Singapore Med J 1999; Vol 40(9):590-595

The Relationship Between Stress and Absenteeism

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ABSTRACT

Background of Study: Three hundred and sixty three subjects from various civil service organisations were administered the SCOPE-i (Stress, Coping and Personality Inventory) as part of the Institute of Mental Health's efforts to promote mental health in the workplace.

Aim of Study: This study examines the relationship between stress-related factors and absenteeism. Absenteeism is measured by the number of days of medical leave taken (MC) and self-report of minor illnesses (MI) which are not severe enough to warrant the coverage of a medical certificate.

Results: In this study, we are interested in the differences between MI and MC, and their respective relationships with stress-related factors. We hypothesised that MI, rather than MC, is more related to poor workplace conditions. The findings of this study support this hypothesis. Thus if workplace environment is stressful, people are still likely to come to work despite their illness. An interesting observation in this study is the different ways in which environmental stressors and psychosocial aspects of the workplace environment affect the MC variable. Individuals are more likely to take MC when the environmental stressors are high (ie., poor lighting, uncomfortable temperatures, etc) as compared to poor psychosocial environmental conditions (eg., work overload, high organisational tension, career limitations and high personal constraints). On the other hand, when faced with poor psychosocial environmental conditions, MI increases instead of MC.

Conclusion: These findings have implications on the types of changes in a workplace which employers should make in order to decrease MC and improve physical well-being. In addition, the study shows the usefulness of MI in future studies as a dependent variable.

Keywords: work stress, absenteeism, mental health, minor illness, medical leave

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INTRODUCTION

The popular press commonly links stress with absenteeism. Most articles located in journals or magazines strongly encourage managers in their health promotion efforts to reduce employee absenteeism and turnover[1].

Hill and Trist[2] first suggested the notion that absenteeism is a result of work-related stress. Absence is seen as the withdrawal from work stress, and is a means by which individuals cope with their social environment.

Empirical evidence

This association between absenteeism and stress has been borne out in recent research. Studies empirically measuring this relationship between absenteeism and stress have generally examined how environmental, work or personality characteristics explain individual differences in absenteeism rate.

The early work of Frankenhaeuser and Gardell[3] revealed the relevance of work characteristics to absenteeism. They found that perceptions of stress and absenteeism of lumbermen were highest among those whose work could be described as skilled but low in autonomy. They concluded that work perceived as low in control and autonomy creates stress that results in absenteeism.

There is much research on personality characteristics and their relationship with absenteeism. Several studies[4-6] found a moderate relationship (r = 0.20) between self-reported anxiety and absenteeism. Other studies have reported significant relationships between absenteeism rates and other indices of personality characteristics like perfectionism and hardiness[7,8].

A review by Manning and Osland[1] credited the study by Jamal[9] as having the highest correlations found between stress and absence frequency. With a sample of 440 nurses, the correlations reported were role ambiguity (0.34), role overload (0.27), role conflict (0.23) and resource inadequacy (0.37). With few exceptions, the correlations derived from the literature support a stress-absenteeism relationship but of small magnitude.

Despite the early mention of the job dissatisfaction-work stress-absenteeism relationship in the literature[2], research is still surprisingly inconclusive about how environmental/personality characteristics explain individual differences in absenteeism rate. Farrell and Stamm[10] suggested a reason for this lack of focus. Individual correlates, or explanations of work stress along dimensions of personality characteristics, have been the dominant

framework for the study of absenteeism. The neglect of organisational variables has stifled the understanding of the influence of environmental or work characteristics in absenteeism. Farrell and Stamm[10] lament the lack of an organisational focus in the study of absenteeism even in global reviews[11,12] that employ meta-analysis methodology in aggregating the results of many studies. Other researchers have pointed out other perspectives in their studies of absenteeism variable, and it appears that an important consideration for a majority of the researchers is the need to separate involuntary from voluntary absence. Involuntary absences are genuine sick leaves, while voluntary absences pose a concern for employers because such 'unauthorised vacations' translate to working days inexcusably lost[1,13].

Absenteeism measures: involuntary and involuntary absence

Any deliberation to address the stress-absenteeism relationship raises the necessity of operationalising the absenteeism variable. The traditional perspective is to operationalise absenteeism as the total number of hours absent per unit of time. For example, levels of 10 sick days per year give an absence rate of 4.3% (assuming 230 working days in a year). Wooden's[14] study of the absenteeism phenomenon in the public service defines absenteeism rate as the length of time (in number of days) spent away from work 2 weeks prior to the interview.

Researchers also looked at different lengths of absenteeism (eg., one day, two days, short term, long term, etc) and different forms of measuring absence (eg., hours and frequency)[1,15,16]. Methodological issues related to measuring absenteeism needs to address the issue of involuntary and voluntary absence. Chadwick-Jones, Nicholson and Brown[15] suggest that one-day absences are usually voluntary. In fact, Fogler and Belew[16] regard one-day absences as the best indicator of voluntary absence. Frequency of absence, an index that looks at the number of occasions absent regardless of duration of absence, is recorded by Muchinsky[17] as the most reliable absence index. Two decades later, it is widely perceived as a highly effective measure of involuntary absence.

Several researchers have examined the causes underlying involuntary absence. Wooden[14] tested the popular perception that Australian employees in the public sector as being more prone to taking sick leave compared with similar employees working in the private sector. Public sector absenteeism, as Wooden explains, is caused by greater job security, more generous leave entitlements, lower job satisfaction and a lack of competitive pressures. Kriegler[18] contends that a group of 'chronic absentees', which constitute a small minority of employees in the organisation, are responsible for a substantial proportion of absence.

Objectives of study

A good majority of studies on work-related absenteeism are set in the context of a foreign culture. Insofar as work on stress and absenteeism is concerned, the authors are not aware of any studies from Singapore. A recent computer search on the 'PsycLit' database unveiled 163 articles, none of which was from Asia. This study, hopefully, will contribute to the understanding of stress and absenteeism relationship in Singapore.

There are two absenteeism measures introduced in this present study, MI and MC. MC is the number of days of medical leave taken and MI, a self-report of minor illnesses. The two questions used for eliciting information on the MC and MI variables are:

1. As best as you can remember, how many days of medical leave (MC) have you taken in the past 3 months?
2. In the past 3 months, how many days did you fall ill and not take medical leave?

In Singapore, civil service employees are required to obtain a medical certificate from a doctor if they were to absent themselves from work due to illness. As such, MC is obviously the conventional involuntary absenteeism measure. In examining absenteeism measures, this present study has two objectives. Firstly, the authors speculate that the processes giving rise to involuntary absenteeism in Singapore are different in the sense that there is apprehension, even among public servants, to take sick leave. The general perception of the management on sick leave is such that the employee risks giving a poor account of his commitment to the organisation. Presuming a causal link between stress and illness, MI rather than MC could possibly be a better outcome indicator of an individual's perceived stress. The hypothesis is that more stress-related variables are associated with MI. Thus if workplace environment is stressful, people are still likely to go to work despite their illness. Secondly, the authors are interested in the differences between MC and MI, and their respective relationships with other stress-related factors.

The variable MI is interesting. It is neither a voluntary nor involuntary absenteeism measure, representing what the authors term as "para-absenteeism". MI is a measure of para-absenteeism because it measures the number of days in which an employee is feeling unwell such that he cannot do his work. Consequently, MI is not a voluntary measure of absenteeism, because the employee with high para-absenteeism still reports for work; neither is the measure involuntary, because it cannot be recorded as an actual sick leave. The authors are of the persuasion that employees bordering on the twilight zone of this para-absenteeism phenomenon respond differently to workplace stress, and will study patterns of this measure with other stress-related factors.

METHOD

Subjects

Subjects for the study included 363 civil service employees. One hundred and seventeen were hospital staff, 113 from the Ministry of Home Affairs and 133 from the Ministry of Education. Thirty-four subjects were excluded from the sample because they did not

complete the questionnaires. Of the remaining 329 subjects, there were 130 males and 194 females. Five subjects did not indicate their sex. Mean age of males was 44.00 (SD = 9.32), mean age of females was 40.18 (SD = 10.74). The majority of subjects had tertiary education (see Table I). Compared to the population statistics, there were proportionally more Indians and less Malays in our sample (Table II).

Table I – Educational level of subjects

	Frequency	Percentage
Primary	1	.3
Lower secondary	3	.3
Upper secondary	81	24.6
'A' levels	54	16.4
Diploma	12	3.6
Undergraduates	5	1.5
Graduates	118	35.9
Postgraduates	46	14.0
No response	9	2.7

Table II – Race of subjects

	Frequency	Percentage	*National distribution in percentage
Chinese	257	78.1	77.3
Malay	21	6.4	14.1
Indian	36	10.9	7.3
Eurasian	2	.6	Not cited
Others	9	2.7	1.3
No response	4	1.2	

*Figures quoted as correct in 1996

Instruments

The Stress, Coping and Personality Inventory (SCOPE-i) was used to measure stress-related factors. This inventory was developed by the Department of Psychology, Institute of Mental Health, as a psychometric tool for assessing stress at the workplace. The inventory was divided into three sections. Part 1: Stress in the Workplace with 135 items measuring Work Overload, Environmental Stressors, Responsibilities, Personal Constraints, Role Conflicts/ Ambiguity, Organisational Tension, Career Limitations, and Relationship Difficulties. Part 2: Personality factors with 80 items that measure Hardiness, Anxiety, Optimism, Hostility and Perfectionism. Part 3: Coping Skills with 70 items that measure Problem Focused Coping, Avoidance, Seeking Social Support and Acceptance/Growth. The 28-item General Health Questionnaire[19] was administered to assess general well-being with additional questions on exercising, medical leave and illness. Subjects filled in responses to the questionnaires on an optical mark reader (OMR) form. The forms were scanned with the OpScan 4 OMR and data were analysed using a computer statistical software package.

Design

Dependent variables were the number of medical leave taken and the number of days the subject was ill but did not take MC in the 3 months prior to the assessment. Independent variables were the stress-related factors as measured by the SCOPE-i. Pearson correlation coefficients were calculated to find the relationship between independent and dependent variables.

Procedure

Instructions on how to fill in the questionnaires were written out in an instruction sheet. This was distributed to subjects together with the SCOPE-i booklet, the General Health Questionnaire, a question sheet and an OMR response form. Subjects completed the questionnaires at their own time on the OMR form and returned it to the Institute for scoring. These subjects were randomly selected from the respective organisations. Individual feedback reports on the test results were given to the participants, so OMR forms were submitted with the participant's NRIC number. All participants except hospital staff attended a stress management workshop where the results of the SCOPE-i were presented. Subjects were allowed to discuss and ask questions about their own profiles.

RESULTS

Thirty-four subjects were excluded from the sample of 363 subjects due to incomplete responses. There was no significant difference in age of the excluded group (mean = 44.84, SD = 9.67) and the final sample of 329 subjects (mean = 41.79, SD = 10.36), t (342) = 1.65, $p > 0.05$. There was also no significant difference in the stress quotient between the excluded group (mean = 21.26, SD = 3.80) and the final sample of subjects (mean = 21.23, SD = 4.07), t (361) = 0.04, $p > 0.05$.

Relationship of the Stress Quotient with MC and MI

The stress quotient (SQ) was calculated to provide an indication of the amount of stress participants experienced at the workplace. The SQ is a composite of the scales that measure stress at the workplace (Part 1 of the SCOPE-i). MC did not correlate with SQ, $r = 0.0755$, $p > 0.05$. However, MI correlated positively with SQ, $r = 0.1722$, $p < 0.005$. The GHQ correlated positively with both MC ($r = 0.1642$, $p < 0.005$) and MI ($r = 0.1983$, $p < 0.005$).

These results showed that overall stress levels were related to MI but not to MC. Employees were more likely to report that they had minor illnesses (eg., headaches and backaches) when stress levels were higher. However, stress levels did not influence the rate of MC taking. These results have important implications for future studies on Stress Reduction and Management Programmes. It is likely that such programmes will have little impact on absenteeism as measured by MC taking. However, they may be more likely to significantly improve the well-being of employees and decrease para-absenteeism.

Relationship of workplace stressors with MC and MI

MI was significantly correlated to personal constraints, $r = 0.1471$, $p < 0.05$, organisational tension, $r = 0.1355$, $p < 0.05$, career limitations, $r = 0.1826$, $p < 0.005$, work overload, $r = 0.2132$, $p < 0.005$. However MC was only significantly correlated to environmental stressors, $r = 0.1517$, $p < 0.05$ (Fig 1).

As hypothesised, MC and MI are affected by different components of stress at the workplace. MC rates are associated with environmental stressors. Based on these results, we can infer that improving the physical environment at work might have a significant impact on MC rates. For example, when an office is comfortably air-conditioned and sufficiently quiet, employees are less likely to take MC. When an employee is ill, taking MC to rest at home is considered when the office environment is uncomfortable.

Minor illness, on the other hand, is associated with psychosocial stressors, a collective term for work overload, personal constraints, organisational tension and career limitations. The outcome of these stressors takes the form of para-absenteeism; that is, though the employee is physically present at work, he is unwell to the extent that he cannot perform and thus is virtually absent. In order to decrease para-absenteeism, employers should actively increase the amount of control employees have over what they do and how they do their work, thus allowing for more decision-making and setting of their own work goals (personal constraints). The employers, while rewarding employees' contributions to the organisation, should also inform employees about avenues for advancement and promotion (career limitations). Employers should keep in check the amount of work which employees have on their hands to prevent overwork (work overload). Finally, the creation of a conducive work environment by keeping communication channels open and reducing office politics will also improve para-absenteeism rates (organisational tension).

Relationship of personality and coping skills with MC and MI

Anxiety was positively correlated with MI, $r = 0.1616$, $p < 0.005$, but not with MC, $r = 0.1047$, $p > 0.05$ (Fig 2). MC was not associated with any personality variable. However, MC was negatively correlated to problem focused coping, $r = -0.1416$, $p < 0.05$. MI was not correlated to any coping skills.

Subjects who experienced more anxiety were more likely to report that they felt ill but not take MC. As consistent with some prior research findings[20], the rate of MC is not associated to anxiety, perfectionism, optimism, anxiety, hardiness or hostility. However, MC rates are lower among individuals who take an active approach in dealing with their problems (problem focused coping).

DISCUSSION

Implications of main findings

The most significant finding in this study is the result supporting the hypothesis that MI, rather than MC, is more related to work stress. As discussed previously, the result has exceeded the expectations of the hypothesis in the sense that MI, and not MC, is related to work stress. In a sense, this finding is not too unremarkable, in view of the small correlations between stress and absenteeism derived from the literature[1]. The point that remains remarkable and noteworthy is that MI is a more powerful predictor of work stress. Unfortunately, there is no other para-absenteeism or similar variable reported in the literature for the authors to make a comparison of the findings.

One of the implications of this study is that stress management programmes might not help very much in reducing absenteeism as measured by MC taking. Improving the physical environment appears to alleviate absenteeism, a finding consistent with Farrell and Stamm's[10] conclusion from the meta-analysis review of many studies, that "work environment and

	Environmental stressors	Responsibilities	Personal constraints	Role conflicts/ ambiguity	Organisational tenson	Career limitations	Relationship difficulties	Overwork	MC	MI
Environmental stressors	1.000	0.2668**	0.2409**	0.2617**	0.2533**	0.3833**	0.3456**	0.2202**	0.1517*	0.0454
Responsibilities		1.000	0.2822**	0.3644**	0.4150**	0.3589**	0.3872**	0.5754**	0.0684	0.1019
Personal constraints			1.000	0.6639**	0.5862**	0.7146**	0.7271**	0.3854**	0.048	0.1471*
Role conflict/ ambiguity				1.000	0.5321**	0.6751**	0.7267**	0.4879**	0.0073	0.0987
Organisational tension					1.000	0.5811**	0.6301**	0.3630**	0.0665	0.1355*
Career limitations						1.000	0.7579**	0.4406**	0.0364	0.1826**
Relationship difficulties							1.000	0.4481**	0.0125	0.0816
Overwork								1.000	0.0147	0.2132**
MC									1.000	0.1474*
MI										1.000

N = 329
** significant at alpha = 0.005
* significant at alpha = 0.05

Fig 1 – Relationship between SCOPE-i workplace stressors, MC and MI

	Anxiety	Hostility	Hardiness	Perfectionism	Optimism	MC	MI
Anxiety	1.000	0.5252**	-0.5229**	0.3971**	-0.5319**	0.1047	0.1616**
Hostility		1.000	-0.6378**	0.2163	-0.4933**	0.0335	0.0433
Hardiness			1.000	-0.0322	0.7420**	-0.0906	-0.0445
Perfectionism				1.000	-0.0892	-0.0351	0.0375
Optimism					1.000	-0.0771	-0.0454
MC						1.000	0.1474
MI							1.000

N = 329
** significant at alpha = 0.005
* significant at alpha = 0.05

Fig 2 – Relationship between personality factors, MC and MI

	Emotional avoidance	Behavioural avoidance	Cognitive avoidance	Acceptance/ growth	Social support	Problem focused coping	MC	MI
Emotional avoidance	1.000	-0.0860	0.2091**	-0.0040	-0.5884**	-0.0632	0.0027	0.0381
Behavioural avoidance		1.000	0.1759**	0.3192**	0.3487**	0.2879**	-0.0142	-0.0896
Cognitive avoidance			1.000	0.1467*	-0.0586	0.0381	0.0436	0.0155
Acceptance/ growth				1.000	0.3738**	0.6800**	-0.0265	0.0036
Social support					1.000	0.4730**	-0.0358	-0.0570
Problem focused coping						1.000	-0.1416*	-0.0535
MC							1.000	0.1474*
MI								1.000

N = 329
** significant at alpha = 0.005
* significant at alpha = 0.05

Fig 3 – Relationship between coping skills, MC and MI

organisation-wide correlates are better predictors of employee absence than psychological or demographic correlates". What other variables affect the stress-absenteeism relationship? Perhaps when we know the answers to these questions, we are in a better position to refute or adapt the popular press' claim that stress management reduces absenteeism.

That personality has no bearing on absenteeism is a result consistent with Arsenault and Dolan's[20] findings. The mediating role of one of the personality index, anxiety, in influencing MI is intriguing. It appears that higher levels of psychosocial stressors might lead to higher anxiety levels and as such, anxiety is associated with MI. Unfortunately, the authors are not presently able to draw clear conclusions from this intriguing puzzle, since there are a number of inconsistent findings about the role of anxiety in mediating the stress-absenteeism relationship[4,20].

Limitations and future research directions

The present study essentially follows the research trend of presenting correlations as a support for findings. The authors are, however, aware of the limitations of a correlational study. As pointed out by Hunter and Schmidt[21], "variability among observed correlations cannot be accepted at face value because statistical artefacts effectively add artificial variance to correlations and disguise what are sometimes unvarying relationships in the population". Nonetheless, a good majority of studies exploring the stress-absenteeism relationship are correlational studies. In fact, significant reviews[10,12,22] employing meta-analysis present only aggregates of correlations. A possible consideration for future studies is the use of multiple regression and path analysis which will further clarify the causal links between latent variables.

Although many absenteeism measures have been reported in the literature, all of these measures are derived from total time lost and frequency of absence[23]. These two constructs have been considered as distinct entities[24]. It remains to be seen as to whether MI is distinct from MC, despite the significant correlation between MC and MI ($r = 0.1474$; $p < 0.05$) reported in this study.

Another possible consideration for further research is to strengthen the face validity of this para-absenteeism measure by the use of archival records. However, self-report measures may be the best and only way to assess para-absenteeism. Although self-reports are much subject to variability of the respondent's recollection and memory, they are, as noted by Folger and Belew[16], a necessary evil. Unfortunately, para-absenteeism has not been documented by organisations. Future studies can include close monitoring of MI rates (eg., having employees rate how well they feel on a daily basis) to obtain an objective measure of para-absenteeism.

There is an under-representation of Malays in the sample. In addition, there were very few subjects from the lower educational levels (ie., primary and lower secondary). As such, future research can focus on these groups of subjects.

Common among the review articles has been the suggestion that some correlate relationships vary by the population studied[10]. The population studied has an impact on the findings, since certain occupational groups develop distinctive rules about the frequency and duration of absence. In short, there are distinctive "cultures of absenteeism" for different populations[15]. The strength of this study is the diversity of organisations and professions sampled. The 329 subjects were participants from 8 professions (doctor, nurse, psychologist, social worker, teacher, administrative staff, prisons and customs officer) and 6 organisations. The large empirical base gives a fair representation of the absenteeism or para-absenteeism culture in Singapore's civil service.

ACKNOWLEDGEMENT

We are thankful to the following for their contributions to the paper: Elizabeth Pang, Lyn Chua, Vivienne Ng, Teresa Foong, Christopher Choo, Sue Anne Khoo, Sui Aun Soong, Abdul Majeed Khader, Chee Wee Koh, Jansen Ang and Roger Tan for their help in the development and administration of the SCOPE-i. The staff of Woodbridge Hospital for participating in the SCOPE-i assessment project and all participants of our stress management workshops.

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