CHAPTER

7

SMOKING CESSATION ANALYSIS BY USING LOGISTIC REGRESSION

Siti Mariam Norrulashikin, Nur Arina Bazilah Kamisan and Siti Rohani Mohd Nor

7.1 INTRODUCTION

Smoking is one of the leading causes of morbidity and mortality According to the World Health Organization (WHO), nearly one-third of the world's population over the age of 15 smokes, totalling approximately 1.1 billion citizens. Each year, smoking kills more people than HIV, illicit drug use, alcohol use, motor vehicle accidents, and firearm-related incidents combined. Despite some recent attempts, there is still a high prevalence of smoking in Malaysia. In 2015, the total prevalence of smokers was 22.8% (4,991,458) of the Malaysian population, with 43.0% (4.85 million) of men and 1.4% (143,566) of women smoking, according to the National Health and Morbidity Survey.

As a result, the smoking cessation clinic (SCC) was implemented to provide intensive care to smokers who are encouraged to quit (Smith, 2009). It has the potential to be a simple and efficient method of treating tobacco use and dependence (Contreras, et al., 2010). Almost all the programs are held in the hospital or the clinic. For smokers, the service

often employs either pharmacological or non-pharmacological care. Pharmacological therapy is most often used by doctors and pharmacists.

Power chart was used to gather data from patients who attended the SCC at Hospital Sultan Ismail (HIS). The dependent variable in this study is the status of each participant whether they have quit smoking (success quit) or not (fail quit). In comparison, the predictor variables include age, gender, employment, race, method of quitting, previous attempt, cause of cessation, help from families, number of glasses of water (per day) and the extent of addiction.

7.2   SMOKING CESSATION ANALYSIS

There are quite a lot of studies that have been conducted in smoking cessation but in this study, we only focus on logistic regression and multiple logistic regression and univariate and multivariate analysis.

7.2.1   Logistic and Multiple Logistic Regression

There have been a few studies that have used logistic regression to determine the rate of smoking cessation. One of the studies being conducted in Basel, Switzerland is to identify predictors of success for smoking cessation at work (Stolz, 2012). This research was carried out between May 2005 and January 2009, and 887 smokers participated in the program. Proportions and frequencies between different groups were compared by using the Chi-square test. Univariate and multivariate logistic regression techniques were used to evaluate the predictive factors that contribute to success rate, such as demographic and socioeconomic variables. As a result, they discover that older age is the factor that contributes to successful quit smoking.

Another research examined the relationship between socio-demographic factors and smoking behaviour using multiple logistic regression (Meamar et al., 2013). A survey was conducted at a local government health-care centre, and the questionnaire included questions about socio-demographic details such as age, marital status,

education, income, and job. Additionally, it contains details about smoking cigarettes, such as the number of cigarettes smoked a day, the period of smoking, the type of cigarettes smoked, the nicotine content of the cigarettes, and history of cessation. The odd ratio with a 95% confidence interval had been acquired to detect smoking cessation and the length of time of cessation. One of the findings of this research was that the failure rate of smoking cessation was higher in the younger age groups.

7.2.2 Univariate and Multivariate Analysis

Using univariate and multivariate analysis, a study was conducted to determine the predictors of six-month continuous abstinence among Greek smokers treated in a SCC (Boutou, 2008). The participants must have attended the Smoking Cessation program between November 2004 and October 2005 and completed the six months of follow-up. The researcher used the Chi-square test for categorical variables and the student's *t*-test for continuous variables to compare the groups of subjects who quit smoking and those who did not quit. The results of a univariate analysis study showed a favourable relationship to the older generation, a previous attempt to quit smoking and the use of the "cold turkey" approach for quitting smoking. Meanwhile, in the multivariate study, there is a clear association between previous attempts to quit smoking and using "cold turkey" to quit smoking; however, only the variable with the highest odd ratio was included in the multivariate model.

One of the studies conducted in Italy sought to identify predictors of smoking cessation performance. The two-tailed Student *t*-test was used for continuous variables, and the Chi-square test with Yate's correction or Fisher's exact test was used to distinguish variations in social demographics.