

Job stressors and smoking cessation among Malaysian male employees

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Background	Job stressors may reduce the likelihood of quitting smoking.
Aims	To assess the association between job strain, smoking behaviour and smoking cessation among Malaysian male employees involved in a smoking cessation programme.
Methods	The study was conducted among employees in two major public universities in Malaysia. All staff from both universities received an invitation to participate in this study. At the start of treatment, participants completed a questionnaire on sociodemographic variables, smoking habits and the Malay version of the Job Content Questionnaire (JCQ). The JCQ consists of scales of job control, job demand, supervisor support, co-worker support, job insecurity, job decision latitude and job skill discretion. Behaviour therapy with free nicotine replacement therapy (NRT) was given as treatment for two months. Participants were contacted at 1 week, 3 months and 6 months to determine their smoking status.
Results	One hundred and eighty five staff from both universities responded and voluntarily showed interest in quitting. At three months (OR = 8.96; 95% CI: 1.14–70.76) and six months (OR = 8.9; 95% CI: 1.15–68.65), men with higher co-workers' support demonstrated a higher likelihood of quitting. Smokers in a 'passive job' also demonstrated higher likelihood of quitting compared with those working in the 'low strain' category at six months (OR = 9.92; 95% CI: 1.20–82.68). No meaningful associations were found between other psychosocial job variables and smoking cessation.
Conclusions	A positive relationship with and support from co-workers are important factors for workplace smoking cessation.
Key words	Job strain; physical demand; smoking cessation; workplace support.

Introduction

In Malaysia, the prevalence of smoking among men remains high. In 2006, the prevalence of male smokers in Malaysia was 49% and 21% in the general population [1]. The male smoking rate was much greater than neighbouring Thailand (37%) and Singapore (22%) [2]. Moreover, the reduction in smoking prevalence was <1% in over 10 years (50% in 1996) [1]. The slow decline could not entirely be explained by nicotine addiction, enhancement of tobacco companies' efforts or the ineffectiveness of cessation services, but the reason behind it is multifaceted.

One dimension that is increasingly being discussed is the association between smoking and work, which has been shown to be related to smoking in various ways. Smoking produces adverse outcomes such as occupational disabilities [3] and sickness absence [4]. Pursuant to this problem, many developed nations have taken measures to prohibit smoking and enforce new smoking policies, often in addition to introducing workplace smoking cessation programmes. Although these measures contributed to the decline in smoking prevalence in developed countries [5], this remains an important issue, especially in developing countries. Therefore, it is important to identify ways in which work organization or environment

may contribute towards the change in smoking status and smoking cessation, as a measure to reduce the prevalence of smoking.

It was hypothesized that unfavourable work environments and adverse psychosocial work conditions may play important roles in increasing smoking intake and reducing cessation rate [6]. The job demand–control model (or job strain model) is often applied to illustrate this relationship. This model postulates that high job demand and low control (the combination referred as high job strain) may give rise to adverse health effects [7]. Studies of smoking and job strain have produced mixed outcomes. Some studies showed that high smoking intensity/prevalence was associated with high job demands [8] or low job controls [9]. One study found none of these associations [10] and another study has shown low job control was related to fewer cigarettes smoked [11].

In relation to smoking cessation, results were also inconclusive. A Finnish study reported that smoking cessation was predicted by low job strain [12]. In contrast, another cohort study in Denmark found that smokers with high psychological job demand had higher odds of quitting compared to those with low job demands [13]. Some studies, however, found no association [14,15]. With respect to general social support, a systematic review [6] showed that 2 out of 12 studies showed a positive association. These two studies claimed that having high perceived social support was related to a greater likelihood of maintaining cessation. Eight studies reported no association, while one revealed a negative association.

The contradictory findings and limited evidence in this area [14] and absence of previous reports of this association in Southeast Asian countries, led us to study the following: (i) to explore the association between job stressors and smoking patterns in Malaysian employees interested in quitting and (2) to explore the association between job stressors and smoking cessation.

Methods

A prospective cohort study was performed. Data were collected between November–May 2010 in University A and March–September 2010 in University B. Student centres and a student college were used as temporary sites for non-clinic-based smoking cessation programmes in the universities. Ethical approval was given for the study, which had full support from the management and unions of both universities.

This study used convenient sampling, whereby smokers who were interested in quitting from both universities were invited to enrol in the study. Invitations were issued through the staff portal, staff email, posters, main university websites and invitation letters through the head of department/unit. Eligible participants were daily cigarette smokers (for at least the past 12 months). They had to

be able to communicate in either Bahasa Malaysia (the national language) or English. Participants were excluded if they had any contraindications to nicotine replacement therapy (NRT) such as a recent myocardial infarction, life-threatening arrhythmias, severe or worsening angina, or allergy to any component of the medication.

Treatment consisted of combined medical and cognitive behavioural therapy. To avoid bias, similar programmes were conducted in both universities. All sessions were given by the same medical officer and an assistant. Medical treatment consisted of NRT gums/patch, depending on the patients' medical history, degree of nicotine dependence and preference. NRT was supplied for a maximum period of 2 months, depending on participants' requirements.

Cognitive behavioural therapy involved three twice-weekly counselling sessions, which covered coping strategies, risks and benefits of quitting, relapse prevention, stress reduction and weight control.

The smoking history, sociodemographic and Job Content Questionnaire (JCQ) were self-administered during the counselling sessions prior to treatment. Subjects who had any difficulty in answering the questionnaire were assisted by the medical officer.

The main sociodemographic variables were age group, educational achievement and work categories. Smoking behaviour included number of cigarettes smoked per day (categorized into light, moderate and heavy) and previous quit attempts (yes/no).

The psychological aspect of job stress was evaluated using the JCQ. This tool is based on Karasek's demand–control model and frequently used in assessment of the psychosocial work environment [16].

Responses were recorded using a Likert scale, ranging from one (strongly disagree) to four (strongly agree). The questionnaire had the following JCQ scales—job skill discretion (six items), job decision-making authority (three items), psychological job demand (five items), and supervisor and co-workers' support (eight items) and job insecurity (four items). Decision latitude was a combination of job skill discretion and job decision-making authority. Scores for decision latitude, psychological job demand and social support were calculated based on Karasek's recommended format.

A job strain indicator was created from job demands and decisional latitude. It was dichotomized by the median value and classified into four domains (Figure 1): (i) high strain jobs (low decision latitude and high demand), (ii) low strain jobs (high decision latitude and low demand), (iii) passive jobs (low decision latitude and low demand) and (iv) active jobs (high decision latitude and high demand) [8,18].

Cronbach's alpha values for a previously conducted local study using the questionnaire [19] for all the items were within international acceptable standards [20], i.e. of between 0.64–0.79, with correlations of $r > 0.3$

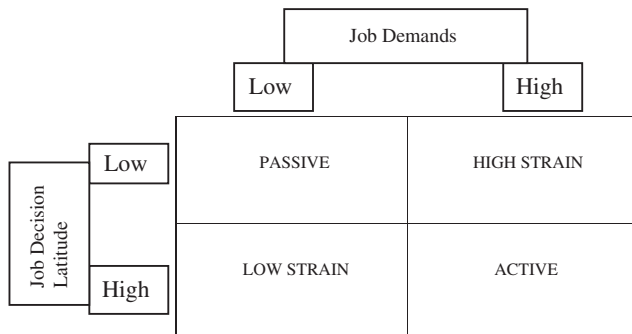


Figure 1. Job strain indicator based on Karasek's demand-control model [17].

[19]. We classified subjects based on separate tertiles for all seven items (low, medium and high) [15,21].

Self-reported abstinence was determined during the first 2 months of follow-up after counselling sessions. This information was collected at 3 and 6 months post-treatment via telephone calls. Smoking abstinence was confirmed by a carbon monoxide (CO) reading of <6 ppm using Mini Smokerlyzer (Bedfont Scientific Ltd, Rochester, UK). The ex-smokers were visited by the researcher at their work office for measurements. Quitters were smokers who had achieved prolonged abstinence (did not smoke even a single cigarette) from the initial quit date until the time of assessment. We used intention to treat analysis in assessing quit rates. In this analysis, subjects who could not be contacted or who did not come for subsequent counselling (refused, changed phone number, could not be contacted or intentionally gave the wrong telephone numbers) were considered to have continued smoking.

Data management and statistical analysis were performed with SPSS 15.0. A P value of <0.05 was taken as a statistically significant level. Univariate logistic regression was performed to assess the relationship between each variable and abstinence at 1 week, 3 months and 6 months. Multiple logistic regression models for cigarettes/day and previous cessation attempts was performed adjusting for sociodemographic variables, NRT and clinic sessions. We also performed multivariate logistic regression to examine the relationship of job stressors and abstinence, adjusted for sociodemographic backgrounds, smoking history, NRT and clinic sessions. Each model was checked for fit by the Hosmer-Lemeshow goodness-of-fit test.

Results

There were 185 participants in total, 138 from university A and 47 from university B. All participants answered the questionnaires on JCQ, sociodemographic and smoking behaviour prior to the treatment programme.

The response rates for follow-up were that 40% ($n = 74$) of the smokers attended only one initial session, 32% ($n = 59$) attended two sessions within 2 weeks and 28%

($n = 52$) attended 3 sessions. Smoking status was determined among 100% participants at 1 week and 90% ($n = 166$) at 6 months. Participants who could not be contacted were considered as smokers.

All subjects were male with a mean [standard deviation (SD)] age of 35.9 (10.9) years. In terms of education attainment, 3% had only completed elementary school, 58% had completed both primary and secondary school and 39% had attended college. The majority (93%) of participants were support staff (e.g. technical workers, clerical workers and labourers), while 7% were in the professional group. Sociodemographic background and sociodemographic characteristics of participants in the two public universities were similar (all $P > 0.05$)

The mean number of cigarettes/day smoked was 14.5 (SD = 7.0). Seventy four percent of the smokers were in the light to moderate smoking categories. The mean age of smoking initiation was 16.9 years old (SD = 4.0). The majority (85%) had one or more quit attempts, while 15% had never attempted to quit smoking (Table 1).

The largest group of smokers was in the active job strain group. Supervisor support and co-worker support were both higher in the intermediate and high strain categories compared with low categories. The other characteristics were the highest among the intermediate strain group.

Table 2 shows the relationship between job characteristics and smoking history. Smokers with higher job demand smoked fewer cigarettes ($P < 0.01$), both before and after controlling for sociodemographic characteristics (i.e. age, education attainment, marital status, occupational status). Smokers in the passive group were less likely to have undergone a previous quit attempt, although the relationship was statistically insignificant.

Of the participants included in the study, 56% ($n = 103$) continued to abstain from smoking at 1 week, 27 (15%) participants at 3 months and 24 (13%) by the end of 6 months. Smokers who attended more sessions had higher quit rates, as was reported in our earlier results [22]. Adherence to NRT was reported among 59% ($n = 109$) and non-adherent for 41% ($n = 76$) of the smokers.

Multivariate analyses were conducted to examine the relationship between job characteristics and quitting at 1 week, 3 months and 6 months. In the univariate analysis, only one statistically significant relationship was noted. Those having good co-worker support had a greater chance of success at 3 months ($P < 0.05$) and 6 months ($P < 0.05$). After controlling for the sociodemographic characteristics (age group, education attainment, occupational status and marital status), smoking history, NRT adherence and clinic sessions, smokers in passive jobs had a higher chance of quitting at six months ($P < 0.05$) compared to those in low strain jobs.

In addition, smokers with high co-worker support had 15 times and 12 times the odds of succeeding compared with those with low support both at 3 ($P < 0.05$) and 6 months ($P < 0.05$) (Table 3).

Table 1. Smoking characteristics and job characteristics

Smoking history and job characteristics	Total (<i>n</i> = 185), <i>n</i> (%)
Smoking history	
Number of cigarettes/day	
<10 (light)	28 (15)
10–19 (medium)	113 (61)
20 and above (heavy)	44 (24)
Previous quit attempt within 1 year	
No	28 (15)
Yes	157 (85)
Job characteristics	
Job decision making authority	
Low	38 (21)
Medium	93 (50)
High	54 (29)
Job demands	
Low	39 (21)
Medium	76 (41)
High	70 (38)
Coworker support	
Low	44 (24)
Medium	68 (37)
High	73 (39)
Supervisor support	
Low	59 (32)
Medium	62 (34)
High	64 (35)
Job insecurity	
Low	34 (19)
Medium	84 (45)
High	66 (36)
Job decision latitude	
Low	54 (29)
Medium	79 (43)
High	52 (28)
Job skill discretion	
Low	51 (28)
Medium	87 (47)
High	47 (25)
Job strain	
Low strain	30 (16)
Passive	44 (24)
Active	65 (35)
High strain	46 (25)

Discussion

In this study, high levels of job stressors were not associated with lower reduction in smoking cessation, but good support among coworkers was beneficial in increasing cessation rate. The 25% prevalence of job strain in our two local universities is comparable to a local study among office workers [18], although our study was only among the smokers willing to quit. Nevertheless, the advantage we had was the inclusion of a wide group of job categories. Considering the work involved in university settings, job types included academic teaching staff, technical workers, managerial workers, clerical workers

and labourers. As a result, it did not differ much from studies in Europe, e.g. of white-collar workers in the Whitehall study (22%) [23].

We found that smokers with low job demands smoked more cigarettes, a conclusion not comparable with other studies. Studies among service employees in China demonstrated that those with higher job demands had a greater likelihood of being a daily smoker [8]. Demand and smoking habits were also positively associated in studies in Japan [11] and Finland [21]. However, a different study showed that smokers with high job demand and working in workplaces with high social capital had a lower likelihood of being a current smoker [24]. It was suggested that social capital may play a role in this.

Social capital is defined as features of a social culture (e.g. trust, informal social control and norms) and social institutions. These are often seen as characteristics of a social group, i.e. shared experience and mutual trust [25]. Social capital may act as buffer to smoking by serving as a coping mechanism for stress-induced continuing smoking [26]. In turn, we may speculate that the effects of our results might have been adjusted by social capital in the workplace. However, this issue warrants further study.

Although some studies found that smoking intensity and smoking status are related to high job strain [21] and low job control [9], our study did not find any of those associations. Possible reasons for such dissimilarity could involve differences in the intensity of job strain, nature of work across the different professions and different social capital. Furthermore, for some smokers, it may sound unreasonable to state that psychological job stressors play an important role in smoking maintenance. This is because most smokers have been daily smokers since adolescence, prior to entering the job force, as reported from our National Morbidity Survey [1]. Lastly, the intensity of smoking may also be masked by the role of addiction and nicotine [27], which varies among individuals, and were not assessed in these studies.

To our knowledge, few studies have tried to examine the relationship between workplace social support and smoking cessation. Our study found a strong association between co-workers' support and smoking cessation. This is consistent with a few other studies in relation to general social support [28]. However, there were also studies conducted in workplaces that found no significant association between social support and smoking cessation, both in Western [6] and non-Western regions [15]. The inconsistencies might be due to differences in measurements of social support or the definition of social support. Social support is a general term, more related to a positive relationship with immediate co-workers or friends and not explicitly related to support for quitting smoking.

When attempting to quit, the effect of co-worker support may be enhanced when coming from non-

Table 2. Relationship between job characteristics and smoking history

Job stressors	Cigarettes/day category			Previous quit attempts		
	Heavy smokers, <i>n</i> (%)	Unadjusted OR (95% CI)	Adjusted OR (95% CI) ^a	Yes, <i>n</i> (%)	Unadjusted OR (95% CI)	Adjusted OR (95% CI) ^a
Job decision making authority						
Low	7 (16)	Ref	Ref	6 (22)	Ref	Ref
Medium	21 (48)	1.29 (0.50–3.35)	1.17 (0.42–3.26)	17 (63)	0.84 (0.30–2.32)	0.91 (0.30–2.73)
High	16 (36)	1.87 (0.68–5.10)	1.57 (0.52–4.77)	4 (15)	2.34 (0.61–8.96)	2.94 (0.68–12.66)
Job demands						
Low	18 (41)	Ref	Ref	8 (30)	Ref	Ref
Medium	14 (32)	0.26 (0.11–0.62)**	0.18 (0.07–0.48)**	12 (44)	1.38 (0.51–3.71)	1.24 (0.43–3.57)
High	12 (27)	0.24 (0.10–0.59)**	0.19 (0.07–0.52)**	7 (26)	2.32 (0.77–6.99)	1.96 (0.61–6.26)
Coworker support						
Low	10 (23)	Ref	Ref	5 (19)	Ref	Ref
Medium	19 (43)	1.32 (0.55–3.18)	1.18 (0.44–3.19)	10 (37)	0.74 (0.24–2.34)	0.85 (0.24–2.95)
High	15 (34)	0.88 (0.36–2.17)	0.77 (0.28–2.14)	12 (44)	0.65 (0.21–1.99)	0.73 (0.21–2.50)
Supervisor support						
Low	14 (32)	Ref	Ref	8 (30)	Ref	Ref
Medium	16 (36)	1.12 (0.49–2.56)	1.05 (0.42–2.63)	8 (30)	1.06 (0.37–3.03)	1.17 (0.38–3.58)
High	14 (32)	0.90 (0.39–2.09)	0.67 (0.25–1.75)	11 (40)	0.76 (0.28–2.03)	1.21 (0.39–3.76)
Job insecurity						
Low	7 (16)	Ref	Ref	3 (11)	Ref	Ref
Medium	18 (41)	1.09 (0.41–2.90)	0.89 (0.30–2.65)	14 (52)	0.47 (0.13–1.75)	0.48 (0.17–1.96)
High	19 (43)	1.62 (0.60–4.33)	2.07 (0.68–6.24)	10 (37)	0.53 (0.14–2.05)	0.48 (0.11–1.99)
Job decision latitude						
Low	14 (32)	Ref	Ref	9 (33)	Ref	Ref
Medium	17 (38)	0.78 (0.35–1.77)	0.72 (0.29–1.76)	12 (45)	1.12 (0.44–2.87)	1.31 (0.48–3.62)
High	13 (30)	0.95 (0.39–2.28)	0.67 (0.25–1.82)	6 (22)	1.53 (0.50–4.66)	1.99 (0.59–6.75)
Job skill discretion						
Low	12 (27)	Ref	Ref	9 (33)	Ref	Ref
Medium	24 (55)	1.24 (0.56–2.76)	0.97 (0.39–2.40)	14 (52)	1.12 (0.45–2.81)	1.71 (0.60–4.88)
High	8 (18)	0.67 (0.25–1.81)	0.37 (0.12–1.18)	4 (15)	2.30 (0.66–8.01)	3.82 (0.96–15.25)
Job strain						
Low strain	9 (21)	Ref	Ref	4 (15)	Ref	Ref
Passive	14 (32)	1.09 (0.39–2.98)	0.91 (0.29–2.83)	13 (48)	0.37 (0.11–1.26)	0.26 (0.06–1.07)
Active	13 (30)	0.58 (0.22–1.57)	0.48 (0.16–1.49)	7 (26)	1.28 (0.34–4.73)	0.89 (0.21–3.77)
High strain	8 (18)	0.49 (0.17–1.46)	0.52 (0.15–1.73)	3 (11)	2.21 (0.46–10.64)	1.47 (0.27–7.89)

^aAdjusted for age, education background, occupational group, marital status, NRT and clinic sessions.

** $P < 0.01$.

smoking colleagues or ex-smokers. In the Quit and Win campaign study in Canada, quitters were significantly related to having received social support from their non-smoking friends [29]. This may suggest that good social support among co-workers entails both maintaining good interpersonal relationships and be supported by positive health influences for a successful quit attempt. This hypothesis calls for further studies.

In this study, high job strain (characterized by high demand and low decision latitude) was not a predictive factor for smoking cessation. This finding is consistent with other studies of null association [14,15]. Nonetheless, we found that men with passive jobs (characterized by low demand and low decision latitude) were more likely to quit compared with those with low strain jobs (characterized by low demand and high decision latitude). We may

speculate that a worker with passive jobs had more time to think of quitting and therefore had probably put extra effort in trying to quit. In addition, it has been known that people working in passive jobs had an average higher number of health complaints (e.g. high blood pressure and ill health), when compared with those in low strain jobs [30]. Hence, this may be a motivating factor in quitting among this group.

Of the many studies being discussed, one weakness was that different measures of job demand and job strain were utilized. Therefore, the results might not be directly comparable, and thus, it may be difficult to arrive at a definite conclusion.

In addition to the above limitations, our study involved only male workers. Although smokers of both genders were invited to participate, no female smokers sought

Table 3. Association of job stressors at baseline and probability of quitting at 1 week abstinence, 3 months sustained abstinence and 6 months sustained abstinence

Variables	Quit 1 week, <i>n</i> (%)	Quit 1 week, OR (95% CI)	Sustained Quit 3 months, <i>n</i> (%)	Sustained Quit 3 months, OR (95% CI)	Sustained Quit 6 months, <i>n</i> (%)	Sustained Quit 6 months, OR (95% CI)
Job decision making authority						
Low	23 (22)	Ref	8 (30)	Ref	8 (33)	Ref
Medium	57 (56)	1.06 (0.46–2.41)	10 (37)	0.42 (0.14–1.29)	10 (42)	0.46 (0.15–1.43)
High	23 (22)	0.55 (0.22–1.37)	9 (33)	0.65 (0.20–2.14)	6 (25)	0.39 (0.11–1.46)
Job demands						
Low	25 (24)	Ref	5 (19)	Ref	5 (21)	Ref
Medium	44 (43)	0.65 (0.27–1.55)	13 (48)	1.18 (0.34–4.07)	13 (54)	1.27 (0.36–4.49)
High	34 (33)	0.46 (0.19–1.13)	9 (33)	0.72 (0.18–2.80)	6 (25)	0.42 (0.09–1.89)
Coworker support						
Low	22 (21)	Ref	1 (4)	Ref	1 (4)	Ref
Medium	41 (40)	1.5 (0.65–3.45)	8 (30)	5.72 (0.64–51.45)	7 (29)	5.42 (0.57–51.37)
High	40 (39)	1.25 (0.54–2.86)	18 (66)	15.73 (1.82–136.03)*	16 (67)	12.09 (1.35–108.29)*
Supervisor support						
Low	29 (28)	Ref	8 (30)	Ref	7 (29)	Ref
Medium	37 (36)	1.54 (0.71–3.36)	9 (33)	1.28 (0.42–3.89)	7 (29)	0.99 (0.30–3.35)
High	37 (36)	1.37 (0.63–3.02)	10 (37)	1.02 (0.32–3.24)	10 (42)	1.28 (0.39–4.21)
Job insecurity						
Low	18 (18)	Ref	8 (30)	Ref	7 (29)	Ref
Medium	49 (47)	1.28 (0.53–3.08)	12 (44)	0.59 (0.19–1.85)	11 (46)	0.60 (0.18–2.01)
High	36 (35)	1.28 (0.53–3.13)	7 (26)	0.22 (0.13–1.61)	6 (25)	0.43 (0.11–1.64)
Job decision latitude						
Low	31 (30)	Ref	8 (30)	Ref	8 (33)	Ref
Medium	47 (46)	0.92 (0.44–1.95)	8 (30)	0.49 (0.16–1.51)	7 (29)	0.41 (0.12–1.35)
High	25 (24)	0.71 (0.31–1.65)	11 (40)	1.11 (0.36–3.44)	9 (38)	0.85 (0.26–2.81)
Job skill discretion						
Low	30 (29)	Ref	4 (15)	Ref	3 (13)	Ref
Medium	47 (46)	0.72 (0.33–1.56)	13 (48)	2.92 (0.71–12.15)	12 (50)	3.73 (0.74–18.77)
High	26 (25)	0.86 (0.35–2.15)	10 (37)	3.61 (0.84–15.52)	9 (37)	4.92 (0.96–25.34)
Job strain						
Low strain	17 (17)	Ref	2 (8)	Ref	2 (8)	Ref
Passive	28 (27)	1.63 (0.57–4.72)	9 (33)	1.99 (0.42–9.45)	9 (38)	9.92 (1.20–82.68)*
Active	30 (29)	0.73 (0.26–1.99)	9 (33)	1.09 (0.23–5.11)	8 (33)	3.44 (0.41–28.88)
High strain	28 (27)	1.26 (0.45–3.48)	7 (26)	1.48 (0.33–6.68)	5 (21)	3.70 (0.45–30.58)

Multivariate logistic regressions adjusted for age, education, occupational group, marital status, cigarettes/day, previous quit attempts, NRT and number of clinic sessions.

* $P < 0.05$.

treatment. We suspect this might be due to the small number of female smokers in the country [1]. Furthermore, it may also be related to cultural taboos among female smokers in the country that deter them from seeking assistance in quitting. We also did not examine variables related to other aspects of smoking cessation, such as self-belief in quitting (self-efficacy), motivation, spousal support, workplace smoking policies and workplace resources.

Conversely, our study presented several strengths. First, this study was one of the few to examine the effect of psychosocial work factors in an actual workplace cessation programme. Most other studies of smoking cessation programmes were intervention studies [6], with

controlled conditions that do not reproduce real life parameters. Second, we believe that this study is unique in examining this aspect of workplace smoking cessation in the Southeast Asia and in the developing world. Finally, all our cessation reports were validated by exhaled carbon monoxide measurements.

In conclusion, this study did not establish job strain as an important consideration when implementing a workplace smoking cessation programme. Nevertheless, it highlights the importance of a developed workplace social support to facilitate quitting. Although more research is necessary to determine the precise associations between job stress, work environment, social support and smoking cessation; the results of this study may encourage

employers and health providers to establish workplace support measures in order to improve success of workplace smoking cessation efforts.

Key points

- The findings of this study support the importance of having good co-worker support to sustain quit status.
- However, it did not support the hypothesis that higher levels of job stressors are associated with lower rate of smoking cessation among male employees.
- Results of this present study will be useful for employers and health providers in establishing supportive measures that may encourage work-site smoking cessation.

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Conflicts of interest

None declared.

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