

## **CHAPTER 3**

### **METHODOLOGY**

#### **3.1 Research Background**

A study was conducted at 3 Small Medium Industries (SMI) companies involved in manufacturing located in Johor, Malacca and Kuala Lumpur. These 3 companies were selected based on:-

1. Similarity in structural organization where each company has at least 5 different departments (such as Human Resource Department, Marketing Department, Information Technology department, Technical and Support Department, Production Department and Packaging /Department).
2. They fulfilled the definition and characteristics as SMI company
3. These 3 companies were involved in manufacturing sectors.

Universal sampling was carried out at each SMI company where questionnaires were distributed to all workers. Collection of data was done from November 2006 until February 2007.

#### **3.2 Data Collection**

Questionnaires were distributed to respondents after explaining the objectives and how to fill up the questionnaire. A representative who is the supervisor or assistant manager at the respective SMI companies was appointed to collect the questionnaires after they were filled by the respondents.

### 3.3 Sample Size

Sample size for this research was 205 respondents after considering minimum sample size of 171 and additional of 10% for response rate of 90%. Sample size calculation (formula 1) was based on guidelines by Lwanga and Lemeshow (1991) with stress prevalence of 15% from research done by Perez and Walker (1998). Research strength (1-β) was placed at 80% with confidence level of 95%. As a result, the minimum size for the research was 171 respondents.

Formula used:

$$n = z^2_{1-\alpha/2} P(1-P)/d^2 \dots\dots\dots (1)$$

Where,

n = Sample size

z = when α equals to 5%

P = Stress prevalence

q = (1-p)

Research strength = (1-β)

d = Absolute precision

### 3.4 Research Instrument

Research was carried out by using questionnaire based on Personal Stress Inventory by O'Donnell et al (1984), Job Stress Survey by Spielberger and Vagg (1999) and Coping Orientation for Problems Experienced (COPE) by Carver (1997). The questionnaire was divided into 6 main sections.

Part 1 of the questionnaire contained information related to sosiodemographic such as age, race, salary, education level, position and department in the company, marital status, number of children and number of service in the company. Additional information in the questionnaires consists of 7 questions which related to health and safety at their workplace.

Part 2 of the questionnaire explained factors in family and marriage that caused stress. There were 12 questions that based from Personal Stress Inventory by O'Donnell et al. (1984) and consisted of answers in Likert scale. For this research purposes, personal stress instrument that translated by Agus Salim (2001) to Bahasa Malaysia was used.

Part 3 of the questionnaire involved cause of occupational stress. This section contained 30 questions that have been adopted from Job Stress Survey by Speiberger and Vagg (1999). The questions measure workers' perception toward working condition that caused psychological stress. These questions was translated to Bahasa Malaysia and widely used in Malaysia for occupational stress research (Agus Salim, 2001). All 30 questions were used to form severity work stress scale. Question number 1 was a standard question that has fixed score value of 5. Subscale for severity in work load will be presented by 10 questions, another 10 questions for less organizational support subscale and balance of another 10 questions will be related to cause of stress at workplace.

Score for severity work stress scale was calculated by adding up the score of 30 questions and divide by 30. Question number 2 until 30 have range of score from 1 to 9 and question no 1 is constant; 5. Total range of score for 30 questions is  $34(29 \times 1) + 5$  until  $266(29 \times 1) + 5$  after dividing by 30, range of score for severity work stress subscale is 1.13 until 8.87. Same method has been used to get the result for severity in work load subscale and less organizational support subscale which both range is 1 to 9.

Part 4 of the questionnaire will measure level of stress of the respondents based on symptoms related to stress. The questionnaires were also adapted from personal stress inventory by Agus Salim (2001) and O'Donnell et al. (1984). It consisted of 52 questions and 11 subscales where the answers were in the form of Likert scale from 0 to 4. Total score from 52 questions is 40 or more and this show that respondent is in stress. As for every subscale, total scale of 6 or more indicated that respondent is having problem in body functions due to symptoms related to stress.

Part 5 of the questionnaire contained COPE research questions by Carver (1997) to measure coping strategy used by the respondents. This instrument has 28 items which measures the frequency of parameter asked using Likert Scale from 0 to 3; '0' represents never, '1' represents for seldom, '2' for sometimes and '3' for always. These 28 items are split into 14 subscales as shown in Table 3.1.

Part 6 consisted of question related to respondent's interest to take part in any stress management seminar and what is the type of management that they like most. Questionnaires used for the research is attached in Appendix II.

Table 3.1: Coping Strategies Subscale And Item Involved (Carver 1997).

<b>Coping Strategies Subscale</b>	<b>Item Involved</b>
Divert self attention	1, 19
Active problem solving	2,7
Denial	3, 8
Misuse material	4, 11
Emotional support	5, 15
Intrumental support	10, 23
Behavioral changes	6, 16
Emotional expression	9, 21
Positive valuation	12, 17
Planning	14, 25
Humour	18, 28
Aception	20, 24
Religion	22, 27
Self blaming	13, 26

### **3.5 Pre-test**

Pre-test has been conducted on a group which consists of 10 selected respondents who work in other manufacturing factory. The objective is to assure the questionnaires used are easy to understand. Results from the pre-test would be useful to the researcher to upgrade or improve the questionnaires.

### **3.6 Inclusion Criteria**

Respondent must have worked for a minimum of 6 months in the identified companies. Respondent who was under contract and has tendered resignation letter is not eligible for the study. Respondent must not be more than 54 years old in age and

free from any medical/psychiatric follow up because of mental illness and depression.

Respondent must be voluntary involved in this research.

### **3.7 Exclusion Criteria**

Respondent who is not willing to take part/co-operate and is on leave during data collection.

### **3.8 Variables Definition**

#### **a. Small medium industries (SMI)**

Generally, SMIs are defined into two broad categories

- i. Manufacturing, Manufacturing-Related Services and Agro-based industries. Small and medium enterprises in the manufacturing, manufacturing related services and agro-based industries are enterprises with full-time employees not exceeding 150 or with annual sales turnover not exceeding RM25 million.
- ii. Services, Primary Agriculture and Information & Communication Technology (ICT). Small and medium enterprises in the services, primary agriculture and Information & Communication Technology (ICT) sectors are enterprises with full-time employees not exceeding 50 or with annual sales turnover not exceeding RM5 million.

#### **b. Department is defined as part of larger organization with specific responsibility.**

c. Occupational Stress

An individual is under stress when overall stress score of 52 questionnaires from Personal Stress Inventory is 40 or more (O'Donnell et al. 1984).

d. Stress caused in family and marriage

Perception in family and marriage factor as caused of stress is calculated as total score from 12 questionnaires involved family and marriage in Personal Stress Inventory (O'Donnell et al., 1984).

e. Coping Strategies

Coping has been seen as a process dealing with emotion reactions through withdrawal, hostility, aggression or group affiliation. 3 types of coping strategy:-

- i. Responses that modify the situation
- ii. Responses that control the meaning of situation
- iii. Responses that control or minimize the stress response itself.

Coping strategies score is defined from the score of overall items in each subscale where Likert Scale for each item is defined from 0 to 3 where "0" represents less or null used to "3" for most used of coping strategies. Every subscale has 2 items and overall it has 14 subscales. Total items for overall coping strategies are 28.

f. Health and Safety

Health and safety systems include; policy, management responsibility, information on achieving the occupational prescribed requirements, and injury

or illness risks issues associated with works. Technical guidance on hazard management, hazard evaluation, and safety compliance issues associated with the environment and physical facilities is also available. Assistance with workers compensation and rehabilitation of injured staff are essential functions, both provided by the rehabilitation coordinator. This role is linked with the human resource section and the finance section which assist with administrative requirements. Oversight of health and safety is provided by the Director - Human Resources.

### 3.9 Data Analysis

Data analysis was carried out using SPSS version 11.5. Figure 3.1 below displayed a flowchart of overall methodology process that took place during the study.

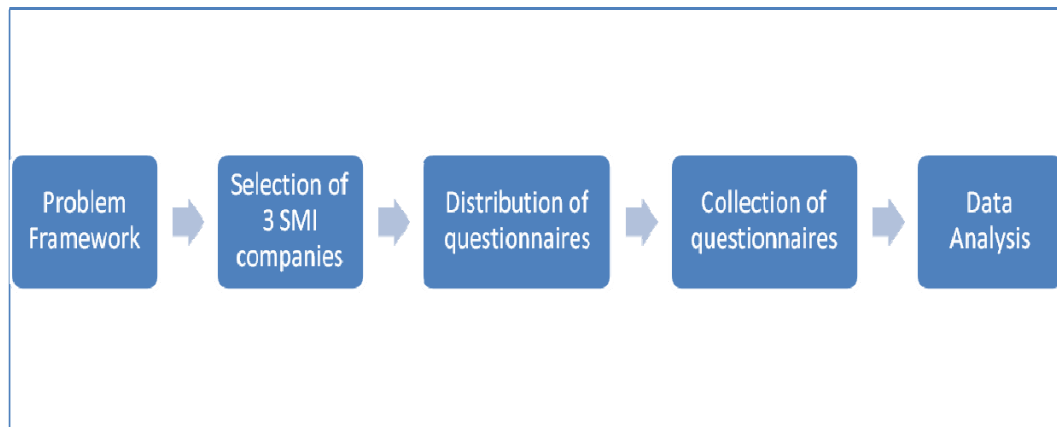


Figure 3.1: Flowchart Of Overall Methodology In Stress Among Workers In Selected SMI Companies And Coping Strategies To Improve Health And Safety At Workplace