

# ANALYSIS ON SMOKING CESSATION RATE AMONG PATIENTS IN HOSPITAL SULTAN ISMAIL, JOHOR

Siti Mariam Norrulashikin, Ruzaini Zulhusni Puslan, Nur Arina Bazilah Kamisan, Siti Rohani  
Mohd Nor

**SITI MARIAM NORRULASHIKIN**

**UNIVERSITI TEKNOLOGI MALAYSIA**

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## 01

# Introduction

SC practice in Czech Republic indicating continuous improvements in depression symptoms over 1 year among those who quit smoking

In Korea, the government had implement the nationwide smoking cessation programme funded by cigarette taxes for SCC program



Smoking Cessation Clinic (SCC) become more common across the world including Malaysia

Counselling, behaviour therapy, medicines, and nicotine-containing products such as gum and inhalers may be used to help a person quit smoking

Based on National Cancer Institute (NCI) Dictionary of Cancer Terms, smoking cessation lowers the risk of serious health problems

02

# Objectives



Analyse the demography characteristics descriptively

Identify factors that influence quit smoking among patient



Identify the successful smoking cessation rate

03

# Previous Works

**Stolz et al. (2012)**

in Basel, Switzerland aims to find the  
**predictors of success**  
for smoking cessation at workplace.

Predictive factors for success  
have been analyze by using  
both univariate and multivariate  
**logistic regression**

**Results:** Predictors of successful quit are **older age**

# Previous Works

## Boutou et al. (2008)

identified the predictors of 6-month abstinence among Greek smokers in SCC using univariate and multivariate analysis

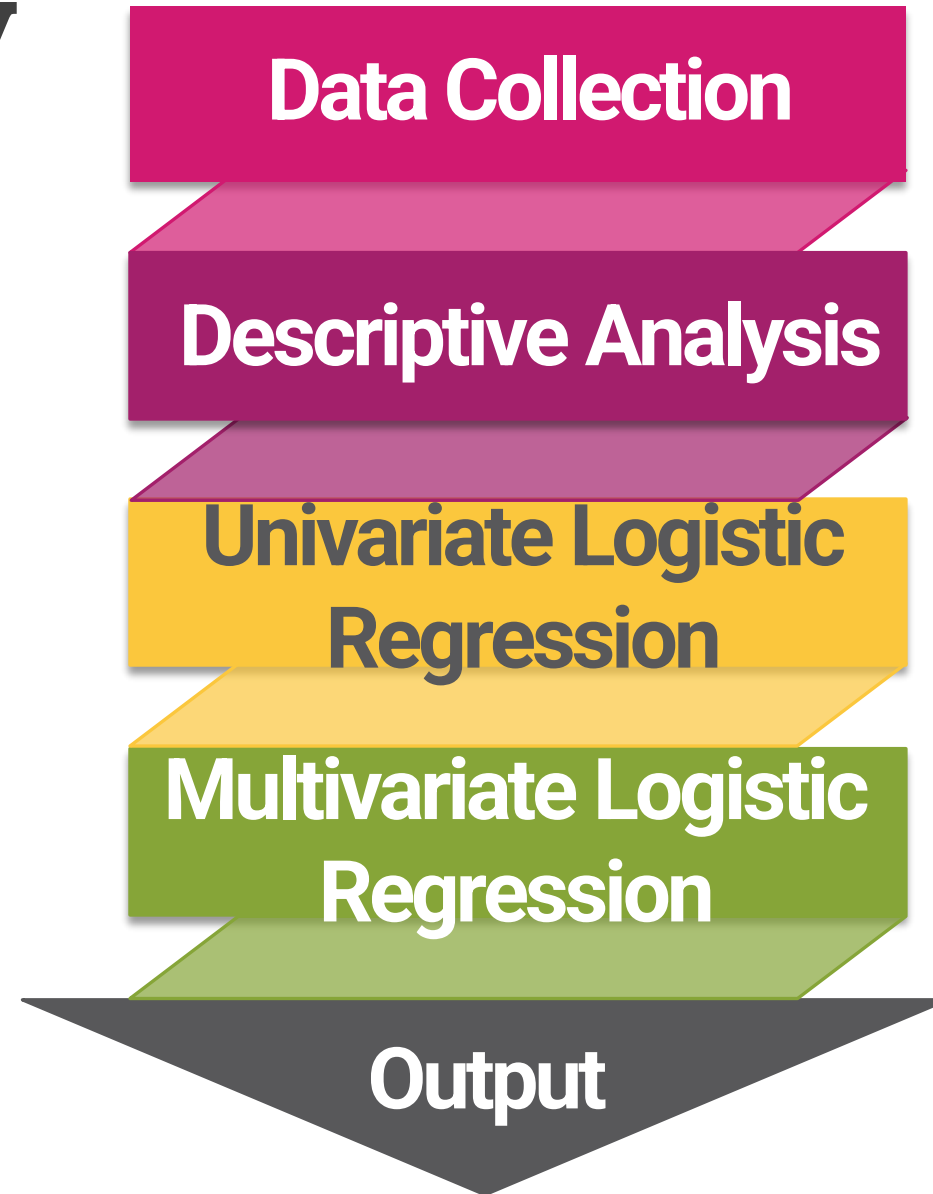
**Univariate Analysis** Older age, previous attempt quit smoking & use 'cold turkey' method were positively associated with quit smoking

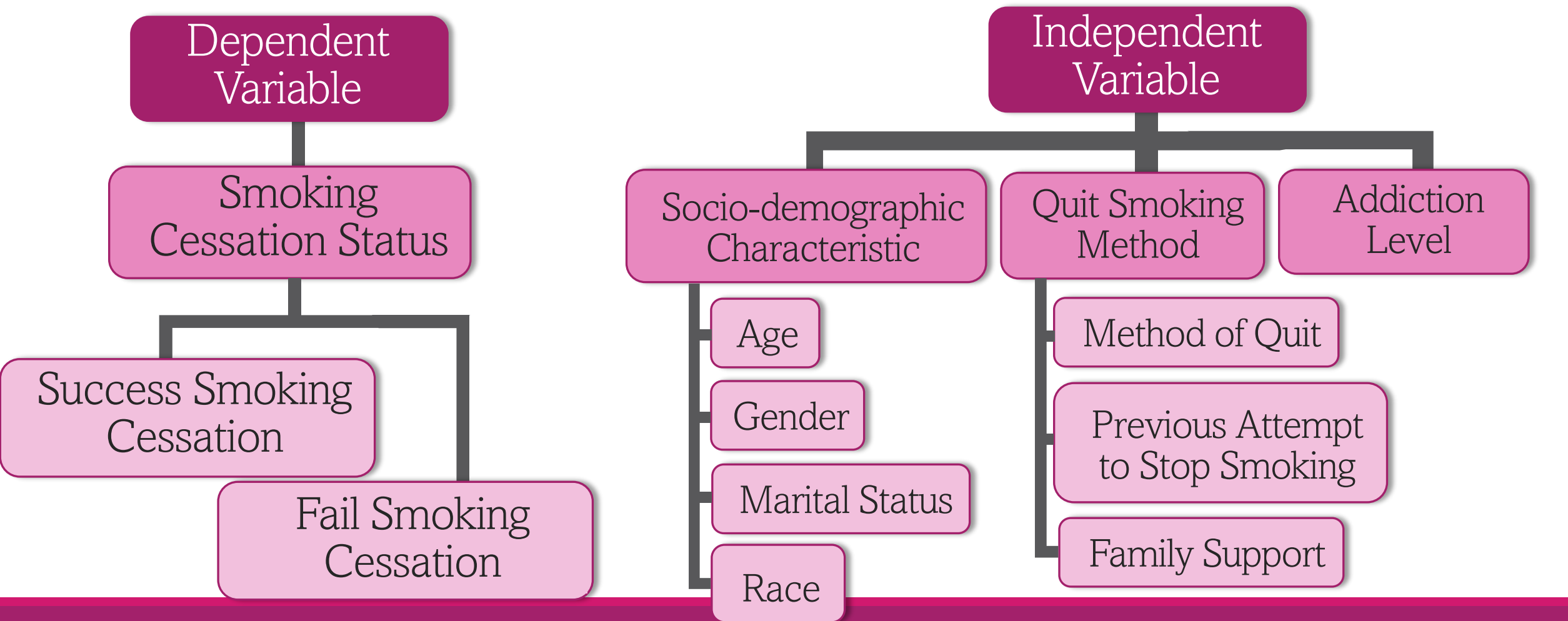
## Multivariate Analysis

strong correlation between **previous attempt quit smoking** and use 'cold turkey' to quit smoking.

04

# Methodology







# Methodology

## Logistic Regression

- Logistic regression generates the coefficients of a formula to predict a logit transformation of the probability of presence of the characteristic of interest:

$$\text{logit}(p) = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_kX_k$$

where  $p$  is the probability of the outcome occurring.

# Methodology

## Logistic Regression

- In order to determine the corresponding log odds of the outcome which we then model as a linear combination of the explanatory variables:

$$odds = \frac{p}{1-p} = \frac{\text{probability of presence of characteristics}}{\text{probability of absence of characteristics}}$$

## Univariate Logistic Regression

- To interpret univariate logistic regression, we must remove  $b_0$  from the regression equation
- We have the regression equation:

$$\text{logit}(p = 1) = b_0 + b_1 X_1$$

- Then, we consider looking at the difference values of  $X_1$ , let say  $t + z$  and  $t$

$$\text{logit}(p = 1|X_1 = t + z) - \text{logit}(p = 1|X_1 = t)$$

## Univariate Logistic Regression

which is equal to:

$$(b_0 + b_1(t + z)) - (b_0 + b_1(t)) = zb_1$$

- By let  $z = 1$ , we consider  $b_1$  as the additive change in the log-odds in favour of  $p = 1$  when  $X_1$  increase by 1 unit.

## Multivariate Logistic Regression

- Interpret multivariate logistic regression is similar with univariate logistic regression which is remove  $b_0$
- We have the regression equation:

$$\text{logit}(p = 1) = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \cdots + b_kX_k$$

## Multivariate Logistic Regression

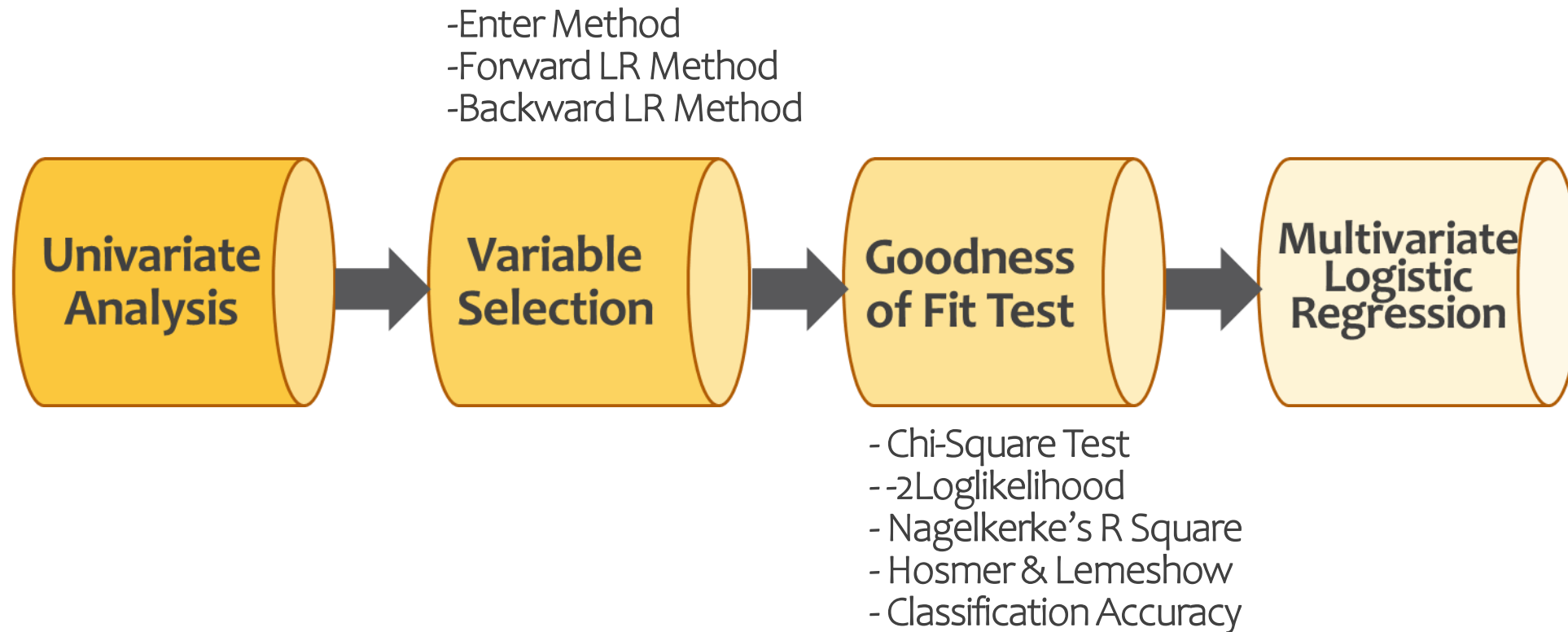
- Then, we consider looking at the difference values of  $X_1, X_2, X_3, \dots, X_k$ , let say  $t + z$  and  $t$ ,

$$\text{logit}(p = 1 | X_1, X_2, X_3 \dots, X_k = t + z) - \text{logit}(p = 1 | X_1, X_2, X_3 \dots, X_k = t)$$

which is equal to

$$\begin{aligned} & (b_0 + b_1(t + z) + b_2(t + z) + \dots + b_k(t + z)) \\ & - (b_0 + b_1(t) + b_2(t) + \dots + b_k(t)) = z(b_1 + b_2 + \dots + b_k) \end{aligned}$$

- By let  $z = 1$ , we consider  $b_k$  as the additive change in the log-odds in favour of  $p = 1$  when  $X_1, X_2, X_3, \dots, X_k$  increase by 1 unit.



# Results & Discussions

## Descriptive Analysis

Variables		Patients	%
Gender	Male	124	98.4
	Female	2	1.6
Marital Status	Married	115	91.3
	Single	11	8.7
Type Of Occupation	Professional, technical & business	27	21.4
	Clerical, service & arm force	49	38.9
	Manual	28	22.2
	Retired or unemployed	22	17.4

Variables		Patients	%
Race	Malay	83	65.9
	Chinese	26	20.6
	Indian	12	9.5
	Other	5	4.0
Education Level (n=113)	Primary	24	21.2
	Secondary	80	70.8
	University/ College	9	8.0

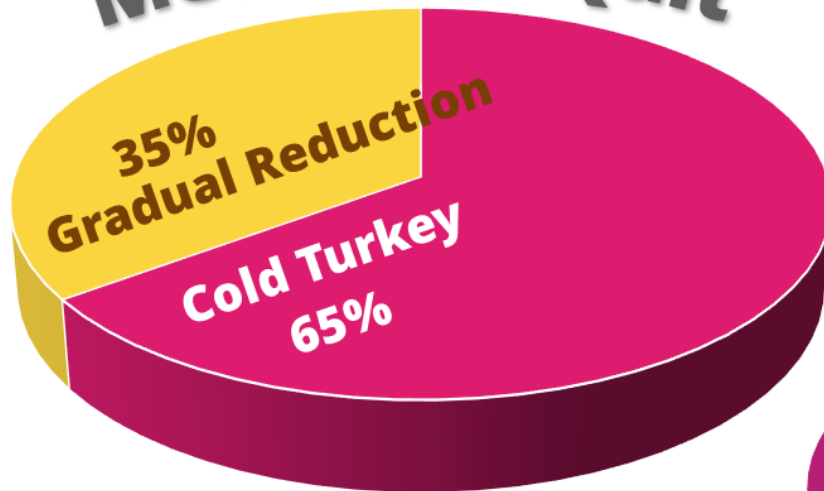
	Min	Max	Mean	Std. Dev	Variance
Age	28	77	50.23	10.556	111.427



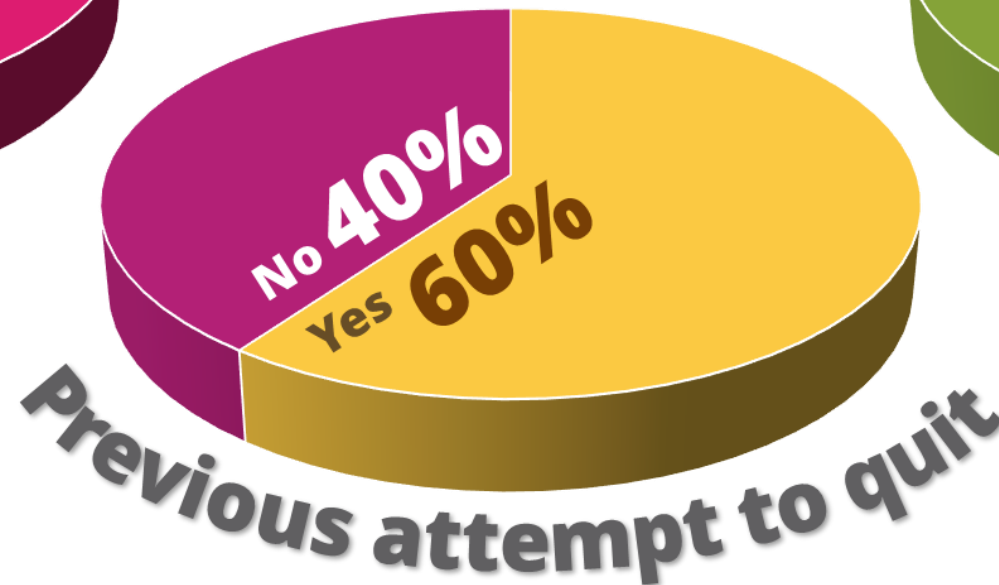
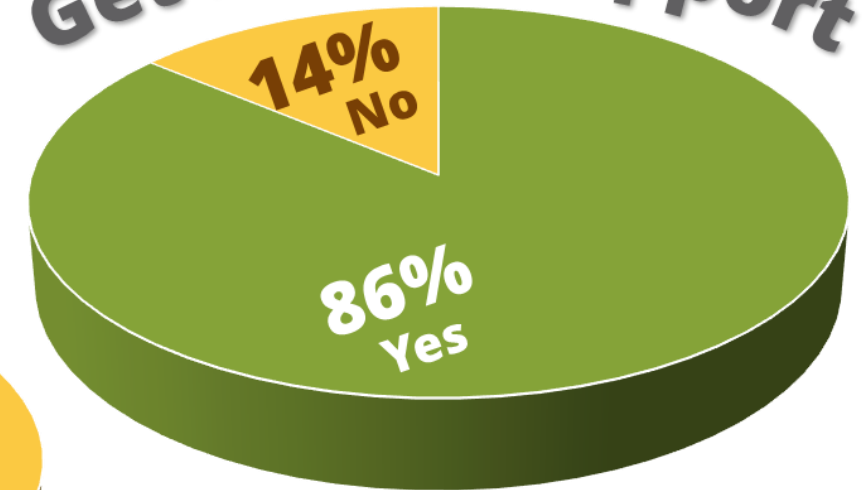
# Results & Discussions

## Descriptive Analysis

### Method of Quit



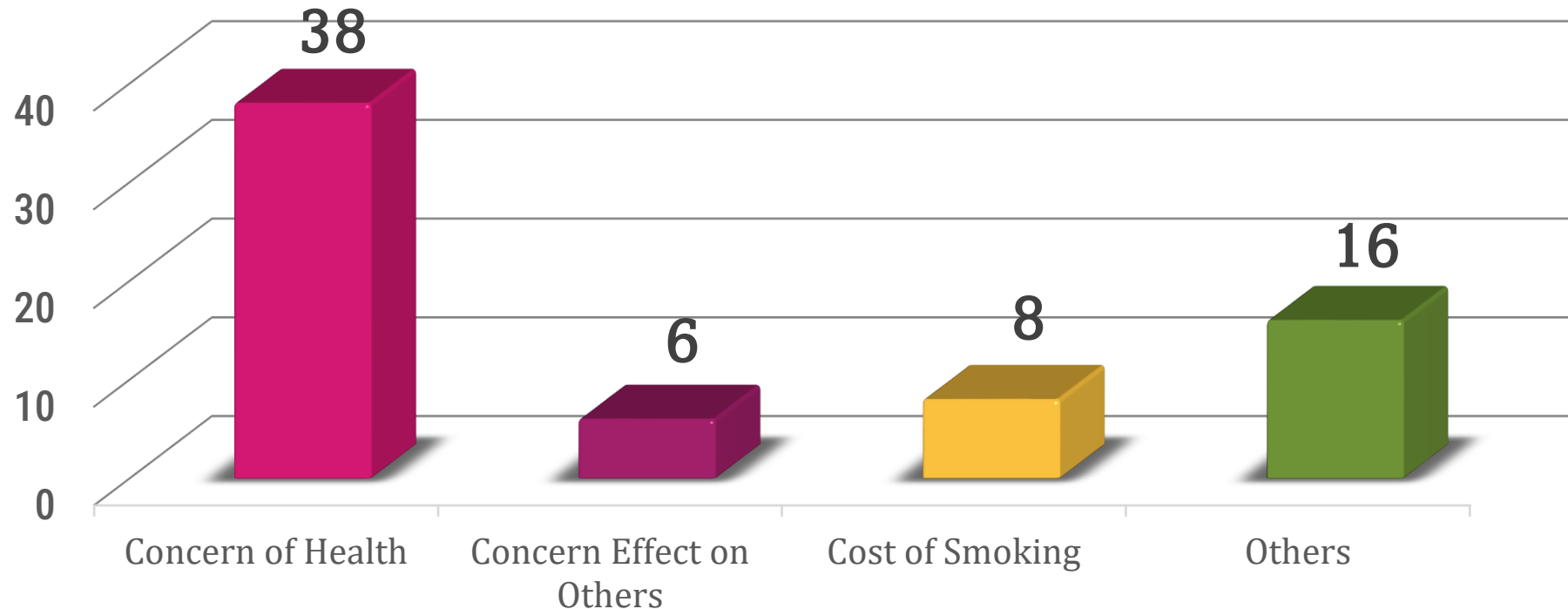
### Get Family Support



# Results & Discussions

## Descriptive Analysis

Reason To Stop Smoking (n=68)



# Results & Discussions

## Descriptive Analysis

Number of Glass of Water (per day)			
Minimum	Maximum	Mean	Std Deviation
2.00	20.00	7.7807	3.3938

Addictive Level		
Variable	Number of Patients	Percentage (%)
Low	92	73.0
Moderate	17	13.5
High	17	13.5

# Results & Discussions

## Descriptive Analysis



# Results & Discussions

## Univariate Analysis

Variables		<i>p</i> -value
Age		0.042
Gender	Female	-
	Male	0.874
Marital Status	Single	-
	Married	0.062
Types of Occupations	Professional, Technical, Business	-
	Clerical, Service, Arm Force	0.233
	Manual	0.874
	Retired, Unemployed	0.327
Race	Malay	-
	Chinese	0.055
	Indian	0.502
	Others	0.395

Variables		<i>p</i> -value
Education Level	Primary	-
	Secondary	0.616
	University/College	0.478
Method of Quit	Cold Turkey	-
	Gradual Reduction	0.000
Previous Attempt Quit Smoking	No	-
	Yes	0.310
Reason to Stop Smoking	Concern of Health	-
	Concern Effect to Others	0.810
	Cost of Smoking	0.708
	Others	0.181
Get Family Support	No	-
	Yes	1.000

Variables		<i>p</i> -value
No of Glass of Water (daily)		0.964
Addiction Level	Low	-
	Moderate	0.000
	High	0.000

# Results & Discussions

## Variable Selection

	Enter Method	Forward LR Method	Backward LR Method
Chi-Square Test	0.000	0.004	0.788
-2 log-likelihood (-2LL)	42.823	42.895	42.895
Nagelkerke R Square	0.690	0.690	0.690
Hosmer and Lemeshow Test	0.594	0.861	0.861
Classification Accuracy	87.2	87.2	87.2

This results show **Enter Method model** is **more suitable** for providing prediction compared to Backward LR and Forward LR Method.

# Results & Discussions

## Multivariate Analysis

Variables		p-value	Odd Ratio
Age		0.788	1.010
Method of Quit	Cold Turkey	-	-
	Gradual Reduction	0.000	0.250
Addictive Level	Low	-	-
	Moderate	0.147	0.096
	High	0.011	0.028

- ❖ Only method of quit and addiction level were significantly associated
- ❖ Age showed no significant association and cannot be as a factors that influence quit smoking among patient.

# Conclusions

01

Results had shown that only **method of quit** and **addiction level** was significant success smoking cessation

02

These factors raise the **successful smoking cessation rate** where **56%** of the patients succeed to quit smoking

03

Variables that independently predicted success quit smoking were **method of quit** and **addiction level**

04

These factors should always be examined during SCC, so that the patients have **higher chance** to quit smoking





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