



UNIVERSITI PUTRA MALAYSIA

***FACTORS RELATED TO ACCIDENT, ILLNESS AND STRESS OF
SECONDARY SCHOOL TEACHERS IN THE KLANG VALLEY,
MALAYSIA***

TAI KWEE LING

FPSK(m) 2019 44



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SECONDARY SCHOOL TEACHERS IN THE KLANG VALLEY, MALAYSIA**

By

TAI KWEE LING

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in
Fulfilment of the Requirements for the Degree of Master of Science**

August 2019

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

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August 2019

Chairman : Ng Yee Guan, PhD
Faculty : Medicine and Health Sciences

Similar to other occupations, teachers are exposed to various safety and health hazards in school during the long working hours they spend in their workplace. Interestingly, the general public may not have realized this fact or even if being aware, may not have thought that their safety, health, and welfare bear collective significance towards the future of the country. There has been a lack of focus on occupational safety and health (OSH) issues among teachers in Malaysia. This study aimed to determine the prevalence and predictors associated with the illness among secondary schools' teachers in a different location of school in Malaysia.

This cross-sectional study was carried out among secondary schools' teachers in Klang Valley. Two hundred and twelve respondents who fulfilled the study criteria volunteered to participate in the study using stratified sampling methods. A self-administered questionnaire was used, which consist of six main sections: socio-demographic characteristics, teaching background, knowledge and experience in OSH issues, workplace accident, illness, and psychological factors. The types of the accident in the questionnaire were adapted based on the Social Security Organisation (SOCSSO)'s Annual Report whereas illness adapted from Subjective Health Complaints Inventory (SHC) while Depression Anxiety Stress Scales 21 items (DASS 21) was used to determine psychological status among respondent. Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25.

The prevalence of illness was 81.9%. School location ($p = 0.004$), having other professional roles in school besides teaching ($p = 0.010$), total amount of other professional roles ($p = 0.046$), number of subject teaching ($p = 0.040$), and anxiety ($p = 0.002$) were significantly associated with the prevalence of illness. Rural school teachers ($OR = 0.310$, $p = 0.017$) have lower odds to have an illness whereas teachers with two

or more subjects teaching ($OR = 3.001$, $p = 0.026$), participated in safety-related training activities ($OR = 3.924$, $p = 0.022$), with anxiety symptom ($OR = 7.033$, $p = 0.005$), and being involved in school accident in the past year ($OR = 4.414$, $p = 0.015$) have higher odds of having an illness.

It appeared that there are causes to be concerned based on the findings in this study. The prevalence of illness although self-reported should not be taken lightly as the symptoms regardless of being psychosomatic or psychophysiology can potentially affect the performance and teachers. In the spirit of the Occupational Safety and Health Act (1994), it is the responsibility of the Ministry of Education to ensure the safe and healthy workplace environment of the teachers in the school. Working together with other stakeholders, further investigation nationwide should be carried out to determine and develop a policy to mitigate the Occupational Safety and Health issues among the teachers.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

**FAKTOR-FAKTOR BERKAITAN TENTANG KEMALANGAN, PENYAKIT
DAN TEKANAN DALAM KALANGAN GURU-GURU SEKOLAH
MENENGAH DI LEMBAH KLANG, MALAYSIA**

Oleh

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Seperti perkerjaan yang lain, guru terdedah kepada pelbagai bahaya di sekolah sepanjang waktu kerja yang lama di tempat kerja mereka. Orang awan mungkin tidak dapat menyedari tentang fakta ini ataupun jika mempunyai kesedaran sekalipun tidak berfikir tentang kepentingan keselamatan, kesihatan, dan kebajikan guru secara kolektif mempengaruhi masa depan negara. Didapati bahawa fokus tentang isu keselamatan dan kesihatan perkerjaan dalam kalangan guru-guru di Malaysia adalah kurang. Oleh yang demikian, kajian ini bertujuan untuk menentukan prevalens dan pembolehubah yang berkaitan dengan penyakit dalam kalangan guru-guru sekolah menengah yang berlainan dalam lokasi sekolah di Malaysia.

Kajian keratan rentas ini telah dijalankan dalam kalangan guru-guru sekolah menengah di Lembah Klang. Dua ratus dua belas responden yang menenuhi kriteria yang telah ditetapkan telah terlibat secara sukarela dalam kajian ini menggunakan kaedah pensampelan berstrata. Satu set borang soal selidik yang boleh dijawab sendiri telah digunakan dan dibahagikan kepada enam bahagian utama, iaitu ciri-ciri sosio-demografi, latar belakang mengajar, pengetahuan dan pengalaman dalam masalah keselamatan dan kesihatan pekerjaan, kemalangan di sekolah, penyakit, dan faktor-faktor psikologi. Soalan jenis kamalangan di sekolah yang digunakan dalam borang soal selidik adalah berdasarkan Laporan Tahunan Pertubuhan Keselamatan Sosial (PERKESO) manakala penyakit adalah merujuk kepada *Subjective Health Complaints Inventory* (SHC) dan *Depression anxiety Stress Scales 21 items* (DASS 21) telah digunakan untuk menentukan status psikologi dalam kalangan responden. Data telah dianalisis dengan menggunakan *Statistical Package for the Social Sciences* (SPSS) versi ke-25.

Kajian mendapati prevalens penyakit sebanyak 81.9%. Lokasi sekolah ($p = 0.004$), peranan profesional yang lain di sekolah selain mengajar ($p = 0.010$), jumlah peranan profesional yang lain ($p = 0.046$), jumlah subjek yang diajar ($p = 0.040$), dan simptom kerisauan ($p = 0.002$) didapati berkait secara signifikan dengan prevalens penyakit. Guru-guru di sekolah yang luar bandar ($OR = 0.310$, $p = 0.017$) didapati mempunyai kebarangkalian yang tinggi terhadap penyakit manakala guru-guru yang mempunyai dua atau lebih mata pelajaran yang diajar ($OR = 3.001$, $p = 0.026$), menghadiri latihan atau aktiviti yang berkaitan dengan keselamatan ($OR = 3.924$, $p = 0.022$), mempunyai simptom kerisauan ($OR = 7.033$, $p = 0.005$), dan pernah terlibat dalam kemalangan di sekolah dalam tempoh setahun yang lepas ($OR = 4.414$, $p = 0.015$) didapati mempunyai kebarangkalian yang tinggi mendapat penyakit.

Berdasarkan keputusan kajian ini, didapati bahawa terdapat penyebab-penyebab yang perlu mengambil berat. Prevalens penyakit walaupun dilaporkan sendiri tidak patut diambil ringan kerana simptom; sama ada psikosomatik atau psikofisiologi berpotensi mempengaruhi prestasi dan guru-guru. Berikutan semangat Akta Keselamatan dan Kesihatan Pekerjaan 1994 (Akta 154), adalah menjadi tanggungjawab Kementerian Pendidikan Malaysia untuk memastikan keselamatan dan kesihatan di tempat kerja untuk guru-guru di sekolah. Penyelidikan lanjut dengan kerjasama pemegang taruh yang lain patut dijalankan di seluruh negara demi menentukan dan menghasilkan polisi bagi menangani isu keselamatan dan kesihatan pekerjaan dalam kalangan guru-guru.

ACKNOWLEDGEMENTS

First and foremost, I would like to express my sincere gratitude to my supervisors Dr. Ng Yee Guan and Dr. Lim Poh Ying for their germinal ideas, patience, invaluable guidance, continuous encouragement, and constant support that guide me to the accomplishment of this research. They have always impressed me with their outstanding professional conduct and a strong conviction for the information about conducting research and carry out data analysis.

My sincere gratitude also goes to the Ministry of Education Malaysia for the permission to do this study. Not to forget, the schools' administrators, who helped me to distribute to the respondents. Also, a very big thanks to Universiti Putra Malaysia for the fellowship awarded and most importantly the grant for the research, GP-IPS, Vote No. 963880. To the research ethnic committee, thanks for the permission given.

Additionally, I would like to take the opportunity to express my appreciation to all the respondents who were secondary school teachers in Klang Valley for their participation and cooperation in this study.

Last, but no least, an honorable mention goes to my beloved family and friends for their support that strengthens me to complete this study. I acknowledge my sincere indebtedness and gratitude to my parents for their encouragement that helps to go through the hardness period of this study.

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LIST OF ABBREVIATIONS

CI	Confidence interval
DASS	Depression Anxiety Stress Scale
DMQ	Dutch Musculoskeletal Questionnaire
DOSH	Department of Occupational Safety and Health
EM	Expectation Maximization
ERI	Effort-Reward-Imbalance Questionnaire
GEDA	Gesundheit in Deutschland Aktuell
GERD	Gastroesophageal Reflux Disease
GERDSQ	Gastroesophageal Reflux Disease Questionnaire
GHQ	General Health Questionnaire
HIRARC	Hazard Identification, Risk Assessment and Risk Control
ILO	International Labour Organization
IPAQ	International Physical Activity Questionnaire
IQR	Inter-quartile range
JCQ	Job Content Questionnaire
JKEUPM	Ethnics Committee for Research Involving Human Subjects
JKKP	<i>Jabatan Keselamatan dan Kesihatan Pekerjaan</i>
LBP	Low Back Pain
Max	Maximum
MBI-ES	Maslach Burnout Inventory-Educators Survey
MES	Malacca Expatriate School
Min	Minimum
MINI	Mini-International Neuropsychiatric Interview

MLR	Multiple logistic regression
MOE	Ministry of Education
NADOPOD	Notification of Accident, Dangerous Occurrence, Occupational Poisoning and Occupational Disease
NDI	Neck Disability Index
NIOSH	National Institute of Occupational Safety and Health
NMQ	Nordic Musculoskeletal Questionnaire
NMQ-E	Extended Nordic Musculoskeletal Questionnaire
NSAD	National Stress Awareness Day
NSP	Neck/ Shoulder Pain
ODI	Oswestry Disability Index
OH	Occupational Health
ÖMPSQ	Örebro Musculoskeletal Pain Questionnaire
OR	Odds ratio
OSH	Occupational Safety and Health
OSI	Occupational Stress Index
p-value	significance value
PERKESO	<i>Pertubuhan Keselamatan Sosial</i>
PET	Physical Education Teacher
R ²	R-squared statistic in regression test
SD	Standard deviation
SE	Standard error
SEWL	Subjective Experience of Work Load
SHC	Subjective Health Complaints Inventory
SLP	Speech Language Pathologist

SLR	Simple logistic regression
SNQ	Standardized Nordic Questionnaire
SOCSSO	Social Security Organisation
SF-21 MCS	Mental Component Summary Scale
SPSS	Statistical Package for Social Sciences
SSQ	Stress Sources Questionnaire
TSCS	Tennessee Self-Concept Scale
TSQ	Teacher Stress Questionnaire
TSS	Teachers' Satisfaction Scale
UBP	Upper Back Pain
UCU	University College Union
VAS	Visual Analogue Scale
VD	Voice Disorder
VHI	Voice Handicap Index
VP	Voice Problem
WMSD	Work-related Musculoskeletal Disorder
W.P.	Wilayah Persekutuan
WRQoL	Work Related Quality of Life
WTS	Work Stress Scale

CHAPTER 1

INTRODUCTION

1.1 Background

School is a place where academic activities and extracurricular activities are being carried out. In fulfilling their designation, the duty of a teacher is not limited to teaching, but also to prepare teaching lessons, assess student's performance, plan for school's external review, clerical work unrelated to teaching, fulfill the requirement of management, and continue the professional development (Chong & Chan, 2010; Ministry of Education (MOE), 2013).

Within the scopes of their work tasks, teachers assume a view of roles such as being a coach, preparation and post-clean-up in laboratory and workshop, and counselors as well as a guardian for students, during in work for field trips, causing teachers to spend more time in these duties. For example, teachers at special education school are expected to bear additional work tasks or responsibility of nursing care duties (Cheng, Wong, Yu, & Ju, 2016; Claus et al., 2014).

According to YBhg. Tan Sri Datuk Seri Lee Lam Thye (2011), Chairman of National Institute of Occupational Safety and Health (NIOSH), school is considered as a workplace where the workers include teachers, administrative staff and others involved in work activities. Thus, the safety and health issues of all school occupants should be emphasized because of the potential for hazards inside the school area to cause injuries and health problems among those occupants.

1.2 Problem Statement

Inevitably, hazards exist in all workplaces regardless of occupation; some more than another. In the field of Occupational Safety and Health, the amount or intensity of efforts in mitigation of hazards are different correspondings to the respective hazards. However, as research in Malaysia are more commonly carried out for construction, mining, and manufacturing (Abdul Razak, Halim, & Abdul Hamid, 2017; Ali, Yusof, & Adam, 2017; H. Y. Chong & Low, 2014; Kah, Hussin, & Abdullah, 2018; Rahim, Hamid, & Singh, 2008; Sai, Halim, & Said, 2012) there are lack of insight on the services industries such as among school teachers.

In both developed and developing countries, teachers are similarly exposed to various workplace hazards during their long working hour in school, which leads to illness and/or disorders (Cheng, Cheng, & Ju, 2013; Hingnekar & Ahmed, 2014; Trinite, 2017).

The potential workplace hazards faced by teachers in school ranges from communicable diseases to venomous animals, contact with extreme hot or cold surfaces, ergonomic hazards, excessive workload, etc. (Alsubaie, 2017; Mohan, Justine, Jagannathan, Aminudin, & Johari, 2015; Mohd Anuar, Rasdi, Saliluddin, & Zainal Abidin, 2016; Rajan, Chellappan, & Thenmozhi, 2016; Trinite, 2017).

Being exposed to various types of hazards, teachers in various parts of the world have been reported to suffer a wide range of health problems including but not limited to voice disorders (Abo-Hasseba, Waaramaa, Alku, & Geneid, 2017; Lira Luce et al., 2014; Ubillos, Centeno, Ibañez, & Iraurgi, 2015), musculoskeletal disorders (Abdulmonem, Hanan, Elaf, Haneen, & Jenan, 2014; Claus et al., 2014; Ponmathi, Keeerthiga, & Sivakumar, 2017), eye problems (Assiri & Al-Musa, 2015; Claudio, Rivera, & Ramirez, 2016), gastrointestinal problems (Altwigry, Almutairi, & Ahmed, 2017), and including stress (Ismail, Abd Rahman, & Zainal Abidin, 2014; Nagra & Arora, 2013; Taher, Samud, & Hashemi, 2016).

In Malaysia, various studies have reported high prevalence of musculoskeletal disorders (low back pain, upper back pain, neck/shoulder pain, ankle/feet pain, etc.) in the past (Karwan, Azuhairi, & Hayati, 2015; Mohan et al., 2015; Nurul Izzah, Haslinda, Saidi, Shamsul Bahri, & Zailina, 2010). As an example, several previous studies, which was published from year 2013 to 2017, reported that the prevalence of low back pain among secondary school teachers are at the high, ranged from 33.3% to 72.9% (Mohd Anuar et al., 2016; Rajan et al., 2016; Zamri, Moy, & Hoe, 2017).

In terms of voice disorder, local studies reported a prevalence of 10.4% (Moy et al., 2015) and 13.0% (Roscellalnja, 2016) among the school teachers. Besides that, it appears that there were abundance of research on stress among local educators (Azizah, Rozainee, Nada, Izreen, & Norhafizah, 2016; Chen et al., 2014; Ismail et al., 2014; Mukosolu, Ibrahim, Rampal, & Ibrahim, 2015; Noor & Ismail, 2016). There was however lack of insight to the other illnesses such as eye problems, gastrointestinal problems, allergy, etc. among teachers in Malaysia as compared to those being reported in another study (Chong & Chan, 2010).

Besides illnesses, other reportable acute injuries such as fire/explosion, struck/hit by an object, caught in between objects, slip, trip, fall, cut by sharps/hand tools/edge, contact with extreme temperature, contact with harmful substances, exposed to electric current and road traffic, etc. were undetermined despite the existing legal requirement under Occupational Safety and Health (Notification of Accident, Dangerous Occurrence, Occupational Poisoning and Occupational Diseases) Regulation 2004 (NADOPOD) enforced by Department of Occupational Safety and Health Malaysia.

The lack of data prevents or causes difficulty in addressing OSH issues amongst the teachers. Without accurate data, the responsible stakeholders; Ministry of Education, administrators as well as the affected individuals are unable to formulate comprehensive

policy, strategies and programs which are prioritized and catered to the OSH issues and problem at hand. Extensively, a study has shown a significant association between school location with the prevalence of illness where urban school teachers were found to experience more health problems than rural school teachers (Dawn, Talukdar, Bhattacharjee, & Singh, 2016). Overall, the previous studies carried out by researchers from all over the world, there are causes to be concerned.

1.3 Study Justification

This study serves to provide a preliminary insight into the occupational safety and health (OSH) situation among teachers in the local context. The result of this research can provide input for relevant parties such as the Ministry of Education (MOE) to understand the OSH issue among teachers better. Besides the prevalence of musculoskeletal disorders and stress, this study will provide more insight to other existing health problem such as communicable diseases, illnesses indicated by non-specific sign and symptoms which includes headache, respiratory, gastrointestinal, etc.

In the long run, this will enable the stakeholders to develop intervention strategies, possible precautionary measures, effective training program and safety policy which can act as an obstacle between teachers and hazards while protecting the other potentially affected school occupants (general workers, students and administrative). This study is also expected to promote the safety and health culture in school. Through this study, the types of illness, together with the predictors of the illness among teachers, can be identified. Thus, this study can act as a reference and provide a baseline for the future research and thus lead to an increased demand for explorative research.

1.4 Research Objective

1.4.1 General objective:

The general objective of this study is to determine the prevalence and predictors associated with the illness among secondary school teachers in Klang Valley, Malaysia.

1.4.2 Specific objectives:

The specific objectives of this study were:

- i) To determine the location of school, socio-demographic characteristics, occupational background, knowledge and experiences in occupational safety and health (OSH) issue, prevalence of workplace accidents and psychological status among secondary school teachers in Klang Valley.

- ii) To determine the one-month prevalence of illness (musculoskeletal, voice, eye, etc.) among secondary school teachers in Klang Valley.
- iii) To determine the association between location of school, socio-demographic characteristics, occupational background, knowledge and experiences in occupational safety and health (OSH) issue, prevalence of workplace accidents and psychological factors with the prevalence of illness among secondary school teachers in Klang Valley.
- iv) To determine the predictors to the prevalence of illness among secondary school teachers in Klang Valley.

1.5 Research Question

This research was carried out to answer the following questions.

- i) What is the one-month prevalence of illness among secondary school teachers?
- ii) Is the prevalence of illness among secondary school teachers associated with location of school, socio-demographic characteristics, occupational background, knowledge and experiences in occupational safety and health (OSH) issue, prevalence of workplace accident and psychological factors?
- iii) What are the predictors of one-month prevalence on illness?

1.6 Research Hypothesis

In order to test the relationship between the variables, the following research hypotheses were built:

- H₁1 There is an association between location of school, socio-demographic characteristics, occupational background, knowledge and experiences in occupational safety and health (OSH) issue, prevalence of workplace accident and psychological factors with prevalence of illness.
- H₁2 There are significant contributing predictors of the prevalence of illness.

1.7 Conceptual Framework

The conceptual framework in Figure 1.2 shows the relationship between study variables and the illness of teachers. The model of conceptual framework was adapted from Anderson healthcare utilization model (Figure 1.1), a theoretical model to indicate the factors that affect the usage of health services and recently was used to determine a health outcome (Andersen, Davidson, & Baumeister, 2013). The model of Anderson & Newman (1973) consisted of predisposing factors (race, age, etc.), enabling factors (family support, education level, etc.), and need factors (chronic illness, disability, etc.)

and wisely used by several previous studies on healthcare research (Azfredrick, 2016; Kim & Lee, 2016; Tesfaye, Chojenta, Smith, & Loxton, 2018).

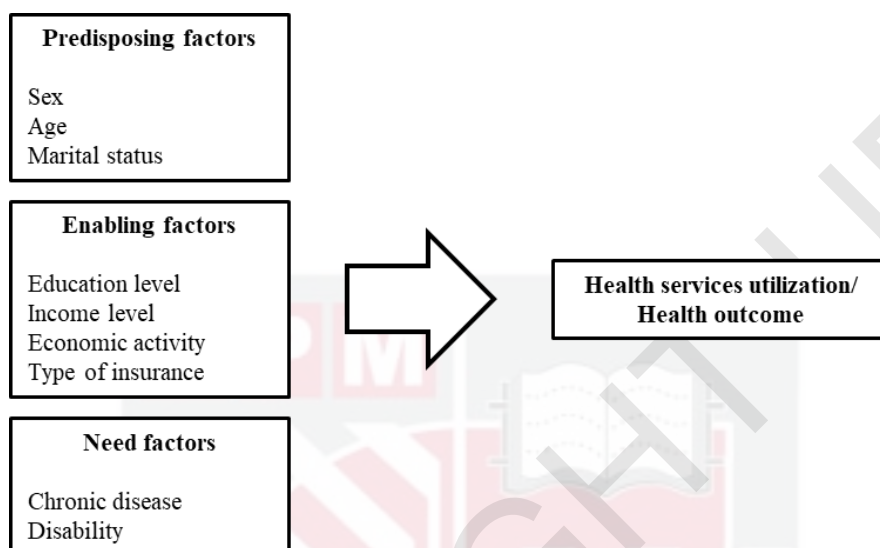


Figure 1.1 : Framework of Anderson health utilization model

(Source: adapted from Kim & Lee, 2016)

In this study, the study variables were categorized into a non-modifiable variable and modifiable variable. Non-modifiable variables included location of school and socio-demographic characteristics such as gender, age, ethnicity, marital status, number of children, and education level, yet found by several studies associated with illness (Agai-Demjaha, Karadzinska Bislumovska, & Mijakoski, 2015; Darwish & Al-Zuhair, 2013; Dawn et al., 2016; Ehsani, Mohseni-Bandpei, Fernández-De-Las-Peñas, & Javanshir, 2017; Nagra & Arora, 2013; Noor & Ismail, 2016; Shkëmbi, Melonashi, & Fanaj, 2015).

Modifiable variables in this study included occupational background (salary and workload), knowledge and experiences in occupational safety and health issue (OSH), psychological factors (depression, anxiety, and stress), and workplace accident. In this study, total working duration, having a part-time job, having other professional roles in school besides teaching, total amount of other professional roles, number of subject teaching on the current year and change of subjects taught were categorized as the workload of teachers. Studies by Cheng et al. (2013), Korn, Augusto de Lima Pontes, Abranches, & Augusto de Lima Pontes (2015), Trinite (2017), and Bolbol, Zalut, Hammam, & Elnakeb (2017) found that the working duration associated significantly with musculoskeletal problems and voice disorder among teachers. Several studies revealed a significant association between workload and health status (Cheng et al., 2013; Ghani, Ahmad, & Ibrahim, 2014; Korn et al., 2015; Trinite, 2017).

In terms of knowledge and experiences in OSH, a study by Alsubaie (2017) reported that person in charge of safety-related and medical-related emergencies in school and emergency preparedness program were vital factors in promoting healthy school environment. Several psychological factors, including depression, anxiety, and stress, were found to be associated with the illness among teachers. Teachers with depression, anxiety, and stress have higher risk towards musculoskeletal disorders and voice disorder (Cheng et al., 2013; Claus et al., 2014; da Rocha, Behlau, & De Mattos Souza, 2015; da Rocha, de Lima Bach, do Amaral, Behlau, & de Mattos Souza, 2017; Devadas, Bellur, & Maruthy, 2017; Korn et al., 2015; Zamri et al., 2017). In addition, the workplace accident also acts as a study variable whereby injuries caused by accident can resulting in an adverse effect on health status among teachers (Alsubaie, 2017).

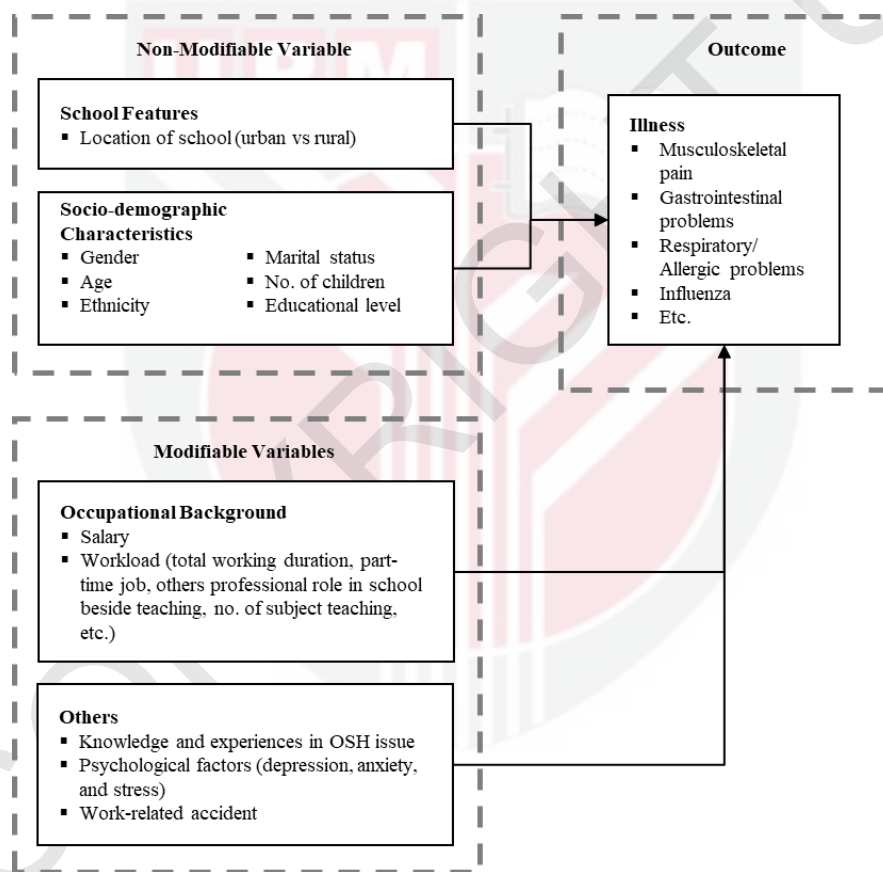


Figure 1.2 : The conceptual framework of the study variables

1.8 Conceptual Definition

The definition of illness and health complaints from Subjective Health Complaints Inventory (SHC) was explained as below:

Illness

The self-reported discomfort or unpleasant physical symptoms including but not limited to musculoskeletal pain, gastrointestinal problems, respiratory/allergic problems, influenza, etc. among secondary school teacher within one month.

1.9 Operational Definition

The outcome of this study is illness among secondary school teacher. Illness in this study is defined as self-reported discomfort or unpleasant physical symptoms of a person, which causes ill health (Wikman, Marklund, & Alexanderson, 2005), including musculoskeletal pain, gastrointestinal problems, respiratory/allergic problems, influenza, etc. using Subjective Health Complaints Inventory (SHC).

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PUBLICATION

Tai KL, Ng YG, Lim PY (2019). Systematic review on the prevalence of illness and stress and their associated risk factors among educators in Malaysia. PLOS ONE 14(5): e0217430. doi:10.1371/journal.pone.0217430





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