*Full Length Research Paper*

# Factors affecting medical leave frequency among semiurban adult population in Malaysia

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**Most of the studies regarding medical leave evolving around the work related and not much studies done on general population as a whole. Thus, the purpose of this study is to determine the factor affecting the medical leave frequency either higher or lower in Hulu Langat district. A cross sectional studies done among of household in Hulu Langat district and by using Fisher's random numbers, the sampling units were selected according to the types of residences. From the selected sampling, all the males and females aged 18 to 65 years old were recruited to participate in this study. The data were collected using a standardized and semi guided questionnaires by using the General Health Assessment (HRA) Questionnaire format with close ended questions on the medical leave distribution. A total of 811 respondents were included in the final analysis. The results show that presence of chronic disease, frequent acute disease and moderate perception to health had higher towards regular medical leave. Thus, prevention and control of chronic disease will actually lead to better perception of health and further prompt treatment of acute disease will reduce the medical leave are recommended. Other than that, suggestion to include work related variable such as job satisfaction, job stress, nature of work and duration of working hour in future study are highly recommended.**

**Keywords:** Medical leave, Adult, Chronic disease, Acute disease and Perception of Health

## INTRODUCTION

Medical leave or sick leave is defined as wage paid work associated leave due to medical reason of an employee and must be issued by a registered medical practitioner (General Order of Malaysia, 2000). Referring to the General Order of Malaysia, the numbers of medical leave entitled for a formal employee in any given calendar year is as high as 15 day (General Order of Malaysia, 2000). According to the Malaysia's Labour Law through it Employment Act 1955, stated that an employee is entitled to the number of days of paid medical leave which an employee is entitled to in each calendar year. This will

depend on the duration of him/her working, which is if he worked less than 2 years, the employer is entitled for 14 days of medical leave per year. If an individual had worked for 2 years but less than 5 years, he/she is entitled for 18 days of sick leave and lastly any employee who had worked for at least 5 years or more, the employee is entitled for 22 day (Malaysia Labour Law, 1955). Thus, medical leave is known as an indirect indicator of a persons' health problem.

Overall prevalence of chronic disease in National Health and Morbidity Survey 2006 is 15.5% and almost 67% of the of chronic disease Malay patient sought treatment in public health facilities and majority of Chinese patient sought treatment at private healthcare facilities (Amal et al. 2006). The reason why chronic patient not seeking treatment is due to mild illness,

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therefore by analyzes the number of medical leave taken by chronic patient in these particular district will show the quality management of the chronic disease or reflex the disabilities among chronic disease patient (Mastura, 2010). Probably poor management will lead to poor quality of life of the particular chronic disease patient and eventually will increase the frequency of the medical leave.

Disease of respiratory system and disease of digestive system is among top ten principles caused of hospitalization in the public health hospital and same goes in public healthcare facilities (Health Fact, 2008). Food water borne disease as the example of acute case will presented with diarrhoea, vomiting and sometimes headache is the on the rise as evident by the incident rate of 36.17 in 2009 and 44.18 in 2010 per 100,000 population (Soon et al. 2011). Therefore, acute disease will became a good determinant to analyze the frequency of medical leave.

There are no statistical data about the commonest diseases related to medical leave in Malaysia. However, according to the Malaysian Employers Federation, Malaysian employees in the private sector took an average of 4.2 days of medical leave in 2007, which is higher than the average in other countries. In the United Kingdom, for example, the average days of sick leave taken was just at 0.9 days. The Federation estimated that it could cost employers RM2.7 billion a year for employees' outpatient treatment (Malaysian Employers Federation, 2008). A Malaysia Employer Federation survey of 202 companies revealed that, on average, 3.95 days of medical leave (with no hospitalization) were taken per employee in all industries in 2007. An estimated 19.18 million days of medical leave were taken in 2007 (Malaysia Medical Association, 2009). In trend with globalisation and an upcoming industrialised country, the medical leave rise is a reflective indicator of Malaysia employee's health status and tendency towards medical leave to sooth their health problems (Malaysia Medical Association, 2009).

Potential determinants of medical leave had been explored including gender, age, and self reported health (Isaac et al. 2010). Women had higher morbidity rate compare than men and in line with this, women are also had absent from work due to illness and likely to take frequent medical leave than men (Masteeka, 2000). Medical leave frequency also increasing among both sexes when increasing age either in skilled or unskilled workers (Salvator et al. 2002). Most researches are also done on the relationship of medical leave with chronic diseases but are less explored among acute disease such as diarrhoea and vomiting and its relationship with medical leave. Chronic disease as the condition are incurable and although often not immediately life threatening but on the long run will increased the burden on health, economic status and quality of life of the family, individual and community (Joshua et al. 2005).

Commonly, study on medical leave is usually associated with work related perspective and are focused upon the extended duration of medical leave days, compared to the frequency of medical leave provided by the physicians (Chee and Rampal, 2003). Women are found to have more frequent medical leave compared to men, probably because of the multiple responsibility performed by women especially after marriage and as the children main provider at home (Peter and Arne, 2004). There is a study that shown patients' marital status as being married, is associated with higher medical leave or sick leave taken due to own or sometimes dependents health problems (Joshua et al. 2005).

Minor illness or acute disease are defined as any condition such as caused by infection, trauma, pregnancy, fracture, with a short and often less than a month clinical course. Acute diseases usually respond to therapy with the return to a state of complete–pre-morbid health is the rule (McGraw-Hill Concise Dictionary of Modern Medicine, 2002). In this study, headache, vomiting and diarrhoea are categorised as acute diseases and usually not associated with sick leave but it will also affect the productivity of work. The diarrhoea, vomiting and headache was choose to represent the acute disease because of the most cases that seen in public health facilities (Health fact, 2008).

However study had found headache sufferer are associated with frequent medical leave (Fiane et al. 2006). There was increasing prevalence of medical leave with increasing frequency of headache suffered by the patient (Cecile, 2004). Chronic disease such as asthma is associated with medical leave or and it depends on the severity of the disease (Roskes and Gulden, 2005). However, chronic diseases such as Diabetes, Hypertension and Heart disease can be associated with more frequent medical leave. A study done among the worker with chronic diseases have found to have two or three times more and longer duration of medical leave compared to sufferers of minor illness (Cecile, 2004). Therefore chronic disease is important factor that should be included in the study of the medical leave frequency.

In a cohort study in Sweden, done among young adults showed that overweight and obesity as part of chronic diseases phenomemon are more frequently associated with an increased risk of medical leave compared to normal weight population (Kristian et al. 2010). Obese population are found to have higher prevalence of medical leave compared to population who on medical leave due to unspecific pain (Nathell et al. 2002). Meanwhile, other factors such as patients' perception on health and stress were found to have no significance difference in medical leave frequency (Salvator et al. 2002). Patients who smoke, had a higher tendency to choose riskier job and suffer many more risk of diseases, compared to non smokers (Harold et al. 1990). Therefore, smoking was found to be associated with increasing risk towards medical leave compared to

individuals that never smoked. However, there are no difference between men and women smokers noted (Petter, 2007).

Malaysia lack data regarding medical leave frequency and it's associated risk factors. In view of the above problem, the study explored risk factors affecting adults medical leave frequency in the Hulu Langat semiurban district. These factors are in term of socio demographic factors such as age, ethnicity, gender and marital status, status of disease (chronic and acute), smoking status, perception towards one own health, perception of 'happiness' and obesity class status.

**MATERIALS AND METHODOLOGY**

The state of Selangor consist of nine districts and Hulu Langat district is the second most populated district in 2000 with a total population of 865,514 to be chosen as place of semiurban study. Hulu Langat district is further divided into seven territories namely Cheras, Kajang, Semenyih, Ulu Semenyih, Beranang, Hulu Langat and Ampang. Some of these territories are urbanised and well endowed with modern facilities.

This was a cross sectional study from the year 1999 to 2000 involving five sub districts in the territories of Hulu Langat.  Hulu Langat is semiurban districts with many of its population are into agriculture but a bigger number are employed at neighbouring urban centres as professionals and semi professional employees. By using the list of residential unit obtained from Ampang Jaya Municipal Office (MPAJ), Kajang Municipal Office (MPKJ) and the District Health Office, the number of traditional villages and housing estates were obtained. From the lists, stratified random sampling was done and a sampling frame was derived with Ampang sub-district population weightage at 50%, Cheras 19%, Kajang 16%, Hulu Langat and Semenyih were 8% and Bangi 7%. By using Fisher's random numbers, the sampling units were selected according to the types of residences. From the selected sampling, all males and females aged 18 to 65 years old were invited to participate in this study.

A total of 811 participants, aged between 18 to 65 years old were interviewed through face to face interviews, after fullfiling a few exclusion and inclusion criteria. The inclusion criteria were all adult patients who are able to comprehend Bahasa Malaysia and English language. Participants' with known mental disorder and individuals who never was awarded any medical leave were excluded. The faculty ethics committee had primarily approved the study methodology.

Each participant was explained thoroughly regarding the study objectives and consents were obtained prior study initiations. A standardized and semi guided questionnaires using the General Health Assessment (HRA) Questionnaire was used, consisting of questions on individual's medical leave frequencies. Other data collected were socio demographic data of respondents. These include age in years, ethnicity, marital status, gender and BMI class.

Further information on the presence of chronic disease such as Diabetes Mellitus, Hypertension, Asthma and Heart disease were obtained. Respondents who response as yes for Diabetes, Asthma, Hypertension and Heart Disease either diagnosed by physicians or had been treated before at any stage of their lives, were grouped as presence of chronic disease (one or more diseases) and for those who had none were categorized as not suffering from chronic disease. The acute diseases information which entailed if they suffered symptoms of headache, vomiting and diarrhea were also enquired from participants. Frequency of acute diseases were defined by using the sum of all episodes of acute disease (based on experiencing the symptoms of vomiting, headache and diarrhea) to derive the median value of medical leave taken per year. This median value for the population was then used to distinguish between frequent and less frequent acute disease experienced. In this study, the attack of more than 3 episode of headache, vomiting and diarrhoea were considered as frequent attack of acute disease.

Lifestyle factors such as the respondents' smoking status (either current smoker or non smoker and ex smoker been included in non smoker) and perception on one's own health were asked in the questionnaire. The respondent had three options which were excellent health, good health and moderate health perception towards one's health past one year. The perception of towards one health is according to the perception of the respondent about their own health. We assumed that perception of one's own health is an important indicator that reflects how he/she function at work and at home. Another factor asked is the perception of own's 'happiness' with three options which were always happy, sometimes happy and not happy within the past one year. Perception of happiness defined according to the perception of the respondent about the happiness in their own live. Happiness was seen as a indirect indicator of life's satisfaction that will influence respondents stress level and its later manifest as higher tendency towards medical leave taken.

Anthropometric measurement i.e. respondents body mass index (BMI) were also measured. These measurements were carried out by trained research assistants. BMI measured in $kg/m^2$ units, were then further categorized according to WHO guidelines for Asian population to underweight (<18.5), normal (18.5 to 22.9), overweight (>23 to 27.50) and obese ( >27.5) (World Health Organization, 2004). Pilot test and face validity on 30 participants using these questionnaire were conducted on an identified community area and it was done to determine the appropriateness of the questions, comprehension and culturally sensitivities values of the community.

**Table 1.** Characteristic of Respondents (n = 811)

| Variable | Central Tendency | n (%) |
|---|---|---|
| Medical Leave (days) | 3.0 (2.0 – 5.0)* | 811(100.0) |
| Age (years) | 34.97 (10.1)** | 81 (100.0) |
| **Gender** | | |
| *Male* | | 408 (50.3) |
| *Female* | | 403 (49.7) |
| **Ethnic** | | |
| *Malay* | | 683 (84.2) |
| *Chinese* | | 55 (6.8) |
| *Indian* | | 69 (8.5) |
| *Other* | | 4 (0.5) |
| **Marital Status** | | |
| *Single* | | 189 (23.3) |
| *Married* | | 622 (76.7) |
| **Smoking Status** | | |
| *Smoker* | | 207 (25.5) |
| *Non Smoker* | | 604 (74.5) |
| **Body mass index class** | | |
| *Underweight* | | 69 (8.5) |
| *Normal* | | 226 (27.9) |
| *Overweight* | | 284 (35.0) |
| *Obese* | | 232 (28.6) |
| **Perception On Own Health** | | |
| *Excellent* | | 7 (0.9) |
| *Good* | | 635 (78.3) 169 (20.8) |
| *Moderate* | | |
| **Perception Of 'Happiness'** | | 645 (79.5) 160 (19.7) 6 (0.7) |
| *Always Happy* | | |
| *Sometimes happy* | | 111 (13.7) |
| *Not Happy* | | 700 (86.3) |
| **Chronic Disease** | | |
| *Yes* | | 403 (49.7) |
| *No* | | 408 (50.3) |
| **Acute Disease** | | |
| *Frequent* | | |
| *Less Frequent* | | |

*\* median (IQR)*
*\*\* mean (SD)*

All collated and cleaned data were analyzed using the SPSS version 17.0. Data were descriptively expressed as frequency values, percentages (%), the median value with it's interquantile range. The study outcome indicator is the medical leave number in days taken (leave frequency). Other independent variables were the presence of chronic and acute diseases (by patients perception), perception of one's own health, perception of own 'happiness', current smoking status and the BMI class. Normality tests found that the outcome variable which is medical leave frequency was not normally distributed. Thus, the data was further analyzed using non parametric analyses which were Mann Whitney-U Test, Kruskal Wallis and Spearman Correlation. Results were defined as statistically significant when the p value (2-sided) was less than 0.05. Power of the study was assumed to be at 80%.

**RESULT**

The response rate was high at 90%. The mean and standard deviation for respondents age was 34.97 $\pm$ 10.1 years. Table 1 shows the characteristics of the respondents. The gender distribution showed both female and male had almost equal ratio at almost 50%. Majority

**Table 2.** Inferential Relationship between Medical Leave and Its' Influencing Factors (Sociodemography, Disease Factors and Perceptions)

| Variable | | Median (Days) | IQR | Mean Rank | Statistical Test | p value |
|---|---|---|---|---|---|---|
| **Gender** | Male | 3.0 | 3.0 – 5.0 | 413.94 | -0.988* | 0.323 |
| | Female | 3.0 | 3.0 – 5.0 | 397.96 | | |
| | Malay | 3.0 | 2.0 – 5.0 | 406.22 | | |
| | Chinese | 2.0 | 1.0 – 4.0 | 354.87 | 5.096[b] | 0.165 |
| **Ethnicity** | India | 3.0 | 2.0 – 5.0 | 447.33 | | |
| | Others | 2.5 | 2.0 – 3.0 | 358.50 | | |
| **Age** | | | | | - 0.034[c] | 0.338 |
| **Marital Status** | Single | 3.0 | 1.5 – 5.0 | 389.56 | -1.120[a] | 0.263 |
| | Married | 3.0 | 2.0 – 5.0 | 411.00 | | |
| **Presence of Chronic Disease** | Yes | 3.0 | 2.0 – 6.0 | 459.48 | **-2.632[a]** | **0.008*** |
| | No | 3.0 | 2.0 – 5.0 | 397.52 | | |
| **Presence of Acute Disease** | Frequent | 3.0 | 2.0 – 5.0 | 448.96 | **-5.576[a]** | **<0.000*** |
| | Less Frequent | 2.0 | 1.0 – 4.0 | 363.57 | | |
| **Perception on own Health** | Excellent | 2.0 | 1.0 – 4.0 | 354.71 | | |
| | Good | 3.0 | 2.0 – 5.0 | 394.71 | **10.254[b]** | |
| | Moderate | 3.0 | 2.0 – 7.0 | 456.06 | | **0.017*** |
| **Smoking Status** | Smoking | 3.0 | 2.0 – 5.0 | 424.42 | -1.333[a] | 0.183 |
| | No Smoking | 3.0 | 2.0 – 5.0 | 399.69 | | |
| **Perception of 'Happiness'** | Always Happy | 3.0 | 2.0 – 5.0 | 405.47 | | |
| | Sometimes Happy | 3.0 | 2.0 – 5.0 | 408.79 | 0.061[b] | 0.970 |
| | Not Happy | 2.5 | 1.0 – 7.8 | 388.67 | | |
| | Underweight | 3.0 | 1.0 – 5.0 | 410.68 | | |
| **BMI Class** | Normal | 2.0 | 2.0 – 5.0 | 391.72 | 1.765[b] | 0.623 |
| | Overweight | 3.0 | 2.0 – 5.0 | 404.76 | | |
| | Obese | 3.0 | 2.0 – 5.0 | 420.04 | | |

[a] *Mann Whiteny U-test and Z value*
[b] *Kruskal Wallis test and H value*
[c] *Spearman correlation test and rho value*
*Significant at p <0.05*

of the respondents were of Malay ethnicity (84.2%); followed by Indians (8.5%), Chinese (6.8%) and lastly others (0.5%). Most of the respondents were married (76.7%) and majority of the respondents were non smoker (74.5%). Body Mass Index of respondents fell into the overweight (35.0%), followed by obese (28.6%), normal BMI (27.9%) and the underweight (8.5%). Majority of the respondents had good perception towards own health (78.3%), moderate (20.8%) and excellent (0.9%) perception of health respectively. On the perception of 'happiness' experienced, majority of the respondent felt always 'happy' (79.5%), followed by sometimes happy (19.7%) and not happy most of the time (0.7%). Distribution of the respondents by disease status are also described in table 1. Most of the respondents do not suffer any chronic diseases (86.3%). However 13.7% had some form of chronic disease. Meanwhile for acute disease, the proportion of respondents who suffered from frequent acute disease is equal to non frequent after looked at median value of both sufferers which was at 49.7% and 50.3% respectively. Table 2 represents bivariate analysis of adult medical leave frequency (categorised as frequent and non frequent medical leave takers) in Hulu Langat district. The variables tested were the sociodemographic data, the presence of chronic disease, frequency of acute disease, perception towards own health, perception of 'happiness', smoking status and body mass index class. The variables tested were gender, ethnicity, age and marital status. Adult medical leave frequency were found to be statically significant among respondents who had the presence of chronic disease, higher frequency of acute diseases and had moderate perception towards own health with p value <0.05. Those with chronic disease was associated with frequent medical leave compared to respondents without the history of chronic disease. Populations who experienced frequent acute diseases are also significantly associated with frequent medical leave

taken. Respondents who had moderate perception on one's own health was found to have significant higher leave, compared to respondents who perceived themselves as experiencing excellent and good perception of own health.

## DISCUSSION

Medical leave has become an essential tool to evaluate employees' performance in both the private and public sector; albeit it's indirect relationship it harbours towards job satisfaction and the population's health. In previous researches about the frequency of medical leave, it is commonly explained in tandem with employees work related factor. Many researchers had demonstrated that numerous factors are associated with higher frequency of medical leaves. The study showed that 50% percentile of the population would taken about 3 days of medical leave per year (range 2-5 days/year). This is not considered high compared to other literatures. Study done among general practitioner patient in Norway noted that the medical leave mean was 5.1 days among patient with common cold and longer duration for chronic disease with mean of 6.1 (Peder et al. 2011). Another study done in Swedish nurse population also found that the mean medical leave is higher which is 16.4 (Nelson and Finn, 1995). As many as 506 of the 811 respondents (62.4%) are the group that is of less frequent medical leave takers, while 305 (37.6%) are the frequent category of medical leave takers.

However this result came from a semiurban district and may not reflect the actual medical leaves taken in the urban or rural population. The average age of 811 respondents are in the middle age group of 35 years old where they are most productive and are working. Majority of the respondents are of Malay ethnicity and does not reflect the true races distributions in this country. As in many upper income developing countries, we are besieged by overweight and obese people as reflected by our findings whereby as high 35% are categorised as obese by WHO standard.

Surprisingly 20.8% of these adult population, described their health as 'moderate' status and could be related with the stress of semi urban environment that they live in. This value of 20.8% is quite high who perceived some doubts in their own health. However, a majority of 79.5% described themselves as being always happy past year. Chronic disease represents a major problem in Malaysia. However, 86.3% of our population denied having or experienced any of the four major chronic diseases enquired in this study during the period.

In this study, it is revealed that the presence of chronic disease are found to be significantly associated with frequent medical leave at p=0.008, compared to those without any of the described four chronic diseases. The presence of chronic diseases among the 111 people had

somehow incapicated them requiring more frequent medical leaves taken per year. The same finding was demonstrated in a study conducted among diabetes mellitus, (chronic disease among the adults) who was associated with increased medical leave among both men and women (Guy et al. 2008). In another study conducted in Netherland among teaching university staffs, who found that chronically ill employees, take two or three times more and longer medical leave than non chronically ill employees and proven by the increased in odd ratio (Roskes and Gulden, 2005). This is secondary to people with chronic disease that may have frequent attack of illness that will influence them to take more medical leave compared to those without chronic illness.

In addition, this study also demonstrated that respondents who experienced more frequent acute disease (n=403) have higher medical leave tendency, compared to respondents who experienced less frequent acute disease episodes at p<0.0001. There is not much research that has been done to relate the frequency of acute disease and frequency of medical leave taken. This study found that there was increasing prevalence of medical leave taken, with increasing frequency of headaches (Cecile, 2004), albeit the causes that was not studied here. In a study done in the Danish Headache Centre among respondents with the median headache frequency of 15 days/month, found there was a high medical leave frequency secondary to headache as high as 12 days/year were reported (Vinding et al. 2007).

There is also significant relationship seen between respondents who perceived moderate self health perception with higher medical leave frequency. It is consistent with a study done among workers regarding perception of health and medical leave which showed statistical significance value at p=0.006 (Annika et al. 2010; Ander et al. 2005; Cecile et al. 2011). In this study, it was found that those who had moderate perception on own health was the group who had highest significant medical leave compared to others in the excellent and good health perception groups.

Age, ethnicity, marital status and gender was not found to be statistically significant with medical leave frequency in this study. This is the same finding was found among the patient in the Germany. The bivariate analysis of a study in Germany showed that the relationship between sociodemograhic factors such as age (p= 0.02), sex (p= 0.84) and marital status (p=0.59) were not statistically significant with medical leave frequency or duration (Kuopala et al. 2011). Thus the four factors here are not factors that influence medical leave frequency. Even though some literature has provided the concept that women have more medical problems compared with men, this is not true in our study. A cross sectional study done among worker with short and long term medical leave found that there are no significant different between men and women (Dekker et al. 2008). The increasing age has a negative association with the number of days

medical leave taken. However this relationship was not significant, thus it showed that age was not a factor in the number of medical leave a person takes in this specific population. As all of our respondents are from the working group class but not stratified into professional or labourer group, this could distort the study finding.

Body mass index was found to be not significant with frequency of medical leave. Even though the majority of our sample was obese, this did not influence the number of leaves taken per year. The same finding was found in the systematic review of obesity and medical leave frequency that there were inconsistent results shown about the relationship between overweight and medical leave (Duijverbode et al. 2009).

Most of the study done regarding smoking and medical leave found to had statistically significant with frequency of medical leave  such as in study done among health staff found that smoker will take higher medical leave compared to non smoker (Tuinen and Mark, 1986). However as this was sampled among health care staffs, this could not be taken as inferential for other population. Meanwhile in this study the respondents' smoking status was not found to be statistically significant. However by looking at the score of mean rank of the non smoker and smoker, there was a difference found between smokers and non smokers. Smokers had higher mean rank score, compared to non smoker. Another variables tested is perception of 'happiness' found to be statistically not significant with medical leave frequency. The concept of 'happiness' in this study reflected how stressed or unstressed the respondents were in the last year.  We assumed the stress will lead to the situation of 'not happy', a negative outlook towards life and subsequently 'not feeling happy'. Most of the study regarding stress and medical leave, showed a significant relationship, whereby the higher the stress, the higher the medical leaves taken (Christina and Lennart, 2008). However, perception of own happiness can be very subjective between individuals based on what they perceived as 'happy' and perhaps our subjects who are mainly the Malays and of Muslim religion, felt sufficiently always happy in the last year.

It is recommended in order to mitigate the effect of medical leave taken in this population, the presence of chronic and acute diseases need to be controlled and kept in check. At present, the prevalence of chronic diseases in Malaysia is escalating and this is compounded by frequent outpatients visits for acute diseases. In spite of the rigirous control by the Ministry of Health and the government; smoking, physical inacitivity and obesity have risen by leaps and bounds. Sin tax has been in place in Malaysia for smoking, however it could also be a solution for inappropriate eating outlets and food bazzars. Reasons why populations are perceiving themselves as having moderate health is unclear. Perhaps its because they are exposed to other environmental stressor and also financial burden  as  well

when you are living in the semiurban area. Uncurtailed, this phenomenon will likely leads to many days of medical leave taken, high disability in patients life years and economic burden to the country. Cost of living in the semiurban area may become one of the stressor for study population and its actually reflex the perception of the city dweller about the own health. Health is not only merely healthy physically but to be healthy mentally or spiritually.   High performances and quality of work demand from the employer also may be the source of the stressor and eventually will lead to frequent medical leave taken.

This study is not without limitations. We had not collected data on populations' financial status, occupation and education status that are some useful factors that can influence the medical leave taken. Other important limitation is recall bias in answering the number of medical leave taken because the respondent had to recall number of medical leave taken for the past one year and the difficulty to validate the answer. The cause of medical leave are also not available. Since this is cross sectional study, the other limitation is cannot prove any causal relationship.

## CONCLUSION

In this study the presence of chronic disease, frequent acute disease and moderate perception on own health status were found to have significant relationship with higher medical leave taken.  These findings suggest that most of respondent with such above risks will require frequent medical leaves, compared to those without those risks. This is why the prevention and control of chronic disease, prompt treatment of acute diseases and health empowerment of workers, will improve health and hopefully reduce the frequent medical leave taken.

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