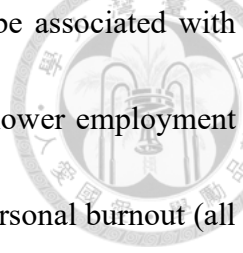


Characteristics of study subjects

Table 1 summarized the demographic characteristics of the study population. We had a final total of 15,735 subjects, with 8474 male which was 53.85%. The average working hours were 8.11 ± 1.30 hours. About job control score, ranging from 7-28, the mean score was 17.08 ± 2.88 . About employment insecurity score, ranging from 2-8, the mean score was 5.29 ± 1.25 . About job demands score, ranging from 6-24, the mean score was 16.06 ± 3.18 . About personal burnout score, ranging from 5-25, the mean score was 10.87 ± 3.99 . As for the WHP, the low score group (score 9-22) had 8937 people whereas the high score group (score 23-36) had 6439 people. There were 4161 workers worked for companies with enterprise size less than five persons. Those workers in the companies between 5-50 people accounts for the largest components with 6953 subjects. The majorities of labor workers were non-manual low-skilled workers (28.6%). Non- manual skilled workers accounted for 16.8%. Manual skilled and manual low-skilled accounted for 18.5% and 23.5% of workers, respectively. Only 2.5% and 10% were administrator and professional workers.

Correlation between personal burnout and factors

Table 2a showed the Pearson correlation coefficients of personal burnout with WHP

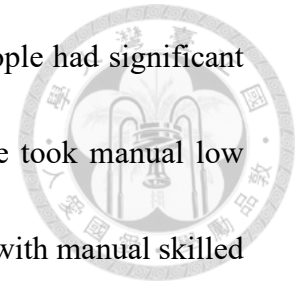


and other factors. Lower personal burnout scores were found to be associated with higher WHP, lower age, lower working hours, lower job control, lower employment insecurity, lower job demands. Female workers perceived higher personal burnout (all $p < 0.001$). Table 2b presented ANOVA analysis of personal burnout with other factors. Higher personal burnout scores were found to be significantly associated with the enterprise size with >300 employees. As for employment grade, non-manual skilled had the highest personal burnout scores, the second one was professional, and the third one was manager level (all $p < 0.001$).

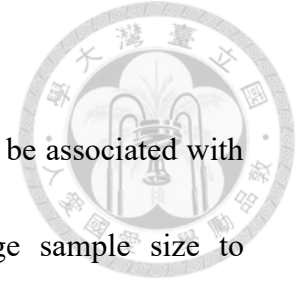
WHP was associated with lower personal burnout

The multivariate regression analysis indicated that WHP was still significantly negatively associated with personal burnout after adjusted for other confounding factors (table 3, $\beta = -0.397$, $SE = 0.066$, $p < 0.001$). For other factors, job control, working hours, employment insecurity, job demands, age, gender were still significantly positively associated with personal burnout (table 3, $\beta = 0.121$, $SE = 0.013$, $p < 0.001$; $\beta = 0.136$, $SE = 0.024$, $p < 0.001$; $\beta = 0.389$, $SE = 0.029$, $p < 0.001$; $\beta = 0.435$, $SE = 0.010$, $p < 0.001$; $\beta = 0.024$, $SE = 0.003$, $p < 0.001$; $\beta = 0.523$, $SE = 0.065$, $p < 0.001$, respectively). Female sex was associated with significant higher personal burnout scores (table 3, $\beta = 0.523$, $SE = 0.065$, $p < 0.001$). As for enterprise size, we took the

group with 5-50 employees as reference. The group with >300 people had significant higher personal burnout scores. As for the employment grade, we took manual low skilled as reference. Comparing to the reference group, employees with manual skilled had significant lower burnout scores.

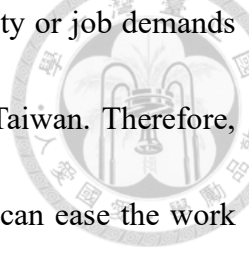


Discussion



In our study, we found that WHP was an independent factor to be associated with workers' personal burnout. We also included a relatively large sample size to demonstrate WHP to have a negative association with personal burnout. Our current study was in consistent with most previous manuscripts that WHP was one of the most important means to improve personal burnout.¹ Owing to the large participants, we were also able to demonstrate that poor job control, long working hours, worse employment insecurity, high job demands, elder age, female gender and larger enterprise size were all possible risk factors for personal burnout. To our best knowledge, this was the largest Asian national-wide cohort study to showed that WHP was an important, independent factor to decrease personal burnout and from the results of our current study, we may possible emphasize the importance of WHP to prevent burnout and elevate the working efficiency in Taiwan industries.

There were different risk factors for personal burnout in various population. For example, younger age, having less work experience, and being overinvolved in client problems were the most common personal risk factors for moderate-high levels of stress and burnout among psychotherapists.⁸ On the other hand, night shift experience, high occupational stress, and low social support were significant predictors for emotional exhaustion among physicians.⁹ Nevertheless, in our current analysis, working



environmental factors such as working hours, employment insecurity or job demands seemed to be the main pressure source for general employees in Taiwan. Therefore, strategies to enhance friendly working environment or means that can ease the work could be the most urgent subjects rather than psychological supports. Different from previous studies, aging and female gender were also factors associated with personal burnout. The main reasons could be that our participants were mostly employees from industries and physical strength served as a necessary factor for longer and heavier work. Generally, aging and female gender have less energy comparing to younger, male workers.

We found that WHP negatively associated with higher scores of personal burnout in our current study. The results were generally in line with most other studies. Awe et al ever reviewed a total of 25 primary intervention studies which comprised of person-directed interventions, organization-directed interventions, and combination of both intervention types.¹ The authors concluded that eighty percent of all programs led to a reduction in burnout and person-directed interventions reduced burnout in the short term (6 months or less), while a combination of both person and organization-directed interventions had longer lasting positive effects (12 months and over). Our current study adopted a formal survey from the government with consistent formats for years, we also use standard Copenhagen Burnout Inventory to evaluate the severity of burnout.

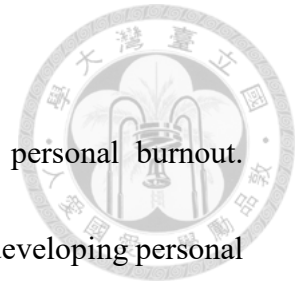
The reliability and validity of our current survey was also confirmed previously.⁶ Therefore, though not a longitudinal survey, our current results could be considered the long-term effects of WHP over personal burnout. In concordance with most previous studies in different populations, the burnout scores decreased significantly while the WHP scores increased.

Limitation

Our current study had some limitations. First, due to the design of the questionnaire used in the national surveys, we can only include nine items for the evaluation of WHP. Hence, it was not possible to conduct analyses for different domains of WHP with personal burnout outcome. Second, we only use cross-sectional data to infer longitudinal relationship that WHP could improve personal burnout and a precise causal relationship should be relied on further prospective studies.

Conclusion

In this study, we concluded that WHP correlated to lower personal burnout. Employees who received well WHP seemed to have lower rates of developing personal burnout. There were also important traditional risk factors for personal burnout. Given the importance of personal burnout in the workplace, worksite activities for the prevention of personal burnout might consider introducing better WHP programs for the employees. The underlying mechanisms for the observed stronger associations and long-term effects between WHP and personal burnout warrants further investigation.



References



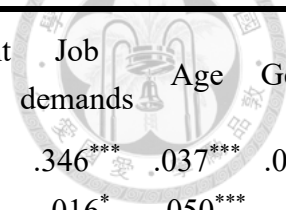
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8. Simionato GK, Simpson S. Personal risk factors associated with burnout among psychotherapists: A systematic review of the literature. *J Clin Psychol* 2018;74:1431-56.
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Table 1. Demographic data of study population (N = 15,735)

| Variable | N (%) * or Mean (SD) |
|---|----------------------|
| Age (yrs) | 40.64 ± 11.99 |
| Gender | |
| Men | 8474 (53.85) |
| Women | 7261 (46.15) |
| Working hours (hrs/day) | 8.11 ± 1.30 |
| Job control (by score, range 7-28) | 17.08 ± 2.88 |
| Employment insecurity (by score, range 2-8) | 5.29 ± 1.25 |
| Job demands (by score, range 6-24) | 16.06 ± 3.18 |
| The grouping of WHP (by score, range 9-36) | |
| Low score group (score 9-22) | 8937 (58.12) |
| High score group (score 23-36) | 6439 (41.88) |
| Personal burnout (by score, range: 5-25) | 10.87 ± 3.99 |
| Enterprise size | |
| <5 | 4161 (26.4) |
| 5-50 | 6953 (44.2) |
| 51-300 | 2540 (16.1) |
| >300 | 2031 (12.9) |
| Employment grade | |
| Administrator/manager | 390 (2.5) |
| Professional | 1579 (10.0) |
| Non-manual skilled | 2645 (16.8) |
| Non-manual low-skilled | 4508 (28.6) |
| Manual skilled | 2918 (18.5) |
| Manual low-skilled | 3695 (23.5) |

WHP, workplace health promotion

Table 2a. Correlations between variables by Pearson correlation



| | Personal burnout | WHP | Job control | Working hours | Employment insecurity | Job demands | Age | Gender |
|-----------------------|---------------------|----------|----------------|------------------|--------------------------|----------------|----------|----------|
| Personal burnout | 1 | -.052*** | .053*** | .068*** | .084*** | .346*** | .037*** | .039*** |
| WHP | -.052*** | 1 | .226*** | .037*** | -.288*** | .016* | -.050*** | -.020* |
| Job control | .053*** | .226*** | 1 | .038*** | -.525*** | .115*** | -.081*** | -.046*** |
| Working hours | .068*** | .037*** | .038*** | 1 | -.035*** | .085*** | -.072*** | -.064*** |
| Employment insecurity | .084*** | -.288*** | -.525*** | -.035*** | 1 | -0.013 | .069*** | .019* |
| Job demands | .346*** | .016* | .115*** | .085*** | -0.013 | 1 | -.093*** | -.099*** |
| Age | .037*** | -.050*** | -.081*** | -.072*** | .069*** | -.093*** | 1 | .024** |
| Gender | .039*** | -.020* | -.046*** | -.064*** | .019* | -.099*** | .024** | 1 |

WHP, workplace health promotion

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 2b. Correlations between variables by ANOVA

| Variable | Mean ± SD | p value |
|------------------------|---------------|---------|
| Enterprise size | | <0.001 |
| <5 | 10.79 (4.081) | |
| 5-50 | 10.72 (3.882) | |
| 51-300 | 10.91 (3.997) | |
| >300 | 11.46 (4.121) | |
| Employment grade | | <0.001 |
| Administrator/manager | 11.02 (4.011) | |
| Professional | 11.08 (3.870) | |
| Non-manual skilled | 11.16 (3.994) | |
| Non-manual low-skilled | 10.87 (3.974) | |
| Manual skilled | 10.70 (4.056) | |
| Manual low-skilled | 10.73 (3.894) | |

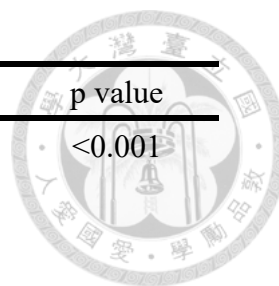


Table 3. Multiple linear regression model for risk factors of personal burnout

| Variable | β | SE | 95 % CI | p value |
|--|---------|-------|-------------------|---------|
| (Intercept) | -3.034 | 0.428 | (-3.874 ; -2.194) | <0.001 |
| WHP (High score group vs. low score group) | -0.397 | 0.066 | (-0.527 ; -0.267) | <0.001 |
| Job control | 0.121 | 0.013 | (0.095 ; 0.147) | <0.001 |
| Working hours | 0.136 | 0.024 | (0.089 ; 0.183) | <0.001 |
| Employment insecurity | 0.389 | 0.029 | (0.331 ; 0.446) | <0.001 |
| Job demands | 0.435 | 0.010 | (0.416 ; 0.455) | <0.001 |
| Age | 0.024 | 0.003 | (0.019 ; 0.029) | <0.001 |
| Gender (female vs. male) | 0.523 | 0.065 | (0.396 ; 0.651) | <0.001 |
| Enterprise size | | | | |
| <5 | 0.173 | 0.078 | (0.020 ; 0.326) | 0.026 |
| 5-50 (ref.) | 0 | | | |
| 51-300 | 0.128 | 0.089 | (-0.045 ; 0.302) | 0.147 |
| >300 | 0.534 | 0.100 | (0.338 ; 0.730) | <0.001 |
| Employment grade | | | | |
| Administrator/manager | -0.067 | 0.211 | (-0.481 ; 0.347) | 0.752 |
| Professional | 0.070 | 0.122 | (-0.170 ; 0.310) | 0.567 |
| Non-manual skilled | 0.062 | 0.102 | (-0.137 ; 0.261) | 0.543 |
| Non-manual low-skilled | 0.055 | 0.090 | (-0.122 ; 0.232) | 0.541 |
| Manual skilled | -0.353 | 0.097 | (-0.543 ; -0.162) | <0.001 |
| Manual low-skilled (ref.) | 0 | | (-3.874 ; -2.194) | |

WHP, workplace health promotion



附錄一 問卷調查表

核定調查機關：行政院主計總處
 核定文號：主普管字第1050400596號
 有效日期：民國105年12月31日

中華民國105年

勞動環境安全衛生認知調查表

(資料標準週 8月14日~20日)

親愛的朋友：

您是國家經濟發展的主力，工作環境的安全衛生關係著您的工作安全與身體健康；為建立更好的工作環境，我們需要瞭解您現在工作場所狀況及身心健康狀況，特於本次人力資源調查附帶辦理「勞動環境安全衛生認知調查」，請您依實際情形填寫本調查表，交給調查員彙送本所。各位給我們正確的寶貴資料，將有助於我國勞工工作環境安全衛生的改善，調查表中所填事項僅供綜合統計分析之用，絕不會帶給各位不利影響，敬請安心據實填寫，謝謝您的合作。

敬祝

工作安全
 身心健康

勞動部勞動及職業安全衛生研究所

請調查員先行填寫

| 標本編號 | 地區 | 層別 | 村里編號 | | | 標本戶號 | 填表人戶內人口編號 |
|------|----|----|------|--------|------|------|-----------|
| | | | 縣市代號 | 鄉鎮市區代號 | 村里代號 | | |
| | | | | | | | |



第壹部分：基本資料（請您在適當位置勾選或填寫）

一、您的職業是？

公務人員 教師 其他一般職業

二、您平均每個月薪資是？

20,007元以下 20,008-29,999元 30,000-39,999元

40,000-49,999元 50,000-99,999元 100,000(含)元以上

三、您任職公司的規模是？

5人以下 5-50人 51-100人 101-300人 超過300人

四、您平常勞保(或公教、國、農保等)保費繳交單位是？

任職公司 職業工會 農、漁會 地方政府區公所 沒有繳交

五、您生涯規劃幾歲會退休？

55歲以下 55-59歲 60-64歲 65-69歲 70歲(含)以上

六、您從事目前**主要**工作已有___年___月（以8月14日~20日資料標準週實際情形為主）

七、您的工作班別及區域：

(一)工作班別為：

固定班→工作時間：僅白天班 小夜班(含下午班) 大夜班（需於深夜12點工作）

輪班→是否需要於深夜12點工作：是 否

不固定班別→是否需要於深夜12點工作：是 否

(二)主要工作區域為：

室內作業

戶外無日曬作業

戶外有日曬作業(含機車駕駛)

→請您回想去年白天天氣熱的時候，待在戶外有日曬作業情況的時間，
每週約___小時___分鐘 當時未在此公司上班

八、您在8月14日至20日這一週**主要**工作共工作幾天？___天

九、家庭狀況

(一)請問您是家庭支出主要負擔者嗎？是 否

(二)請問您家中同住人口有幾人(包括自己)：_____人

其中有無需要被照顧的失能者或6歲以下幼兒？

無 有→您是家中主要照顧他/她(們)的人嗎？

是 否

* [受僱者請繼續填答下頁(甲)部分，雇主或自營作業者請直接跳到下頁(乙)第十四題繼續填答]



(甲) 受僱者:

十、勞動契約關係:

(一) 就目前的主要工作，您和僱用者間的契約關係（書面上或口頭上）屬於哪一種？

- 長期僱用，通常能夠續任
- 約聘僱、臨時性、短期性、季節性契約
- 暫僱、工讀、臨時工、代班（代課）等非長期，且無明確僱用期間的「臨時人員」
- 其他，請說明_____

(二) 就目前的主要工作，您與工作單位的關係為何？

受僱關係 承攬關係 派遣關係 其他，請說明_____

十一、您目前工作的給薪方式是：

- 固定薪資（含基本薪與各種固定加給）
- 底薪加上績效獎金、紅利或加班費(薪資以獎金為主)
- 無底薪，按件計酬
- 無底薪，按時計酬或按日計酬
- 無底薪，績效獎金為主
- 其他，請說明_____

十二、您是否加入工會組織？

否 是 → 職業工會 產業工會 企業工會

十三、過去一年公司是否有安排安全衛生在職教育訓練？(包含健康與安全勞動的演練)

是 否

(乙) 僱主或自營作業者：

十四、 您是否曾接受安全衛生相關教育訓練課程？

否

是 → 請問課程舉辦單位為何？（可複選）

工會或公會 民間安全衛生組織 政府機關

工作場所的公司 其他，請說明



第貳部分：個人生活方式（請您在適當位置勾選或填寫）

- 一. 您上週工作日每日平均（以8月14日~20日資料標準週實際情形為主）
- (一) 睡眠時間為__小時__分鐘
 - (二) 上下班通勤時間(來回總計)為__小時__分鐘
 - (三) 上班時間為__小時__分鐘
 - (四) 您覺得您上週的睡眠時間是否足夠？
 - 足夠
 - 不夠 → 不影響工作或生活 會影響工作或生活
- 二. 過去一個月內，請問您平均運動次數？(持續10分鐘以上才算運動，工作上的勞動不算，例如下田、搬貨或做家務...等不算)
- (一) 都沒有運動 每週1次 每週2-4次 每週5次以上
 - (二) 請問你每週花____小時____分鐘運動
- 三. 您的身高____公分，體重____公斤，腰圍____吋
- 四. 您目前的吸菸狀況？
- (一) 截至目前為止吸菸是否超過100根？ 否 是
 - (二) 最近一個月有無吸菸
 - 否
 - 是: 每天約吸： 少於5根 5~10根 11~20根 超過20根
- 五. 您目前的喝酒狀況？
- 完全沒有或幾乎很少喝
 - 每星期平均約喝幾次： 1-2次 3-4次 5次
- 以上

→ 有喝者請繼續回答下列4小題

| 項目(請每項都要填答) | ①是 | ②否 |
|----------------------------------|--------------------------|--------------------------|
| 01 您曾經不想喝太多，卻無法控制而喝過量嗎? | <input type="checkbox"/> | <input type="checkbox"/> |
| 02 有家人或朋友為了您好而勸您少喝嗎? | <input type="checkbox"/> | <input type="checkbox"/> |
| 03 對於您喝酒這件事，您會覺得不好或是感到愧疚(或不應該)嗎? | <input type="checkbox"/> | <input type="checkbox"/> |
| 04 您曾經早上一起床尚未進食前，就要喝一杯才覺得比較舒服穩定? | <input type="checkbox"/> | <input type="checkbox"/> |

- 六. 請問您每日的蔬果攝取量
- (一) 每日攝取幾份水果？ 0份 1份 2份以上 (一份: 相當於中型橘子、蘋果或芭樂)
 - (二) 每日攝取幾份蔬菜？ 0份 1份 2份 3份以上 (一份(碟): 15公分盤或半碗以上)



第參部分：物理化學工作環境（請您在適當位置勾選或填寫）

一. 您在工作環境中可能會遭遇下列那些危險？（可複選）

- | | | |
|-------------|-----------|------------------|
| 01□ 跌倒、滑倒 | 07□ 衝撞及被撞 | 13□ 密閉空間可能缺氧 |
| 02□ 墜落 | 08□ 火災、爆炸 | 14□ 中暑或熱疾病 |
| 03□ 物體倒塌或飛落 | 09□ 燙傷、燒傷 | 15□ 其他（請說明_____） |
| 04□ 夾傷、捲傷 | 10□ 毒氣中毒 | 16□ 不清楚是否有這些危害 |
| 05□ 切、割、擦傷 | 11□ 化學品接觸 | 17□ 皆不會遭遇這些危害 |
| 06□ 觸電 | 12□ 凍傷 | |

* 前述您認為會遭遇的危險中，何者最可能發生？請填入前述01-15一個代碼：_____

二. 您的工作環境有沒有下列情形？

| 項目（請每項都要填答） | ①完全沒有 | ②偶爾有 | ③經常有 |
|--|--------------------------|--------------------------|--------------------------|
| 01 灰塵很多（如粉末、棉絮、石綿、油煙、金屬粉末等懸浮在空氣中的微小粒子） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02 異味或臭味 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03 二手菸 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04 聲音很大 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05 很熱 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 06 很冷或低溫 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 07 採光照明不好 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 08 使用含鉛物質（如合金鉛、鉛蓄電池、軟焊等） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 09 使用化學品（如酸鹼、溶劑、農藥、電鍍液） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10 接觸可能致病的病菌等生物危害 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11 暴露於輻射或強光中，如X光、電焊強光、紫外線、紅外線、雷射光等 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

三. 您工作時有沒有下列身體姿勢或動作上的問題？

| 項目（請每項都要填答） | ①完全沒有 | ②偶爾有 | ③經常有 |
|-------------------------------|--------------------------|--------------------------|--------------------------|
| 01 全身振動（如由地板、座椅震動傳到整個身體） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02 局部振動手部的工具（如研磨機、鑿岩機、電鑽） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03 手部反覆同一種單調的動作（如打字、伸手取物、裝配等） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04 使用很重的手工具 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05 搬運重物 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 06 姿勢不自然（如身體扭轉或長時間蹲跪） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 07 長時間站立或走動 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 08 皮膚接觸堅硬或銳利的物件（如手掌拍打、膝蓋碰撞） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 09 作業速度無法自行控制（如輸送帶作業） | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10 長時間使用電腦 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11 工作桌、工作台或工作椅高度不適合 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



四. 您在工作中是否被要求使用下列防護具？以及您的使用情形為何？

| 防護具類 (請每項都要填答) | 是否被要求使用 | | 使用情形 | |
|----------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | ①是 | ②否 | ①經常使用 | ②不常使用 |
| 01 口罩或呼吸防護具 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02 耳塞、耳罩 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03 工地用安全帽 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04 工地用安全帶 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05 安全鞋 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 06 防護眼鏡或護目鏡 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 07 防護手套 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 08 防護衣 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

五. 過去一年，您本身是否曾經在工作時遭遇到下列狀況？

| 項目 (請每項都要填答) | ①是 | ②否 |
|----------------------------------|--------------------------|--------------------------|
| 01 肢體暴力 (如毆打、踢、推、捏、拉扯等) | <input type="checkbox"/> | <input type="checkbox"/> |
| 02 言語暴力 (如辱罵、言語騷擾、冷嘲熱諷等) | <input type="checkbox"/> | <input type="checkbox"/> |
| 03 心理暴力 (如威脅、恐嚇、歧視、排擠、霸凌、欺凌、騷擾等) | <input type="checkbox"/> | <input type="checkbox"/> |
| 04 性騷擾 (如不當的性暗示與行為) | <input type="checkbox"/> | <input type="checkbox"/> |

六. 您覺得您的工作環境中，需要改善的安全衛生問題有那些？(可複選)

- | | | |
|--|--------------------------------------|--------------------------------------|
| 01 <input type="checkbox"/> 空氣太髒，包括灰塵、 臭味、油煙、二手菸等 | 05 <input type="checkbox"/> 振動 | 10 <input type="checkbox"/> 機械引起的傷害 |
| 02 <input type="checkbox"/> 聲音太大 | 06 <input type="checkbox"/> 輻射或強光 | 11 <input type="checkbox"/> 電氣造成的傷害 |
| 03 <input type="checkbox"/> 光線不好 | 07 <input type="checkbox"/> 有害化學物 | 12 <input type="checkbox"/> 環境髒亂或狹小 |
| 04 <input type="checkbox"/> 環境太熱或太冷 | 08 <input type="checkbox"/> 致病菌等生物危害 | 13 <input type="checkbox"/> 職場暴力 |
| | 09 <input type="checkbox"/> 工作姿勢不自然 | 14 <input type="checkbox"/> 未提供個人防護具 |

* 前述您認為需要改善的問題中，何者最優先需要改善？請填入前述01-14一個代碼：_____

七. 您對目前工作環境之安全衛生條件滿不滿意？

- 很滿意 滿意 普通 不滿意 很不滿意



第肆部分：社會心理工作環境（請您在適當位置勾選或填寫）

一. 請依據您最近的工作狀況與感受回答下列各題。

| 項目(請每項都要填答) | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| (一)工作負荷 | ①很不同意 | ②不同意 | ③同意 | ④很同意 |
| 01我的工作步調很快。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02我的工作很辛苦。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03我的工作很耗費體力。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04我的工作會需要我長時間集中注意力。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05我的工作非常忙碌。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 06我工作場所有人力不足的現象。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| (二)工作控制 | ①很不同意 | ②不同意 | ③同意 | ④很同意 |
| 01在工作中，我需要學習新的事物。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02我的工作內容，很多是重複性的工作。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03在工作中，我必須具有創新的想法。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04對於如何執行我的工作，我沒有什麼決定權。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05我的工作內容是很多元的。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 06對於工作上發生的事，我的意見具有影響力。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 07在工作中，我有機會發展自己特殊的才能。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 08我的職位很有保障。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 09我的事業發展與晉升的前景很好。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10在工作遇到困難時，我會得到適當的幫助與支持。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11我有恰當的薪資收入。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 受僱者請繼續填寫12-21題。 雇主或自營作業者不需填寫以下12至21題，請跳到第二題繼續填寫。 | | | | |
| (三)職場關係 | ①很不同意 | ②不同意 | ③同意 | ④很同意 |
| 12主管或管理部門對員工是信任的。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13主管或管理部門所傳達的訊息內容是可信的。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14主管或管理部門對員工的工作安排與責任分派是公平的。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15主管或管理部門對於員工薪資福利的安排是公平的。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16主管或管理部門對員工的績效評估是公平的。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17主管或管理部門在重要決策過程中，會主動告知並提供充分的資訊給員工。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18主管或管理部門以尊重的方式對待員工。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19在我的職場中，有捍衛受僱者利益的工會或工作者組織。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20在我的職場中，有足以影響公司決策的工會或工作者組織。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21在我的職場中，有反應工作方面問題或提出建議的管道。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



二. 以下題項欲瞭解您的工作家庭衝突狀況，請勾選最符合的一項。

| 項目(請每項都要填答) | ① 很不同意 | ② 不同意 | ③ 不同意也不反對 | ④ 同意 | ⑤ 很同意 |
|-----------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 01 工作上的負荷，會影響我的家庭生活。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02 工作所需要的時間量，使我難以照顧家庭。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03 工作上的負荷，讓我難以完成在家想做的事。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04 工作帶來的壓力，讓我難以履行家庭責任。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05 工作帶來的相關責任，使我必須改變家庭活動的安排。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

三. 以下題項欲瞭解您的工作與生活平衡狀況，請勾選最符合的一項。

| 項目(請每項都要填答) | ① 很不同意 | ② 不同意 | ③ 同意 | ④ 很同意 |
|---------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 01 公司提供員工各種生活補助(如午餐、交通、住宿、婚喪喜慶或優惠商品等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02 公司提供各種員工社團活動(如運動性、娛樂性或服務性社團) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03 公司提供優於法令的福利方案(如員工旅遊、年休假、育嬰假或留職停薪等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04 公司提供員工家庭照護服務(如日間托兒所、設立哺乳室或長輩安養服務) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05 公司會舉辦各種家庭活動讓員工眷屬與公司互動(如員工家庭日) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



第五部分：身心健康狀況（請您在適當位置勾選或填寫）

一. 一般說來，您認為您目前的健康狀況如何？

- 很好 好 普通 不好 很不好

二. 您是否領有身心障礙手冊？

- 否 是 → 在手冊上您的障礙類別為： 肢體障礙 重要器官失去功能
 聽覺機能障礙 慢性精神病患者 智能障礙 其他：_____

三. 過去一年，您是否曾因工作關係而受傷或罹患疾病？

- 沒有
 有 → 就醫方式為何(可複選)？
 自行用藥 自費就醫 使用健保就醫 使用職業災害診療單就醫

四. 過去一年，您身體有沒有下列不舒服情形發生？與工作相關性如何？

| 不舒服情形，若有任何不舒服情形，請回答與工作關係。(請每項都要填答) | 有沒有不舒服？ | | | | 與工作有無關係？ | | 已就醫 |
|------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|
| | ① 沒有 | ② 偶爾 | ③ 有時 | ④ 經常 | ① 沒有關係 | ② 可能有關係 | |
| 01皮膚(過敏、癢、起疹等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02眼睛(眼睛痠痛、發癢、視力變差等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03耳部(耳鳴、聽力受損等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04呼吸(過敏、氣喘、呼吸不順等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05心血管(高血壓、心臟病、心律不整等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 06消化系統(腸胃不適、潰瘍等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 07睡眠(睡不著、睡不好等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 08肌肉骨骼痠痛(腰、背、肩頸等痠痛或行動困難等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 09頭痛 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

五. 過去一年，您身體各部位有沒有發生痠痛？痠痛對您工作的影響如何？

| 身體部位 (每部位都請填答) | 有沒有痠痛？ | | 痠痛對您工作的影響？ | | | |
|-------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | ① 沒有 | 有 | ② 沒影響 | ③ 影響工作表現但沒請假 | ④ 請假少於4天 | ⑤ 請假4天及以上 |
| 01脖子 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02肩膀 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03上背 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04手肘 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05下背或腰部 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 06手或手腕 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 07臀或大腿 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 08膝蓋 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



| | | | | | | | |
|--|--------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | 09腳踝或腳 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|

六. 請勾選您現有或曾經醫師確定診斷或治療的疾病或傷害？

| 項目(請每項都要填答) | ①有 | ②無 |
|-------------------------------------|-----------------------------------|--------------------------|
| 01 肌肉骨骼疾病 | <input type="checkbox"/> | <input type="checkbox"/> |
| 02 腦心血管疾病(如中風、心臟病等) | <input type="checkbox"/> | <input type="checkbox"/> |
| 03 消化器官疾病(如胃或十二指腸潰瘍、胃炎、大腸炎、肝膽胰臟疾病等) | <input type="checkbox"/> | <input type="checkbox"/> |
| 04 新陳代謝疾病(如高血壓、高血脂、糖尿病等) | <input type="checkbox"/> | <input type="checkbox"/> |
| 05 肺部疾病(如氣喘、阻塞性肺炎) | <input type="checkbox"/> | <input type="checkbox"/> |
| 06 癌症 | <input type="checkbox"/> 類型() | <input type="checkbox"/> |

七. 以下問題想瞭解您最近一星期的疲勞狀況，請勾選最符合的一項。

| 項目(請每項都要填答) | ①總是 | ②常常 | ③有時 | ④不常 | ⑤從未 |
|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 01 您常覺得疲勞嗎？ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02 您常覺得身體上體力透支(累到完全沒有力氣)嗎？ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03 您常覺得情緒上心力交瘁(心情上非常累)嗎？ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04 您常會覺得，「我快要撐不下去了」嗎？ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05 您常覺得虛弱，好像快要生病了嗎？ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 06 您因為工作上的壓力，在工作中發生一些大小錯誤而必須重做的頻率為？ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 07 因為工作上的壓力，在工作中感到疲勞而無法正常進行工作 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 08 因為工作上的壓力，您在工作中感覺越做越慢且無力 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 09 因為過多的工作時間緊迫，使您感到焦慮、神經質。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

八. 以下想瞭解您最近一星期心情上的變化，給您帶來困擾感受的程度，請勾選最符合的一項。

| 項目(請每項都要填答) | ①完全沒有 | ②輕微 | ③中等程度 | ④厲害 | ⑤非常厲害 |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 01 我遇到睡眠困難，譬如難以入睡、易醒或早醒。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02 我會感覺到緊張不安。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03 我會感覺容易苦惱或動怒。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04 我會感覺憂鬱、心情低落。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05 我會覺得比不上別人。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



九. 針對以下的描述句，表示您認為符合公司現況的程度。

| 項目(請每項都要填答) | ① 很不同意 | ② 不同意 | ③ 同意 | ④ 很同意 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 01公司提供的健康檢查符合員工的需要。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 02公司妥善管理員工的健康資料(如紀錄、維護、儲存及查詢等) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 03公司提供各種健康管理及促進方案(如減重、營養、戒菸、戒酒、視力保健等)。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 04公司備有完善的休閒運動器材或設施(如桌球間、游泳池、網球場、籃球場、交誼廳、書報室、電影院、視聽中心) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 05公司提供員工的EAP服務(如心理諮商、生活諮詢或講座服務)，能滿足員工的需要。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 06公司會進行職場心理健康的風險評估(如工作壓力或過勞) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 07公司會主動傳遞職場健康相關訊息給予員工。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 08公司會進行職場的危害評估與防護(如空氣、噪音及安全標示)。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 09公司會舉辦各種健康與安全主題的宣導(如營養、減重或道路安全)。 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

[女性受訪者請繼續填答第十題，男性受僱者至此填答結束]

十. 請問您是否已停經？

已經完全停經

未停經 → 請問您在最近一次生理期期間，是否有經痛情形？

沒有經痛

有經痛 [會疼痛者，請繼續填答下列兩題]

→ 疼痛程度？

輕微疼痛 普通疼痛 非常疼痛

→ 經痛是否影響您

的工作或生活？ 不影響 會影響

謝謝您寶貴的意見，題目到此結束，請您再檢查一下，是不是有漏答的部分，如果有遺漏的情形，請再將它完成，謝謝您！問卷如有任何問題，請您向調查員詢問，或與承辦人xxx聯絡

電話：(02) xxx轉xx，傳真：(02) xxx

本欄受訪者請勿填寫

| | | | | | |
|-----|--|-----|--|-----|--|
| 指導員 | | 審核員 | | 調查員 | |
|-----|--|-----|--|-----|--|