

## **READINESS TO QUIT SMOKING AMONG REGISTERED SMOKERS AT THE QUIT SMOKING CLINIC SERVICES IN MALAYSIA**

(Kesediaan Berhenti Merokok Dalam Kalangan Perokok Yang Mendaftar di Perkhidmatan Klinik Berhenti Merokok di Malaysia)

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**Abstract:** The Quit Smoking Clinic Services (QSCS) service at government hospitals is provided by the Ministry of Health Malaysia to help smokers quit smoking. Therefore, information on socio-demographic characteristics, smoking profiles and factors that correlate with the readiness to quit smoking is important. This study was conducted to identify factors that correlate with the readiness to quit smoking. A total of 115 respondents were involved in this study. Social support from friends has a significant negative correlation with willingness to quit smoking ( $r=-0.224$ ). For the willingness to quit smoking construct, there is a significant negative correlation between social support from the family and the pre-contemplation construct score ( $r=-0.179$ ), there is a negative significant correlation between the nicotine dependence score and the contemplation construct score ( $r=-0.180$ ), there is a significant negative correlation between social support from friends with the action construct score ( $r=0.183$ ) and there is a significant negative correlation between social support as a whole and social support from friends with the behavior maintenance construct ( $r=-0.206$ ,  $r=-0.305$ ). Therefore, the results of this study have the potential to be used as the basis reference for the development of special guidelines that focus on empowering smokers against external influences to quit smoking. In addition,

factors such as socio-demographic characteristics, nicotine dependence, social support, play an important role in each stage of readiness to quit smoking. Special modules of behavioural treatment interventions involving social support and using available resources are needed to ensure that smoking treatment given is appropriate. Thus, assessment study using biopsychosocial and spiritual perspectives should also be conducted in Malaysia so that an understanding of the issues faced by smokers to quit smoking can be clearly understood holistically.

**Keywords: Readiness to Quit Smoking, Social support, Nicotine Dependence, Hospital's Patients.**

**Abstrak:** Perkhidmatan Klinik Berhenti Merokok (QSCS) di hospital kerajaan disediakan oleh Kementerian Kesihatan Malaysia untuk membantu perokok berhenti merokok. Oleh itu, maklumat tentang ciri sosio-demografi, profil merokok dan faktor yang mempunyai hubungan dengan kesediaan untuk berhenti merokok adalah penting. Kajian ini dijalankan untuk mengenal pasti faktor-faktor yang mempunyai hubungan dengan kesediaan untuk berhenti merokok. Seramai 115 orang responden terlibat dalam kajian ini. Sokongan sosial daripada rakan mempunyai hubungan signifikan negatif dengan kesediaan berhenti merokok ( $r=-0.224$ ). Bagi konstruk kesediaan berhenti merokok terdapat hubungan signifikan negatif antara sokongan sosial daripada keluarga dengan skor konstruk praktemplasi ( $r=-0.179$ ), terdapat hubungan signifikan negatif antara skor pergantungan nikotin dengan skor konstruk kontemplasi ( $r=-0.180$ ), terdapat hubungan negatif signifikan antara sokongan sosial daripada rakan dengan skor konstruk tindakan ( $r=0.183$ ) dan terdapat hubungan signifikan negatif antara sokongan sosial secara keseluruhan dan sokongan sosial daripada rakan dengan konstruk pengekaln tingkah laku ( $r=-0.206$ ,  $r=-0.305$ ). Oleh itu, hasil kajian ini berpotensi untuk dijadikan rujukan asas pembinaan dan pembangunan garis panduan khas yang memfokuskan kepada pemerkasaan. perokok terhadap pengaruh luar untuk berhenti merokok. Di samping itu, faktor seperti ciri sosio-demografi, pergantungan nikotin, sokongan sosial, memainkan peranan penting dalam setiap peringkat kesediaan untuk berhenti merokok. Modul khas intervensi rawatan tingkah laku yang melibatkan sokongan sosial dan menggunakan sumber yang ada diperlukan untuk memastikan rawatan merokok yang diberikan adalah sesuai. Justeru, kajian penilaian menggunakan perspektif biopsikososial dan kerohanian juga perlu dijalankan di Malaysia supaya pemahaman tentang isu yang dihadapi oleh perokok untuk berhenti merokok dapat difahami dengan jelas secara holistik.

**KataKunci: Kesediaan untuk Berhenti Merokok, Sokongan Sosial, Pengantungan Nikotin, Pesakit Hospital**

## INTRODUCTION

Global studies show that smoking is a major factor of mortality among men and a secondary factor for death among women besides being a prime contributor to non-communicable diseases such as heart disease, cancer, chronic lung disease, diabetes and other health problems (Eriksen et al. 2015; World Health Organization (WHO) 2015). Smoking habit has also caused more than 100 million deaths recorded worldwide in the 20th century and this number is expected to increase to one billion in the 21st century (Eriksen et al. 2015). Report by WHO (2015) shows prevalence of male smokers in South East Asia is 32.1% whereas female is 2.6% and Indonesia recorded the highest percentage of male smokers, 76.2% followed by other countries. The prevalence of smoking related mortality in Southeast Asia from 1964 to 2014 was 15-20% for men and 5-10% for women (Erikson et al. 2015). The National Health & Morbidity Survey (NHMS) 2019 shows that 21.3% Malaysians aged 15 years and above are current smokers and the proportion of current smokers is more than 30 times higher among males compared to females; 40.5% vs 1.2% (Institute Public Health Malaysia (IPHM) 2020).

Concerns related to the issue of smoking in Malaysia have attracted significant attention from all parties, especially from the Ministry of Health Malaysia (MOH). The anti-smoking national level mass campaign 'Tak Nak Merokok' launched in 2004 demonstrated the importance of MOH addressing smoking issue as a national public health concern (Ministry of Health Malaysia 2015). Various channels are used in conveying anti-smoking messages to the community via television, newspapers, radio, movies, signboards, posters, media social and so on. Apart from anti-smoking promotional campaign and programs, MOH through Health Education Division (BPK) has also established the Quit Smoking Infoline service which started its operation in 2012 by providing quit smoking advice through on call (Ministry of Health Malaysia 2015). These efforts reflected positive outcome whereby several local studies show increase in level of awareness on dangers of smoking among Malaysians. (Foong and Tan 2008; Lim et al. 2006; Zainol Abidin et al. 2014).

The National Health and Morbidity Survey III in 2008 (IPHM 2008) reported the prevalence of current of smokers in Malaysia as 21.5% and the Global Adult Tobacco Survey 2011 reported the prevalence of smokers as 23.1%. Of the total, 70% of the smokers have the intention to quit

smoking (IPHM 2011). The GATS 2011 report stated the intention to quit smoking can be attributed to the success of the vast anti-smoking campaign implemented by the MOH. Based on the report, it gives an indication of more smokers to come forward for smoking cessation at QSCS. This signifies that although smokers have the intention to quit smoking, it does not directly reflect their readiness and decision to quit smoking.

Decisions and actions to quit smoking can improve the health of individuals and communities and can reduce the overall burden of health care expenditure of a country (Ku et al. 2016). Patients with chronic illness and smokes faces higher risk of mortality and negative health effect compared to those with similar health issues but don't smoke or quit. Thus, patients with higher risk factors and unprepared to quit smoking will further complicate the process of treatment and rehabilitation and requires increased cost for treatment (Eriksen et al. 2015). Report on smoking status among Malaysian adults (IPHM 2015) report that the national healthcare has to spend nearly RM2.92 billion a year to treat patients with chronic lung disease, ischemic heart disease and lung cancer, diseases that are strongly associated with smoking.

The lower rate of smokers signing up for smoking cessation service can be attributed to many factors. Scollo and Winstanly (2019) report that individual and social factors hinders the readiness and decisions of smokers to quit smoking. According to WHO (2016), individual factors that determines health are divided into several elements namely psychological factors such as mental health and coping strategies and physiological factor such as gender, body health status and genetics. Social factors are supports system of an individual such as family, friends and community. Past studies report by Joly et al. (2017) stated that the incidence of higher smoking rates is more prevalent in environments where smoking is the norm and to have family and friends who smoke. Supporting smoking environments influence the uptake of smoking, smoking patterns and hinders the quitting intentions. Research also shows children growing up in households with smoking adults are more likely to take up smoking. Due to smoking being a chronic addiction, importance of the psychological preparation in abstinence underlines the interest of cognitive-behavioural therapies as a support in attempts to stop smoking. Therefore, the assessment on the socio-demographic characteristic and

other factors that correlates to the readiness to quit smoking of smokers should be given priority to ensure a more targeted and individualized smoking cessation that can foresee better quit smoking outcome from patients. The uniqueness of this study is that it was conducted in a eight main hospitals around Klang Valley, Malaysia and the respondents is a client of QSCS itself.

## **METHODOLOGY**

This is a cross-sectional study using quantitative analysis. The sampling method used were purposive sampling. There are 43 QSCS in hospitals throughout Malaysia, inclusive of Sabah and Sarawak. For this study purpose, hospitals with QSCS within Klang valley were chosen as the study locations. There are eight hospitals around the Klang Valley, Federal Territory of Kuala Lumpur and Federal Territory of Putrajaya that have provides Quit Smoking Services The study respondents were all patients and public who smokes and look for smoking cessation services offered by public hospitals in Klang Valley voluntarily or by referral. Patients and public who had registered and attended QSCS in the public hospitals in Klang Valley from 1 August 2016 to 31 November 2016 and met the inclusion criteria were invited to participate in the study., A total of 115 respondents participated and completed the questionnaire.

## **Ethical Approval**

This study was registered with National Medical Research Registry (NMRR-16-1137-30949) and received ethical clearance from the Medical and Research Ethics Committee, Ministry of Health Malaysia.

## **Study Instruments**

The first instrument used was the University of Rhode of Island Change Assessment which was constructed to identify motivation and readiness for treatment (DiClemente and Hughes 1990; McConaughy et al. 1983). This study used the URICA test tool containing 12 items and constructed by DiClemente et al. in 2004. There are four sub-scales in this test that involve four levels in the theory of behaviour change, namely Pre-Contemplation Level, Contemplation Level, Acting Level and Maintenance Level. In addition, this questionnaire also uses a likert scale with options (1) representing strongly disagree to (5) representing strongly agree (DiClemente et al. 2004).

Blanchard et al. (2003) reported that the reliability value of the URICA test tool that has been recorded among smokers, drug addicts and alcoholics is between 0.68 to 0.85. This test tool provides data, subscale scores and category data. Based on the pilot test findings among smokers in local hospitals around Klang Valley, the reliability value of the 12 -item URICA test tool was 0.8. Therefore, this instrument was deemed to be suitable for assessment of smokers who had registered with QSCS at the local hospitals.

This study also uses The Multidimensional Scale of Perceived Social Support (MSPSS) questionnaire to measure aspects of social support for respondents in this study. A study conducted by Avicenna and Rafaei (2010) on the aspect of social support showed that the reliability value of MSPSS is 0.85 to 0.91 on chronic patients. The reliability of the Malay version, the reliability value by Muhammad Rizwan and Neelma (2010) is also an alpha value of 0.86. The results of this study also found that the reliability value of the MSPSS questionnaire was in good condition with a value of 0.89. There are several breakdowns of elements in this test tool where social support is divided into three categories namely support from family, friends and significant other. This test tool uses a Likert scale that is (1) strongly disagree to (7) strongly agree. This test tool also contains 12 questions. This questionnaire applies continuous scoring method whereby a higher mean score indicates high social support score (Cheng and Chan 2004; Teoh and Tam 2008; Ng et al. 2011).

The last instrument is to measure the level of nicotine dependence of respondents using the Fagerstrom Test for Nicotine Dependence (FTND) by Heatherton et. al (1991). This test tool has been widely used, especially in Malaysia to measure the level of addiction experienced by smokers in the QSCS in hospitals and in Health Clinics throughout Health Education Division, Malaysia (2005). This test tool contains six items with a score of 0-3 that indicates low addiction to nicotine, 4 to 5 indicating moderate addiction to nicotine, and 6 to 10 indicates high addiction to nicotine. The Malay version of the FTND tool was adopted from the Quit Smoking Manual, Health Education Division (2005).

## **RESULTS**

Table 1 shows the median age of the respondents were 39 years, by gender, 95.7% were male and 4.3% female. 73.9% of respondents have lower income level less than RM3,000.00 and 26.1% with higher income level of more than RM3,000.00 and majority (72.2%) are married. By ethnicity, majority were Malay respondents (71.3%), followed by Indian (14.8%), Chinese (11.3%) and Bumiputera Sabah/Sarawak (2.6%). In terms of education level, most of the respondents involved in this study have STPM or Diploma or equivalent (39.1%), followed by respondents with SPM, PMR and Degree and above. For occupation, 33.9% are government employees, 32.2% are private employees, 19.1% self-employed, and remaining respondents are either unemployed or retirees.

Table 1: List of Hospitals and Number of Respondents Involved

Hospital	Patients (n)
Hospital Kuala Lumpur	39
Hospital Tengku Ampuan Rahimah	15
Hospital Putrajaya	13
Hospital Kajang	12
Hospital Selayang	12
Hospital Serdang	11
Hospital Ampang	10
Hospital Sungai Buloh	3
<b>TOTAL</b>	<b>115</b>

Table 2: Socio-demographic characteristics

Socio-demographics	Number (n=115)	Percent (%)	Median (Minimum-Maximum)
Age			39(21-77)
Gender			
Man	110	95.7	
Woman	5	4.3	
Income			
<RM3000	85	73.9	
>RM3000	30	26.1	
Race			
Malay	82	71.3	
Chinese	13	11.3	
India	17	14.8	
Bumiputera	3	2.6	
Marital Status			
Single	27	23.5	
Married	83	72.2	
Separated	5	4.3	
Education			
PMR	29	25.2	
SPM	32	27.8	

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STPM/DIPLOMA/ Equivalent	45	39.1
Degree and above Occupation	9	7.8
Civil Servant	39	33.9
Private	37	32.2
Self - Employed	22	19.1
Unemployed	11	9.6
Retiree	6	5.2

Table 3 shows the smoking profile of the respondents. More than half of the respondents (53.3%) were referred from clinics whereas 47% registered voluntarily for the QSCS. In terms of having family members who are smokers, 58.3% lived with family members who smoked whereas 41.7% lived with family members who don't smoke.

Most of the respondents involved in this study had smoked for 17 years, with a total number of cigarettes of 15 and majority of them, 76.5% had previous quit attempts. On previous quit attempt experiences, 36.5% had attended smoking cessation services at *Klinik Berhenti Merokok (KBM)*, whereas 63.5% attempted to quit on own. In terms of health status, more than half of the respondents (58.3%) reported having health problems.

Table 3: Smoking profile

Smoking Profile	Number (n=115)	Percent (%)	Median (Minimum-Maximum)
Category of Respondents			
References	61	53	
Voluntary	54	47	-
Smoking Family Status			
Yes	67	58.3	
No	48	41.7	-
Attempts to quit smoking			
Yes	88	76.5	
Never	27	23.5	-
Have undergone treatment at KBM			
Yes	42	36.5	
Never	73	63.5	-
Health Problem			
Yes	67	58.3	
No	48	41.7	-
Smoking period (years)			17(1-57)



Number of quit smoking attempts (>24 hours)	1(0-10)
Number of cigarettes smoked per day	15(2-45)

Table 4 through Kruskal-Wallis analysis shows that there is a significant difference between the level of education with the readiness to quit smoking. Mann-Whitney test was conducted to look at the differences in the level of education with the readiness to quit smoking in detail. Analysis shows a significant difference between respondents with PMR and SPM levels with a p value <0.05. Respondents with PMR education level have lower readiness compared to respondents with SPM education level. Results also showed no significant difference between age, race, marital status, and occupation with readiness to quit smoking with a p value > 0.05.

**Table 4: Differences between socio-demographic characteristics and readiness to quit smoking**

<b>Socio-demographic characteristics</b>	<b>Median (IQR)</b>	<b>X<sup>2</sup></b>	<b>p value</b>
Education			
PMR	8(4)		
SPM	10.66(4.50)		
STPM/DIPLOMA/ Equivalent	10(2.83)	11.008(3)	0.012**
Degree and above	10.33(2)		
PMR	8(4)		
SPM	10.66(4.50)	-2.879	0.004**
Age			
21–29-year-old	10.33(3.17)		
30–50-year-old	9.66(3.75)	3.156(2)	0.206
51–77-year-old	9.33(4.25)		
Race			
Malay	10(3.75)		
Chinese	8.33(5.00)		
India	9.66(5.00)	0.468(3)	0.791
Bumiputera	9.33(0)		
Marital Status			
Single	10.66(3.33)		
Married	9.66(3.67)	3.816(2)	0.148
Separated	8(4.33)		
Occupation			
Profession	10(3.67)	4.702(4)	0.319

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Civil Servant	9.33(2.67)
Private	10(4.00)
Self Employed	10.66(2.67)
Unemployed	7(4.42)

Kruskal-Wallis Test

P<0.05, there are significant differences

Table 5 through Mann-Whitney analysis shows that there is no significant difference between gender and income with readiness to quit smoking.

Table 5: Differences between socio-demographic characteristics and readiness to quit smoking

Socio-demographics	Median (IQR)	Z statistics	p value
Gender			
Man	10(3.75)		
Woman	11.33(4.67)	-0.216	0.829
Income			
<RM3000	10(3.67)		
>RM3000	10(4.00)	-0.568	0.570

Mann-Whitney Test

p>0.05, there was no significant difference

Referring to Table 6, Mann-Whitney analysis shows that there is a significant difference between the experience of undergoing treatment in KBM, attempts to quit smoking more than 24 hours and smoking duration with readiness to quit smoking ( $p < 0.05$ ) while there is no significant difference between the categories of respondent's family member's smoking status, health problems and duration of smoking with readiness to quit smoking ( $p > 0.05$ ).

Table 6: Differences between smoking profiles and quit readiness to quit smoking overall scores

Smoking Profile	Median (IQR)	Z statistics	p value
Have undergone treatment at KBM			
Yes	9(4.08)		
No	10.33(3.00)	-2.371	0.018**
Attempts to quit smoking > 24 hours			
Yes	9.16(4.00)		
No	10.33(3.00)	-2.525	0.012**
Number of cigarettes			
< 15 years	9.16(2.58)		
> 15 years	10.33(3.33)	-1.824	0.050**

Respondent category			
References	10(4.33)	-0.216	0.829
Voluntary	10(3.08)		
Smoking family status			
Yes	10(3.33)	-1.321	0.187
No	9.5(4.75)		
Health problem			
Yes	10(4.67)	-0.659	0.510
No	9.83(2.67)		
Smoking period			
< 17 years	10.33(3.33)	-1.824	0.068
> 17 years	9.33(3.33)		

Mann-Whitney Test

P<0.05, there are significant differences

In Table 7, the Spearman correlation analysis shows no significant correlation between overall social support, family social support, significant othersocial support and smoking addiction with smoking cessation willingness with value  $p>0.05$ . However, there is a significant negative correlation between social support from friends and readiness to quit smoking with value  $p<0.05$ . The value of  $r$  indicates that although there is a significant correlation, it is a weak negative correlation with  $r = -0.224$ .

**Table 7:** The correlation between psychosocial factors (social support, and smoking addiction) with quit smoking readiness scores.

<b>Variables</b>	<b>r</b>	<b>p value</b>
Social support of friends	-0.224	0.016**
Social support	-0.024	0.796
Social support of family	0.171	0.067
Social support of special friend	0.105	0.263
Nicotine addiction	-0.148	0.115

Spearman correlation test

\*\* $p<0.05$ , there is a significant correlation

The Spearman correlation analysis on constructs of stages of readiness to quit smoking with psychosocial factors shows significant negative correlation between family social support and the pre-contemplation construct with a value ( $p<0.05$ ). The  $r$  value also shows that although there is a significant correlation, it is a weak negative correlation with ( $r = -$

0.179). For the Contemplation construct, there is a significant negative correlation between nicotine addiction and the Contemplation construct with a value ( $p < 0.05$ ). The value of  $r$  indicates that although there is a significant relationship, it is a weak negative relationship with ( $r = -0.180$ ). For the Acting construct, there was a significant negative relationship between the social support of friends with the Acting construct with value ( $p < 0.05$ ). The value of  $r$  indicates that although there is a significant relationship, it is a weak negative relationship ( $r = -0.183$ ). There is a significant correlation between Positive Behaviour Retention construct and overall social support and social support from friends with value ( $p < 0.05$ ). It is weak negative correlation between overall support with maintenance construct with value ( $r = 0.206$ ) and there is a moderate negative correlation between social support from friends with Positive Behaviour Retention construct with value ( $r = 0.305$ ).

**Table 8: Correlation between Social Support and Nicotine Dependence with Each Construct Score of Readiness to Quit Smoking**

Variables	Pre-Contemplation Constructs		Contemplation Constructs		Action Constructs		Maintenance Constructs	
	r	p value	r	p value	r	p value	r	p value
Social support	-0.149	0.111	0.009	0.927	-0.020	0.836	-0.206	0.027**
Social support of family	-0.179	0.049**	0.161	0.086	0.140	0.136	-0.056	0.555
Social support of special friend	-0.117	0.212	0.150	0.110	0.131	0.164	-0.122	0.196
Social support of friend	-0.091	0.332	-	0.110	-0.183	0.048**	-0.305	0.001**
Nicotine Addiction	-0.040	0.674	-	0.048*	-0.117	0.214	-0.056	0.553
			0.180	*				

Spearman correlation test

\*\* $p < 0.05$ , there is a significant relationship

## DISCUSSION

This study finding also shows that age of smokers does not influence their readiness to quit smoking. Kviz et al. (1994) cited although age is not the main predictor for smokers to quit smoking, but it is one of the elements that need to be emphasized in planning and conducting interventions for smokers. The results of this study are also in line with the study conducted by Daoud et al. (2015) whereby there was no significant relationship between age and readiness to quit smoking. The results of this study also reflected certain socio-demographic characteristics such as gender, income, and employment did not show any significant correlation with the readiness to quit smoking, similar with study findings reported by Daoud et al. (2015) who conducted a study on adult smokers in Israel. Lim et al. (2013) highlighted there is significant correlation between marital status

with readiness to quit smoking, supported by Waite and Gallagher (2000) who found that smokers who had significant other or spouses had plans to quitting smoking compared to single smokers. In this study, level of education showed significant correlation with readiness to quit, similar with study findings reported by Daoud et al. (2015) and Lim et al. (2013) that showed majority of smokers possessing lower education level are not prepared to quit smoking. Thus, it can be concluded education level likely to have something to do with the smokers' intention to quit smoking, which can be attributed better understanding on effects of smoking by smokers possessing higher education level (Koning et al., 2010).

Surprisingly, this study found that no significant difference on readiness to quit with respondent's health status. Lim et al. (2013) reported that health issues as one of the motivating factors to quit smoking, however the results of this study illustrated that the readiness to quit smoking is not inline with health status. The results of this study also showed that family smoking status did not affect readiness to quit smoking. This situation may occur because smokers are more influenced by smoking behaviour from friends compared to family (Muhammad Faizal 2016). Thus, social support factors from friends plays a greater role in determining smoker's cessation readiness. The smoking duration of the respondents in the study also did not affect the readiness to quit smoking. According to Brodish and Ross (1998) smoking period does not affect the decision to quit smoking whereby young smokers tend to think their health will not be affected since they smoked slightly number of cigarettes, whereas for adult smoker's it is often misunderstood that quitting smoking may cause more harm due to the body's response towards the withdrawal process. The results of this study also found that the experience of undergoing treatment in QSCS has a significant relationship with the readiness to quit smoking. The results showed respondents who had previous experience seeking treatment at QSCS has lower readiness to quit smoking compared to respondents who had never been exposed to treatment at QSCS. This can be explained through a study finding reported by Nor Asikin (2017) whereby one of the factors identified for adult Malaysian smoker's refusal for appointment is due to monotonous smoking cessation method used in QSCS. Thus, it suggested for smoking cessation methods used in current QSCS setting need to be reviewed and further improved.

This study findings also highlighted the number of cigarettes smoked by smokers as important factor for readiness to quit. Higher numbers of cigarettes effect the readiness to quit. This can be attributed to higher level of nicotine content in the body due to higher number of cigarettes smoked (Figueiró et al., 2013), thus making the quitting process more difficult for heavy smokers. Royal College of Physicians (2007) reported nicotine in cigarettes is the main cause of addiction among smokers. Last but not least, this studies have shown that respondents who have never tried to quit smoking for more than 24 hours have a lower readiness to quit smoking compared to respondents who have never stopped smoking for more than 24 hours. The results of this study are in line with the results of a study conducted by Wee et al. (2016) found that smokers who had never tried to quit smoking had a higher desire to quit smoking than smokers who had tried to quit smoking.

Apart from analyzing the difference of sociodemographic characteristics with the readiness to quit smoking, this study also examined the correlation between social support and nicotine dependence towards readiness to quit smoking. The study results showed social support from friends have negative correlation with the overall scores of readiness to quit smoking. The results of this study are in line with the study findings by Muhammad Faizal et al. (2016) and Subramaniam et al. (2015) reported that the pressure from co-smokers prevented smokers from quitting, other than that smokers consider smoking as one of the social activities and aids in developing a larger network of social relationships. The high value of smoking activity prevents a smoker from being ready to quit smoking because according to Tsai et al. (2009) the stronger the smoker's relationship with smoking members the greater the number of cigarettes that will be smoked.

Han et al. (2014) stated that counseling from medical healthcare member to smokers in the workplace improves more positive behaviours, however it does not have lasting effects. This is because Muhammad Faizal et al. (2016) reported that peer factor and availability of smoking conducive environments at workplace are often main barriers for smokers to quit smoking. This is further exacerbated when smokers in the process of quitting have less support and ridiculed by other smokers. This reflects the crucial role of social support and relationships with friends in influencing smoker's intention, readiness, and success to quit smoking. This study is

also in line with Wee et al. (2016) factors influencing the intention and success of smokers to quit smoking is closely related to friends.

For the relationship between social support, nicotine dependence with the construct of readiness to quit smoking this study showed that social support from family has significant negative correlation with the pre-contemplation construct. Smokers who lacked social support from family will continue to be uninterested in quitting smoking. The anti-smoking campaigns and programs that have been conducted are potential to increase knowledge and awareness on the dangers of smoking among smokers (Foong and Tan 2008; Lim et al. 2006; Zainol Abidin et al. 2014). However, it may not directly lead the smoker to quit smoking. Smokers who are in the pre-contemplation stage will also usually not look for alternatives or resources to help them quit smoking because they are not interested in quitting smoking. Since family support has something to do with smokers readiness to quit smoking in this study, therefore, it can be suggested that campaigns and health education programs should be directed targeting smoker's families. The results of this study are in line with study conducted by Muhammad Faizal et al. (2016) stated family played an important role in triggering intentions to quit smoking. They also found that the main reason smokers want to quit smoking is that they concern about their family health.

The findings of this study also shows that nicotine dependence has significant negative correlation with the contemplation construct. This indicates lower nicotine dependence increases the contemplation stage of a smoker. The contemplation stage is the stage at which a smoker has become aware that smoking behaviour has a detrimental effect on themselves and the individuals around them, and at the same time the smoker will obtain information related to smoking problems (Health Education Division, 2005).

Nicotine dependence is closely linked smoking cessation whereby it is one of the biggest barriers for smokers to quit smoking. (Barrueco et al., 2005). The addiction experienced by smokers is closely linked to the systems that take place in their brains. This is because the presence of nicotine can change the chemical functions found in the human brain and these chemicals are known as dopamine (Jochelson, 2006; McManus et al. 2007). Dopamine plays an important role in stimulating a sense of pleasure

and satisfaction in a person (Doe and DeSanto 2009) and lead to smokers' dependence on smoking habits. (Gamberino and Gold 1999; Shadel et al. 2000). Therefore, pharmacological treatment should also be given in the early stages of intervention.

For the action construct, results showed that only social support from friends had a significant negative correlation with the action construct. This means that low social support from friends will lead to taking action to quit smoking. This study are in line with study findings by Harker and Cheeseman (2016) reported that one of the biggest barrier for smokers to quit smoking is when they are always together with friends who smoke. Ma et al. (2003) explained that Asian society has considered the behaviour of smoking as an accepted culture and norm in society. When an action is adopted into a culture that is practiced, then smoking activities are also carried out as usual no matter at work, at home, in the neighborhood or anywhere.

Finally, the study results also show that there are two factors that have a significant relationship with the level of maintenance construct. The first factor is that there is a significant negative relationship between overall social support and social support from friends with maintainance construct respectively. According to Foong and Tan (2008), Malaysian society still considers smoking as a common norm and according to Ma et al. (2003) men in Asia obtained social support from friends who also smoked. IPHM (2015) reported that almost half of adult males in Malaysia smoke while Debra and Velasco (2007) found that most adult males in Malaysia smoke regardless of time and area. Study conducted by Muhammad Faizal et al. (2016) found that friends who smoked would always invite and tease their friends who wanted to quit smoking. This may cause smokers who are attempting to quit experience emotional stress. Smokers in an effort to quit smoking will be faced with high pressure (Redmond 1996). In fact, Saravanan and Heidhy (2014) who did their study in Malaysia found that smokers are more prone to anxiety problems compared to non-smokers. Thus, Tsai et al. (2009) have suggested that QSCS handler should pay special attention in helping smokers cope with environmental factors especially when their client is surrounded by friends and family members who smoke.

## **CONCLUSIONS**



Even though this study was conducted before the COVID-19 pandemic, it is still relevant. This situation is because the movement control period has ended in almost all locations in Malaysia. Therefore, the results of this study have the potential to be used as the basis reference for the construction and development of special guidelines that focus on empowering smokers against external influences to quit smoking. In addition, factors such as socio-demographic characteristics, nicotine dependence, social support, play an important role in each stage of readiness to quit smoking. Special modules of behavioural treatment interventions involving social support and using available resources are needed to ensure that smoking treatment given is appropriate. Thus, assessment study using biopsychosocial and spiritual perspectives should also be conducted in Malaysia so that an understanding of the issues faced by smokers to quit smoking can be clearly understood holistically.

### **Conflict of Interest**

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest. The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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