ORIGINAL ARTICLE

Relationship Between Biopsychosocial and Spiritual Factors With the Readiness to Quit Smoking

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ABSTRACT

Introduction: Understanding the readiness to quit smoking is essential to deliver the best quit-smoking services in Malaysia. Objective: This study was conducted to determine the relationship between biopsychosocial and spiritual factors and the readiness to quit smoking among Malaysian adults. **Materials and methods:** A cross-sectional study using convenience sampling was used in this study. A total of 389 smokers aged 18 years old and above who registered at jomquit.com website participated in this study voluntarily. Questionnaires such as the stages of change readiness and treatment eagerness scale for smoking cessation (SOCRATES-S), Fagerstrom test for nicotine dependence (FTND), depression anxiety stress scale (DASS), the multidimensional scale of perceived social support (MSPSS), and a modified version of functional assessment of chronic illness therapy - spiritual well-being for non-illness (FACIT-SP-Non-Illness) were used in this study. **Results:** The results of this study found that nicotine dependence, stress, anxiety, depression, and social support (family, friends, and significant other) have significant relationships with the early stage of readiness to quit smoking (domains of recognition and ambivalence ($p<0.05$). Anxiety, social support (family, friends and significant other), and spiritual well-being had a significant relationship with the end stage of the readiness to quit smoking (domain of taking action, $p<0.05$). **Conclusion:** This study conclusively showed that nicotine dependence, stress, anxiety, depression, social support, and spiritual well-being might potentially play crucial roles in the initial stages of readiness to quit smoking and the final stage of taking action towards quitting. Therefore, emphasising the significance of including these variables in programmes aimed at helping people quit smoking is noteworthy.
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Keywords: Pandemic Covid-19, Readiness to quit smoking, Biopsychosocial and spiritual factors, Adult smokers, The stages of change readiness and treatment eagerness scale for smoking cessation (SOCRATES-S)

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INTRODUCTION

Malaysia is not an exception when it comes to smoking-related behaviours. Although numerous interventions have been made, there are still many males who smoke in Malaysia.[1] Despite numerous programmes aimed at tackling the issue, the number of smokers in Malaysia aged 15 and above remains high after over a half-decade.[2] According to the National Institute of Health Malaysia (NIHM), the number of smokers in Malaysia has not decreased since 2020, and up to today, Malaysia has recorded 21.3 per cent, or over 4.8 million Malaysians over the age of 15, who still smoke.[3] In Malaysia, smoking-related factors contributed to over 15 per cent of hospital admissions and 30 per cent of hospital mortality.[4] As a result, smoking behaviour has been identified by WHO as one of the major risk factors for rising death rates in Malaysia. Smoking behaviour in Malaysia has a significant impact on national spending in addition to having an impact on disease and raising the death toll.[5] Malaysian health institutions from the public and private sectors have spent more than RM16 billion to treat diseases caused by smoking behaviour.[6] This problem, however, may be prevented if Malaysian smokers quit smoking.

Quitting smoking is not easy hence, numerous programmes have been implemented to ensure that the Malaysian community is smoke-free.[4] Under the MQuit programme, the Malaysian Ministry of Health (MOHM) has established Quit Smoking Clinic Service

(QSCS) and a Quitline service to assist people in quitting smoking via phone conversations.[6] In 2019, the MOHM established a new website named jomquit.com to assist Malaysian smokers in quitting smoking. This effort by the MOHM provides a group of operators trained to advise smokers on effective ways to quit smoking. This service is expected to receive a high response from smokers because, according to the Global Adult Tobacco Survey (GATS), 70 per cent or nearly 3.5 million smokers in Malaysia have the intention to quit smoking.[7] However, the total number of smokers who registered and set a quit date at QSCS throughout Malaysia through Malaysian government hospitals was just 1,153, representing less than 0.5 per cent of the total number of smokers in the country.[8] Although prior studies have shown that 70 per cent of smokers in Malaysia have an intention to quit smoking, this figure does not correspond to the statistics of smokers who have visited QSCS for treatment. According to the MOHM, only less than 10 per cent of smokers in Malaysia visit QSCS for assistance in quitting.[3]

Why does this happen? Are smokers in Malaysia not ready to quit smoking? In order to answer this question, the understanding and assessment of smokers' readiness to quit smoking needs to be carried out systematically among adult smokers in Malaysia. Intention is an idea that arises in the human mind at certain times, and it changes according to time and certain processes.[9] However, intention to act does not play an important role in any new action.[10] It indicates that a person's intentions do not always dictate behaviour. This argument explains a phenomenon that occurs among smokers, in which they have an intention to quit smoking but are not always ready to do so. Therefore, readiness to quit smoking is important in determining a person's success in quitting smoking.[11]

The present concept of quit smoking treatment is totally dependent on smokers' readiness to quit smoking.[12] Even studies conducted in Malaysia during Covid-19 revealed that more than half (60.1 %) of adult smokers in the study were motivated to seek aid for smoking cessation and desired to quit smoking as a result of the pandemic crisis.[13] Hence, the systematic assessment of readiness to quit smoking potentially helps QSSCs' operators to choose the right intervention for each smoker.[14] Therefore, this study was conducted to identify factors that correlate with the readiness of smokers to quit smoking in Malaysia because, according to a previous study, quitting smoking behaviour is greatly influenced by smokers' readiness.[15] In fact, in identifying the hurdles and readiness factors to quit smoking, research and empirical information on the biopsychosocial and spiritual elements are required.[16] To the best of our knowledge, the current study was the only study that examined aspects taking into consideration holistic factors by employing a biopsychosocial and spiritual approach to the readiness to quit smoking during the Covid -19 pandemic in Malaysia.

MATERIALS AND METHODS

Approach and design of the study

This study utilised a quantitative research design using a cross-sectional study. Since this study was conducted during a Movement Control Order (MCO) throughout Malaysia in June 2021, the questionnaire was developed online using Google Forms in two versions: Malay and English. The participants were chosen through the convenience sampling method. For the data collection, this questionnaire was disseminated to over 2000 smokers who met the main requirements of this study: i) registered on Jomquit.com website, ii) active registrants, iii) able to read and understand Malay or English, iv) 18 years old and older, and v) willing to participate in this study. The questionnaire was distributed in two language versions (Malay and English) to ensure accessibility and accuracy in responses and data collection activities were assisted by the FCTC and Tobacco Control Unit, Ministry of Health Malaysia (MOHM) through the WhatsApp application and followed up with a phone call.

Instrumentation

In order to measure readiness to quit smoking, the Korean version of the Stages of Change Readiness And Treatment Eagerness Scale For Smoking Cessation (K-SOCRATES-S) was adapted to the Malay language in this study. This questionnaire contained three domains, namely recognition, ambivalence, and taking steps.[17] There were 5 questionnaires adapted and translated in this study. Questionnaires, namely the Fagerstrom test for nicotine dependence (FTND), depression anxiety stress scale (DASS), the multidimensional scale of perceived social support (MSPSS), functional assessment of chronic illness therapy-spiritual well-being, a modified version of functional assessment of chronic illness therapy - spiritual well-being for non-illness (FACIT-SP-Non-Illness), and the English and Malay version of Stages of Change Readiness and Treatment Eagerness Scale for Smoking Cessation were used in this study. Each of these questionnaires underwent both content and face assessment methods.

Data analysis

Data were analysed using inferential analysis methods. Statistical Package for the Social Sciences (SPSS version 25) was used to run the Spearman analysis. A non-parametric rank correlation measure, Spearman's rho, was employed in this study since the Kolmogorov-Smirnov value under analysis had a *p*-value of less than 0.05. For the absolute value of *r*, the interpretation of the level of the *r* value was as follows: the *r* value of 0 to 0.19 was considered as very weak correlation, the *r*-value of 0.2 to 0.39 as weak correlation, the *r*-value of 0.40 to 0.59 as moderate correlation, the *r*-value of 0.6 to 0.79 as strong correlation, and the *r*-value of 0.8 to 1

as very strong correlation.

Ethics committee statement

Applications for ethical approval are obtained from the Medical Research Ethics Committee of University Malaysia Sabah through the Approval Code: JKEtika 5/20 (3).

RESULTS

A total of 389 smokers registered on jomquit.com website participated. This study achieved a 100% response rate, with an additional 20 respondents participating, exceeding the target sample size of 369 respondents as calculated using the Yamane formula. Table I shows that the mean age of participants was 34.51 (8.48 %) years. Regarding gender distribution, most of the participants were male (356, 91.5 %), compared to female participants (33, 8.5 %). In terms of ethnicity, the participants were predominantly Malay, with 317 participants (81.5 %) and non-Malays, with 72 participants (18.5 %). The educational levels among participants varied. A total of 160 (41.1%) participants had lower education, 129 (33.2%) participants had middle-level education, and 100 (25.7%) attained higher education, indicating a diverse sample in terms of educational background.

Occupationally, the majority of the participants were employed in the private sector (263, 67.6 %), with smaller proportions in government positions (67, 17.2 %), self-employed (19, 4.9 %), and unemployed (40, 10.3 %). The marital status of participants showed that 234 (60.2 %) participants were married, 139 (35.7 %) participants were single, and 16 (4.1 %) were divorced. In terms of monthly income, a significant majority fell into the B40, the lower income category (315, 81 %), with fewer in the M40, the middle-income category (64, 16.4 %), and T20, the higher income category (10, 2.6 %). Geographically, participants were distributed across various zones, with 178 (45.8 %) participants from the middle zone, followed by 71 (18.3 %) participants from the north, 62 (15.9 %) from the south, 44 (11.3 %) participants from the east coast, and 34 (8.7%) participants from East Malaysia, indicating a broad geographical representation in the study.

Table I: Socio-demographic characteristics.

Socio-demographics	Number (n= 389)	%	Mean(Sd)
Age			34.51(8.482)
Gender			
Male	356	91.5	
Female	33	8.5	
Ethnicity			
Malay	317	81.5	
Non-Malays	72	18.5	

CONTINUE

Table I: Socio-demographic characteristics. (CONT.)

Socio-demographics	Number (n= 389)	%	Mean(Sd)
Level Education			
Lower	160	41.1	
Middle	129	33.2	
Higher	100	25.7	
Occupation			
Unemployed	40	10.3	
Government	67	17.2	
Private	263	67.6	
Self-employed	19	4.9	
Marital status			
Single	139	35.7	
Married	234	60.2	
Divorced	16	4.1	
Monthly income			
B40	315	81	
M40	64	16.4	
T20	10	2.6	
Zone			
South	62	15.9	
Middle	178	45.8	
North	71	18.3	
East Coast	44	11.3	
East Malaysia	34	8.7	

Table II shows that there was a significant positive relationship between nicotine dependence, anxiety, depression, social support from friends, social support from family, and social support from significant other with the sub-scale of recognition with each p=<0.000 (r=0.205), p=<0.000 (r=0.310), p=<0.000 (r=0.378), p<0.000 (r=0.291), p=<0.05 (r=0.139), p=<0.05), p<0.05 (r=0.119) dan p<0.05 (r=0.128). However, the results of the study showed that there was no significant parallel between spiritual well-being and the recognition sub-scale with p=>0.05 (r=0.043)

Other than that, there was a significant positive correlation between nicotine dependence, anxiety, depression, social support from friends, social support from family, and social support from significant other with the ambivalence sub-scale with each p=<0.05 (r=0.125), p=<0.000 (r=0.221), p=<0.000 (r=0.265), p<0.000 (r=0.198), p=<0.05 (r=0.149), p=<0.05), p<0.05 (r=0.137), and p<0.05 (r=0.157). However, the results of the study showed that there was no significant connection between spiritual well-being and the ambivalence sub-scale with p=>0.05 (r=0.096)

In the meantime, there was a significant positive association between anxiety, peer social support, family social support, special friend social support, and spiritual well-being with the taking action sub-scale,

with p=<0.05 (r=0.103), p=<0.05 (r=0.156), p=<0.05 (r=0.160), p=<0.05 (r=0.142) and p=<0.000 (r=0.184). However, there was no significant relation between nicotine dependence, stress, and depression with the take action sub-scale, with each p=>0.05 (r=-0.086), p=>0.05 (r=0.082) and p=>0.05 (r=0.060).

Table II: The correlation between biopsychosocial and spiritual factors with the readiness to quit smoking.

Variables	Recognition Domain		Ambivalence Domain		Taking Action Domain	
	r	*p*	*r*	*p*	*r*	*p*
Nicotine dependency	0.205**	<0.000	0.125*	0.014	-0.086	0.090
Stress	0.310**	<0.000	0.221**	<0.000	0.082	0.106
Anxiety	0.378**	<0.000	0.265**	<0.000	0.103*	0.042
Depression	0.291**	<0.000	0.198**	<0.000	0.060	0.236
Social support from friends	0.139*	<0.000	0.149*	0.003	0.156*	0.002
Social support from family	0.119*	0.019	0.137*	0.007	0.160*	0.002
Social support from significant other	0.128*	0.011	0.157*	0.002	0.142*	0.005
Spiritual well-being	0.043	0.396	0.096	0.059	0.184**	<0.000

p= significant (p<0.05*, p<0.001**) (Spearman analysis)

DISCUSSION

The study's findings indicate that the participant's recognition and ambivalence regarding their readiness to quit smoking increased in proportion to the degree of nicotine dependence they experienced. This situation means that nicotine dependence only correlates with the initial level of readiness to quit smoking, which is to the psychological aspect but not to the behavioural aspect. High nicotine dependence should logically result in a decrease in smokers' readiness to quit. As evidence, a study of adult smokers in Vietnam found that smokers with high nicotine dependence have a lower readiness to quit smoking.[18] In fact, a study on teenage smokers in the United States also found that smokers with a high level of nicotine dependency will impair their readiness to quit smoking.[19] However, the opposite result was found in this study. A cross-sectional study among more than 2000 smokers in Jordan revealed that smokers believe that smoking increases their risk of getting infected by the Covid-19 virus,[20] which the results of this study can explain. Their belief in the infection of the Covid -19 virus has a basis because the WHO has proven this fact.[21] This is due to their strong desire to quit smoking as a result of the pandemic.[22] Nonetheless, nicotine dependence was found to have no significant relation with the taking action domain. This occurs because nicotine is a highly addictive substance that makes quitting sometimes tough and time-consuming.[23] Hence, the majority of smokers are still struggling and have failed to quit smoking despite their great desire to quit, especially among heavy smokers with high levels of nicotine dependency.[24]

Stress, anxiety, and depression were nearly comparable to the interrelationship between nicotine dependency and readiness to quit smoking. The reason was that this study found that higher stress, anxiety, and depression correlate with a higher readiness to quit smoking in the domains of recognition and ambivalence. According to a study of 957 European participants, stress has a stronger correlation with smokers' desire to quit smoking and reluctance to quit smoking.[25] In contrast to the findings of this study, previous research found a negative correlation between smokers' stress levels and their readiness to quit smoking.[26] The same situation also applies to the correlation between anxiety and depression, where most of the previous findings found that the higher the anxiety and depression experienced by smokers, the more reluctance to quit smoking. This situation can be explained by a study conducted in the United States discovered that smokers who experience pain or psychiatric illnesses have a substantial relationship with a strong desire to quit smoking.[26]

In contrast to the correlation of stress, anxiety, and depression with the taking action domain, only anxiety had a positive correlation with the taking action domain. This suggests that the greater the participants' anxiety in this study, the greater the domain of taking action to quit smoking. The findings of this study are in line with a qualitative study conducted during the Covid -19 pandemic in the United Kingdom. The study discovered that smokers began to quit or limit the number of cigarettes they smoked owing to health worries about becoming infected with Covid -19.[27] In fact, they found that the lockdown reduced the chances of smokers smoking and allowed some smokers to begin to quit their smoking habit. The Movement Control Order implemented in several phases in Malaysia caused a decrease in the country's source of income and economy.[28] Therefore, it can be concluded that anxiety over the source and amount of income has motivated many smokers to begin making efforts to quit smoking.[29]

The social support factor includes three domains, namely the social support from family, the social support from friends, and the social support from significant other. The findings of the current study demonstrated a substantial positive correlation between these three

domains with each of the readiness to quit smoking domains (recognition, ambivalence, and taking action). This suggests that the more social support smokers receive from family members, friends, and significant others, the more likely they are to quit smoking. Praise and encouragement to quit smoking boost smokers' readiness and preparedness to quit smoking. In addition, the Asian community's culture is more enthusiastic about offering social support to family members and is eager to assist family members who are trying to quit smoking.[30] Social support from family members is vital in smoking-related behaviour, particularly quitting smoking behaviour.[31] Aside from that, social support from friends had a favourable relationship with smokers' success in quitting smoking. Those who successfully gave up smoking had responsive and fulfilling relationships with their partners.[32] Additionally, smokers anticipated strong support from their spouses in their efforts to stop smoking.[32]

Conversely, there is a discrepancy between the results of this study and those of previous studies in terms of the social support provided by friends. Smokers tend to smoke more cigarettes per day when they are close to other smokers.[33] Peers appear to play a role in Malaysian smokers' patterns of desire to quit smoking and falsity in doing so; social support from peers is thought to reduce this desire.[34] We can, therefore, conclude that the Covid-19 pandemic situation accounted for the disparity between the outcomes of this study and the studies previously reported. The pandemic that has impacted Malaysia, in particular, can be used to explain the favourable link between readiness to quit smoking and social support from friends. It may be inferred that social support is a reasonably important factor in smokers' readiness to quit smoking because social support has an effective effect on smokers' knowledge and attitude toward changing their smoking behaviour.[35]

Lastly, spiritual well-being had no relationship with the domains of recognition and ambivalence. The correlation between spirituality and the readiness to quit smoking yielded inconclusive results.[36] Surprisingly, previous studies have shown that spiritual well-being has no significant relationship with quitting smoking.[37] Hence, two previous studies recommended additional research be done on the relationship issue and the function of spirituality towards smoking behaviour. In addition, the findings of this study revealed a significant correlation between the domain of taking action and spiritual well-being. This situation indicates that the smoker's ability to take steps to quit smoking increases with their level of spiritual well-being. This shows that spiritual well-being has no impact on the psychological process of quitting smoking, but it has a significant correlation with the behavioural process of quitting smoking. Spiritual factors such as spiritual intelligence impact the action to quit smoking.[38] A thorough investigation revealed that spirituality positively affects smoking behaviour and even aids smokers in effectively quitting.[39] Spiritual well-being is intimately tied to tenacity in comprehending life's goals, which increases a sense of empowerment, stability, support, and direction during challenging times. As a result, it is unsurprising that spiritual well-being is correlated to the domain of taking action in this study. Spiritual well-being is important against stress and the desire to smoke. Smokers could make more educated judgments about their health care by including a spiritual well-being component in health education programmes.[40] The revelation of the link between spiritual well-being and readiness to quit smoking has the potential to revitalise efforts to assist Malaysian smokers in quitting smoking.

CONCLUSION

These findings show the intricate interaction of biological, psychological, social, and spiritual elements in smoking cessation efforts, emphasising the significance of including these variables in programmes aimed at helping people quit smoking. Additionally, advanced analysis is required to develop a predictive model for enhancing smoking cessation strategies. Specialised modules utilising a full range of pharmacological and non-pharmacological approaches should be devised and put into place to guarantee that the services offered by QSCS fulfil the demands of the treatment holistically. Finally, to aid smokers in quitting entirely, the MOHM must ensure that QSCS's providers are informed, qualified, and experienced in assisting smokers to quit smoking.

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