

The Biopsychosocial and Spiritual Perspective on the Readiness to Quit Smoking: A Comprehensive Review

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ABSTRACT

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Smoking cessation is a major public health goal today as smoking has threatened the safety, health, and lives of millions of people in the global community. Therefore, the purpose of this study is to identify the role of biopsychosocial and spiritual factors towards the readiness to quit smoking and smoking cessation. The results of the study found that smoking behaviour adversely affects not only the biological aspects but also the psychological, social, and spiritual aspects. Apart from that, this study also found that the biological, psychological, social, and spiritual aspects also play an important role in determining the motivation of smokers to quit smoking holistically. Therefore, research and empirical evidence on the biopsychosocial and spiritual aspects are needed to help healthcare teams to identify the barriers and motivating factors to quit smoking.

Contribution/Originality: This study contributes in the existing literature on the connection of biopsychosocial and spiritual factors towards the issue of smoking and smoking cessation. In addition, this study potentially provide a platform for other researchers to conduct research on health behavioral issues through biopsychosocial and spiritual perspectives.

1. Introduction

Does the phenomenon of smoking behaviour have a huge impact on society today? The answer is yes, smoking behaviour has a huge negative impact on the world community,

especially on the aspects of biological, psychological, social and even spiritual aspect. Why these biopsychosocial and spiritual topic were chosen in this study? This is because the biopsychosocial and spiritual model not only serves as one of the tools for conducting assessments on the client, but it is more than that as stated by [Saad et al. \(2017\)](#) that the application of biopsychosocial and spiritual models is a new approach to human well-being that is capable of leading to remarkable changes in the concepts of health, disease, treatment, and healing processes. In addition to explain the complex relationship between biological, psychological, social, and spiritual aspects of addiction, this model also helps healthcare teams devise a recovery plan to their clients and, this model has been widely recognised for its effectiveness by researchers and clinicians ([Ministry of Health, British Columbia, 2017](#)). Health social worker's role also have significant in providing communities with the psychosocial support to cope with smoking behavior. Health social worker services include advising patients and family, consultation services, and health education services. They also handling case management and interventions in healthcare setting. Thus the advantages of using this model for smoking cessation treatment are also acknowledged by [Trout et al. \(2018\)](#) who suggested that the healthcare team involved in the treatment of patients with smoking behaviour problems should apply a holistic approach that is namely the use of biopsychosocial and spiritual models in carrying out interventions.

2. Biopsychosocial and Spiritual Perspective

Biopsychosocial models were originally built as a result of biomedical models that were actively applied in the last century. This has been discussed by [Mazzotta \(2016\)](#) who states that clinical practice on biomedical models has influenced the healthcare sector in the last century, and continues to be used systematically in identifying health issues among unhealthy individuals. The model also serves as a guideline for medical teams to conduct assessment, diagnosis, treatment, critical thinking, and decision making to ensure a positive impact on their patients ([D'Antonio & Fairman, 2004](#)). However, [Farre and Rapley \(2017\)](#) reported that George Engel in the 1970s criticised this biomedical model by describing the limitations found in this model. Based on the report of [Engel \(1977\)](#) this model assumes that each disease can be treated only by considering the cause of the disease only from biological norms. This means that this model only assumes that every health problem and disease is caused solely by biological, genetic, and germ factors. Therefore [Engel \(1977\)](#) once again stated that this model fails to emphasize the involvement of psychological, social, or behavioural dimensions on the issue of pain. Following these limitations, [Engel \(1978\)](#) has listed three main aspects that need to be emphasized on every health care issue, namely biological, psychological, and social aspects. He also stressed that these three dimensions not only help identify the disease but also help plan the best intervention for each patient.

[Babalola et al. \(2017\)](#) discuss that the biopsychosocial (BPS) model adduced by George Engel four decades ago is one of the most important key approaches in the development of medicine and psychiatry today. They stated that this BPS model plays a significant role in the cause of the disease and the treatment method strategy. Ideas on the role of the psychological and social dimensions in these health issues have been recognised by many academic fields such as health social work, health education, health psychology, public health, and medical prevention ([National Association of Social Workers, 2016](#); [Alvarez et al., 2012](#)). Even the [World Health Organization \(2013\)](#) has also defined health as complete well-being between physical, mental, and social, and not merely to the

presence of disease and physical weakness. [Table 1](#) below describes the focal differences between biomedical models and biopsychosocial models.

Table 1: Differences between biomedical models and biopsychosocial models of health by [Taukeni \(2019\)](#)

Focus Area	Biomedical Model	Biopsychosocial Model
What is the cause of the disease?	Biological factors (Unstable chemicals, bacteria, viruses, and genetics). Individuals are victims of external factors that cause internal change.	Biological (viral), psychological (belief and behaviour), and social (unemployed).
Who is responsible for the disease?	This is because the disease is seen as a result of uncontrollable biological changes, individuals are also not responsible for their disease.	Individuals should be responsible for their health and illness.
How should the disease be treated?	Through vaccination, surgery, chemotherapy, and radiation therapy, all these methods are aimed at changing the physical status of the body.	All individuals need to be treated such as behaviour change, belief change, and coping strategies as well as adherence to medical advice. The focus is on the whole individual to be treated not only
Who is responsible for the treatment?	The responsibility of treatment is only to the medical profession.	for physical illness, the patient should be responsible for their illness such as taking medication and changing their behaviour.
What is the correlation between health and disease?	Health and disease are two different aspects — you are either healthy or sick — there is no connection between these two aspects.	Health and disease result from a continuum which means it is an inseparable set.
What is the connection between the mind and the body?	The mind and body function independently of each other. In other words, the mind and body are separate entities. The disease may affect the	The main focus is the interaction between the mind and the body. Interaction between mind and body.
What is the role of psychology in health and disease	psychological aspect, but it is not caused by the psychological aspect. For example, cancer causes a person to be sad, but the mood is not seen to be related to the cause or development of cancer cells.	Psychological factors not only affect the disease but also contribute to every level in the continuum from healthy to getting sick.

The differences between the biomedical model and the biopsychosocial model discussed by [Taukeni \(2019\)](#) prove the importance of using a biopsychosocial model to address the root causes of health issues and help plan the best strategies to help patients function properly. Thus this model helps drive the health team as they work with individuals and families who are dealing with health issues ([Tyndall et al., 2014](#)).

[West and Brown \(2013\)](#) stated that addiction is a biopsychosocial phenomenon, this means that smoking behaviour is influenced by complex factors such as biological,

psychological, and social factors. This report thus supports the results of the discussion of [Pfeffer et al. \(2018\)](#) who reported that understanding the issue of smoking behaviour is more consistent with the use of biopsychosocial models compared to existing models that only focus on the biological aspects of the issue of addiction.

Biopsychosocial and spiritual models emerged in the early 20s where the terms biopsychosocial and spiritual in patient care and health were introduced after [King \(2000\)](#) described the spiritual role in determining one's health status. To date, although this biopsychosocial model is helpful in the therapy of health issues, [Saad et al. \(2017\)](#) state that most researchers still argue that biopsychosocial models need to be expanded by involving spiritual dimensions. This is also supported by [Taukeni \(2019\)](#) who stated that one of the criticisms of the biopsychosocial model is that this model lacks a comprehensive dimension that is the spiritual dimension. However this spiritual dimension has been applied since the 1990s, the proof according to [Shweder and Much \(1994\)](#) the spiritual framework of the health element has been applied especially among non-western countries. [Koenig \(2018\)](#) has reported patients or clients who have a strong belief in religion, spiritual needs are met and believe that their lives have more successful goals and objectives to improve self-functioning and vice versa. Therefore [Koenig \(2018\)](#) argues that by conducting a spiritual assessment and identifying these lack of dimensions in each patient or client and referring them to a trained health team, it can make a difference to the success of health care. [Kusnato et al. \(2018\)](#) through their study proved that health teams that apply biopsychosocial models and involve the spiritual dimension in promoting health and self-management treatment be able to achieve good response and impact from patients. Apart from that, [Trout et al. \(2018\)](#) also suggested that biopsychosocial and spiritual models should be applied to smoking cessation interventions among hospital patients. Similarly, [Pfeffer et al. \(2018\)](#) believe that the use of this model can help medical teams understand the issue of smoking addiction holistically thus helping them plan the best intervention.

3. Smoking Behaviour and Its Impact on Biopsychosocial and Spiritual Factors

Does the phenomenon of smoking behaviour have a huge impact on society today? The answer is yes, smoking behaviour has a huge negative impact on the health of the world community, especially on the biological, psychological, social aspects and even the issue of addiction in the aspect of smoking behaviour also affects the spiritual aspect. The adverse effects of smoking behaviour will be discussed one by one in the discussion below:

3.1. The effect of smoking behaviour on biological aspects

The use of tobacco products, especially cigarettes, threatens the health of the human body ([Ihsan, 2019](#); [Eriksen et al., 2015](#)). The evidence [Stanaway et al. \(2018\)](#) through their systematic analysis of the global disease burden found, eight million deaths are recorded annually as a result of smoking behaviour including the deaths of non-smokers exposed to second-hand smoke and even [World Health Organization \(2019\)](#) also reported that the use of tobacco products especially cigarettes poses a major threat to the health of the world community, it has killed more than eight million people every year.

The reasons, why smoking behaviour causes too many deaths, have been described by [Drope and Schluger \(2018\)](#) which states that smoking behaviour has exposed the body

system to more than 7,000 toxic chemicals including 70 carcinogens that can destroy every organ in the human body and cause cancer. According to them, even with the consumption of small quantities of cigarettes, the risk of death and illness due to smoking behaviour remains high. This means that more or less the number of cigarettes smoked still harms the human body (Drope & Schluger, 2018). Moreover, Drope and Schluger (2018) through a global report from The Tobacco Atlas 6th edition have also reported the leading causes of death as a result of smoking behaviour are lung cancer, breast cancer, chronic lung disease (COPD), heart disease, and stroke (Song et al., 2019; Jenkins et al., 2018; Andersen et al., 2017; Haldorsen et al., 2017; Calfee et al., 2016).

Furthermore, the World Health Organization report (2019) asserts that until now smoking behaviour not only kills smokers but it has killed 1.2 million people who are non-smokers but are exposed to second-hand smoke. This is because the Second Hand Smoke & Third Hand Smoke contains various types of toxic chemicals that can cause chronic diseases (Ministry of Health Malaysia, 2019). The WHO report also states that although there is strong scientific and consistent evidence of the adverse effects of second-hand smoke exposure to non-smokers, many more are still exposed to second-hand smoke in homes, workplaces, and public areas. Table 2 shows the effects of cigarette smoke on a person's body which has been reported through the publication of The Tobacco Atlas.

Table 2: The Impact of Smoking Behaviour on the Human Biological System the Tobacco Atlas report by Drope and Schluger (2018)

Body Parts	Effects of Smoking Behaviour
Eye	Cataracts, blindness, pain, watery, and frequent blinking
Brain	Stroke and chemical changes
Hair	Hair loss
Nose	Cancer, sense of smell, and inflammation of the lender membrane (rhinosinusitis)
Tooth	Damage to the gums, loose teeth, easily fall out teeth, caries, and changes in tooth structure and colour
Mouth and throat	Cancer of the lips, mouth, throat, larynx and pharynx, sore throat, changes in sense of taste, and halitosis
Ear	Hearing loss and ear infections
Lungs	Bronchial, tracheal and lung cancer, chronic lung disease (COPD), emphysema, chronic bronchitis, infections of the respiratory system, shortness of breath and asthma, and chronic cough
Heart	Heart attack and damage to the cardiovascular system
Chest and abdomen	Esophageal cancer, gastric, colon and pancreatic cancers, ulcers of the digestive tract, and the risk of breast cancer
Liver	Cancer
Male reproductive system	Sperm mortality and death, infertility and prostate cancer
Female reproductive system	Cervical and ovarian cancer, early menopause, infertility, and pain during menstruation
Urine system	Cancer of the bladder, kidneys, and ureters
Hand	Vascular peripheral diseases and circulatory problems
Skin	Psoriasis, loss of skin tone, rapid wrinkles, and premature aging
Skeletal system	Osteoporosis, hip fractures, back pain problems, bone cancer, and rheumatoid arthritis
Wounds and surgery	The recovery process is affected and slow recovery
Feet	Peripheral vascular disease, circulatory problems, gangrene, and deep vein thrombosis

Blood circulation system	Damage to arteries, blood vessels, and leukemia
Immunisation system	Weakens the immunisation system and increases the risk of allergies
Others	Diabetes and sudden death

The damage to the body as a result of the aforementioned smoking behaviour proves the validity of the report stated by [Jenkins et al. \(2018\)](#) who found smoking behaviour increased the risk of death among individuals with non-communicable diseases such as obesity, heart disease, cancer, respiratory system, and diabetes. Another key thing to remember is, smoking behaviour is not only affecting oneself but it also adversely affects the individuals around them. In [Table 3, World Health Organization \(2010\)](#) has published a report on the results of previous studies on the effects of second-hand smoke exposure on secondary smokers. Efforts to help smokers to quit smoking not only to prevent them from getting various negative impacts from smoking behaviour but also to protect smokers' families from being exposed to second-hand smoke.

Table 3: Secondhand and Thirdhand Smoke Effects on Human Biological System ([World Health Organization, 2010](#))

Group	Effect
Baby	Babies born are underweight
	Complications of pregnancy
	Sudden death
	Miscarriage
	Problems of psychological and physical development
Children	Cancer (leukemia, brain, and lymphoma)
	Respiratory system infections
	Respiratory function is impaired
	Chronic respiratory symptoms
	Ear infections
Adult	Asthma
	Problems of psychological and physical development
	Chronic lung disease (COPD)
	Irritation of eyes, nose, and throat
	Chronic respiratory symptoms
	Injuries to the respiratory system
	Asthma
	Cancer (lungs, breasts, nose)
	Ischemic Stroke
	Cardiovascular

Apart from harming the biological aspects, smoking behaviour also affected the psychological aspects of smokers.

3.2. The effect of smoking behaviour on psychological aspects

The [Royal College of Physicians \(2013\)](#) reported that mental health problems among smokers were higher than non-smokers. According to [Boksa \(2017\)](#) and [Morrell and Cohen \(2006\)](#) anxiety, depression, and psychological disorders are synonymous among smokers. Smoking rates are higher among people with mental health problems compared to the general population with an estimated rate of two to five times ([Boksa, 2017](#)). These reports prove that smoking behaviour not only has a negative impact on

the biological aspects of smokers but also on the psychological aspects, but this issue is exacerbated by a report (Fluharty et al., 2017) which found that most smokers start smoking before they have symptoms of mental health problems.

According to Pawlina et al. (2014), the incidence of anxiety and depression among smokers has been reported by previous researchers. The Adult Psychiatric Morbidity Survey (APMS) (2014) report found that there was a strong link between smoking and mental health problems, especially anxiety and depression. These are the two main problems faced by smokers. Mykletun et al. (2001) found that various factors cause smokers to suffer from anxiety and depression such as nicotine addiction, smoking cessation process, withdrawal symptoms, and smoking cessation treatment.

Gurillo et al. (2015) found that people with mental health problems face a risk of death 10 to 20 years earlier than the general population. Thus, the combination of smoking behaviour and mental health problems is seen as a contributing factor to the leading cause of death at a young age (Novak et al., 2010). If this is not addressed well then more smokers will be exposed to mental health problems thus increasing the burden of disease and death at a young age in Malaysia.

3.3. The effect of smoking behaviour on social and spiritual aspects

U.S. Department of Health and Human Services (2020) reports that cigarette manufacturers deliberately produce cigarettes that contain high levels of nicotine that can lead to high addiction. Thus, smokers are plagued with addiction problems which harm a person's social functioning, as evidenced by Ghaferi et al. (2017) through their study found that addiction problems contribute to relationship problems between spouses and families, resulting in job loss, causes of involvement in the criminal world and abandoning religious practices that ultimately cause them to marginalise themselves. Smoking behaviour has been identified as problematic behaviour over the past few decades as evidenced by Markle and Troyer (1979) stating that smoking behaviour is deviant behaviour.

Apart from that, smoking behaviour is also strongly associated with poverty. According to Cambron et al. (2018), low socio-economic status has a strong correlation with high smoking rates. This is in line with the report of Lim et al. (2013) and Lee and Tam (2014) who found that most smokers in Malaysia are low-income groups. This can expose them to other issues of social problems because of a study conducted by Abdullah (2010) in Malaysia found the pressure of money and poverty motivated one to engage in criminal activity. Smoking behaviour is the cause of involvement in drug abuse, as evidenced by the study of Khairi et al. (2017) found that smokers have a higher risk of engaging in drug abuse activities compared to non-smokers. Also, White and White (1898) also discusses that in addition to having a detrimental effect on the brain, smoking behaviour can potentially interfere with one's spirituality.

4. Do Biopsychosocial and Spiritual Factors Play a Role in Smoking Cessation Behaviour?

4.1. Smoking Issues and Biological Aspect

Smoking behaviour exposes smokers to serious addiction problems. Lee et al. (2019) and Seo et al. (2019) who conducted a study on a large number of higher education

students and the low-income group in Korea found that smoking behaviour caused uncontrollable nicotine addiction and prevented them from quitting smoking. Why smokers are addicted? The answer is nicotine, it is an important ingredient in cigarette smoke that causes addiction (Setiawati, 2013). According to Lawler et al. (2017) besides containing 7000 harmful chemicals, a cigarette also contains 13.3mg to 15.4mg of nicotine. What is the function of nicotine? The human brain is the center of the activity of processing, storing, and transmitting billions of neurons all the time, and the method of transmitting information to each neuron to other neurons is through a special chemical known as a neurotransmitter or acetylcholine New Scientist (2019). Naturally, acetylcholine is produced in the human body in small amounts, it acts as a signal transmitter from the brain to the muscles, regulates the heartbeat, and it helps ensure the activity of neurons in the brain runs smoothly (Uniwin, 2013). According to England et al. (2015) nicotine is a drug that is highly addictive and stimulates the brain to function better, this condition is because nicotine resembles acetylcholine, therefore if a person smokes cigarettes, the nicotine that enters the body will act like acetylcholine. It will cause neuronal activity in the brain to increase during smoking and make smokers feel more energetic. Apart from that, according to Liem (2010) nicotine also can increase the production of dopamine which dopamine is one of the chemicals in the body that stimulates feelings of pleasure and happiness. Therefore, this discussion gives an idea of what would happen to smokers if their bodies did not receive nicotine? Therefore, according to Vaughn and Perron (2013) this neurotransmitter mechanism is a key area in the etiology of addiction because it is the most important factor in determining smoking behaviour.

In addition to providing calm, nicotine also causes high dependence and is a cause of the symptoms of withdrawal symptoms. This condition occurs because the system in the brain begins to depend on nicotine to acquire dopamine (Pierce & Kumaresan, 2006). Rose et al. (2001) found that the level of dopamine produced in individuals with depression is low and one of the ways for them to get rid of stress may be by smoking. This is because nicotine only takes seven seconds to permeate and affect the human biological and psychological systems (Britton et al., 2007). The effects of nicotine on biology will ultimately affect the psychological aspects of smokers which will be discussed further in the next section. Comparison of nicotine dependence between other substances by Hilts (1994) and the American Psychiatric Association (2000) found that nicotine has a high dependency effect compared to other substances as reported in the Figure 1 and Table 4.

Biological factors play an important role in smoking cessation behaviour. This condition is due to the effect of withdrawal symptoms due to the reduction of dopamine secretion in the brain occurs in every smoker who tries to quit smoking, it causes them to experience discomfort, anxiety, a sudden increase in appetite that eventually prevents them to quit smoking (Jiloha, 2010). Wolff et al. (2014) found that nicotine dependence had a significant relationship on smokers' willingness to quit smoking. Dependence on nicotine or the amount of cigarettes smoked daily has a strong negative relationship with the willingness to quit smoking. This condition means that the higher the addiction experienced by a smoker, the lower their level of readiness to quit smoking. According to Trout et al. (2018), biochemical variation in smoking behaviour remains valid in the evaluation of smoking cessation attempts and it lowers the risk of study limitations.

Figure 1: Comparison of dependence and degree of withdrawal between nicotine and other substance by [Hilts \(1994\)](#)

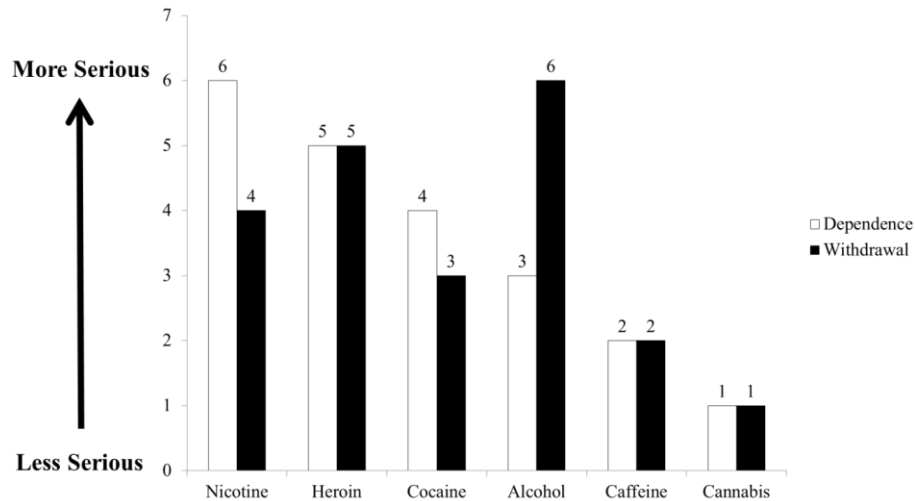


Table 4: Comparison between substance abuse diagnosis codes by class by [American Psychiatric Association \(2000\)](#)

Ingredients	Dependence
Alcohol	303.90
Amphetamine	304.40
Caffeine	-
Cannabis	304.30
Cocaine	304.20
Hallucinogen	304.50
Inhalant	304.60
Nicotine	305.10
Opiate	304.00
Phencyclidines	304.60
Sedative	304.10

Nicotine addiction is closely linked to smoking cessation which is one of the biggest barriers for smokers to quit ([Barrueco et al., 2005](#)). [Coff \(1990\)](#) through his report found that since 1988 nicotine addiction has been identified as a barrier for smokers to quit smoking. This condition occurs because the presence of nicotine in the smoker's body has a significant impact on their physiological. The addiction experienced by smokers is closely related to the system that takes place in their brains. This is because the presence of nicotine can change the chemical function found in the human brain and the chemical is known as dopamine ([Jochelson & Majrowski, 2006](#)). Dopamine plays a role in stimulating a sense of pleasure and satisfaction in a person ([Doe & DeSanto, 2009](#)). According to [Russell et al. \(1985\)](#) dopamine is usually secreted naturally when a person performs activities such as eating, drinking, and sexual activity. [Doe and DeSanto, \(2009\)](#) once again explain that the presence of nicotine has stimulated and increased dopamine production. However, the presence of nicotine has also caused receptor function and the number of dopamine in the smoker's body to decrease naturally. Decreased receptor function and dopamine levels have led to smokers' dependence on smoking habits and being the cause of smoking addiction ([Gamberino & Gold, 1999](#); [Shadel et al., 2000](#)).

This discussion clearly shows that biological factors are one of the main factors that prevent smokers from quitting because according to [Jasinska et al. \(2014\)](#) the role mechanism of nicotine in smoking behaviour problems has importance in enhancing

therapeutic quality in Quit Smoking Clinic Services (QSCS). However, a study conducted by [Trans et al. \(2019\)](#) against more than 1000 smokers in three countries found that there is a limit to the biological factor information on the impact of the level of change in patient behaviour in QSCS today. Therefore, the influence of nicotine readings, carbon monoxide readings, blood pressure, and BMI on changes in smoking cessation behaviour among smokers need to be studied.

4.2. Smoking Issues and Psychological Aspects

[Wolff et al. \(2014\)](#) reported that mental health has a strong relationship with the willingness to quit smoking. This is because according to [Kim et al. \(2019\)](#) smokers who fail to quit smoking mostly experience high stress. Besides [Daoud et al. \(2015\)](#) found that anxiety incidence showed a significant positive relationship with smokers' willingness to quit smoking. [Prugger et al. \(2014\)](#) stated that depressive symptoms have a significant negative relationship with smoking cessation, that is, the higher the depression of smokers, the lower their readiness for action to quit smoking. Therefore mental health factors need to be given special attention because according to [Figueiró et al. \(2013\)](#) depressive symptoms and anxiety symptoms are hidden factors in determining smokers' willingness to quit smoking and more studies are needed to improve the effectiveness QSCS.

A study conducted in Malaysia by [Rashid et al. \(2019\)](#) proved that smoking behaviour had a significant association with the occurrence of anxiety and depression. Even [West et al. \(2018\)](#) also found that smoking behaviour is closely related to the occurrence of anxiety, depression, and psychotic problems in smokers. Mental health issues are believed to be one of the barriers for smokers to quit smoking. According to the [United States Department of Health & Human Services \(2012\)](#), smokers smoke to relieve stress and anxiety as a result of their problems. This statement is supported by [Fluharty et al. \(2017\)](#) who stated that most smokers smoke to reduce the stress or emotional problems they experience. [Leventhal et al. \(2013\)](#) and [Laventhal et al. \(2014\)](#) stated that smokers with mental health problems have higher levels of addiction and suffer from withdrawal symptoms. This condition makes the existing smoking cessation treatment ineffective against them ([Taylor et al., 2019](#)).

[Muhammad Faizal et al. \(2016\)](#), [Subramaniam et al. \(2015\)](#), and [Harker and Cheeseman \(2016\)](#) in their study also found that smokers smoke cigarettes to relieve depression. Therefore, if most smokers are faced with mental health issues, and this issue is not taken into account by the management of QSCS then the change in smoking cessation behaviour will not be successful. Most worrying is that even though they are highly motivated, their mental health problems will prevent them from quitting smoking and cause the number of smokers to not decrease ([Siru et al., 2009](#); [Chesney 2014](#)). Thus [Rashid et al. \(2019\)](#) suggested that screening for anxiety and depression be carried out routinely especially in the primary healthcare sector so that this issue can be addressed especially among patients with smoking behaviour. Not to mention, the psychological effects of smoking behaviour on smokers also interfere with their decision to quit smoking.

The importance of studying respondents' mental health relationships with their level of smoking cessation behaviour change was further reinforced through [Wee et al. \(2016\)](#) reported that the assessment of smoking issues against adults and certain populations is also limited in Malaysia. Similarly, [Mathew et al. \(2019\)](#) who reported treatment-related

to nicotine addiction and psychological problems will have a greater novelty impact, however, the evaluation of this factor among chronic patients has not been conducted. Thus [Masiero et al. \(2019\)](#) have concluded that new research is needed as a reference source in improving knowledge and understanding of psychological mechanisms in influencing the readiness and motivation to quit smoking especially among at-risk populations such as patients with smoking-related illnesses.

4.3. Smoking Issues and Social Aspects

More than a decade ago [Greaves and Hemsing \(2009\)](#) reported that most past studies have only focused on studies on the effects of rising cigarette prices, media campaigns on smoking cessation services, policies on cigarette sales conditions, level of education, type of employment, and smoking status smoking habit. However, according to [Yun et al. \(2010\)](#) and [Greaves and Hemsing \(2009\)](#), say that tobacco control policies lack information about social context. Thus, [Niederdeppe et al. \(2008\)](#) have suggested that in enhancing and empowering the effectiveness of tobacco control policies, a comprehensive understanding of the social influence of smoking habits is needed. The evidence of smoking addiction and alcohol addiction interventions using social support elements shows good results ([Carlson et al., 2002](#); [Groh et al., 2008](#)). Social support is also seen as a determining element of success in smoking cessation decisions and prevention of relapse among smokers ([Carlson et al., 2002](#)).

[Vaanamen et al. \(2008\)](#) found that social networks are a source of social support. Therefore, if smokers acquire social networks from those who smoke, then their smoking behaviour will continue to remain. The results of the study of [Mohammadnezhad et al. \(2015\)](#), showed that smoking status is influenced by culture including social environment, family attitudes, friends, and colleagues at work. According to [Mohammadnezhad et al. \(2015\)](#) too, smokers themselves have the potential to help older smokers to quit smoking. This is because according to [Honjo et al. \(2006\)](#) smokers with smoking family or smoking colleagues will encourage smokers to continue smoking as well as vice versa. [Waring et al. \(2019\)](#) have also discussed that social support factors and the urge to smoke are important factors that affect a person's smoking cessation results. This is because [Daoud et al. \(2015\)](#) found that social support has a strong significant positive relationship with smoking cessation readiness. Social support is also a major factor in determining a smoker's desire to quit smoking as it increases a person's willingness to be better prepared to quit smoking ([Carpenter et al., 2013](#); [Prochaska & Benowitz, 2016](#)). According to [Waring et al. \(2019\)](#), further studies regarding the influence of social support during smoking cessation attempts are very limited.

[Eslami et al. \(2017\)](#) stated that addiction treatment through a motivational intervention approach and social support can increase the impact of treatment in the clinical sector. Even [Ghaferi et al. \(2017\)](#) found that a person's social status affects the level of addiction issues they experience. However, they state that treatment programs on addiction issues do not give priority to these two aspects. The results of the study of [Mohammadnezhad et al. \(2015\)](#), showed that smoking status is influenced by culture including social environment, family attitudes, friends, and colleagues at work. This means that the source of social support itself is able to determine the smoking behaviour of a smoker.

If the social network acquired by smokers is from the group of smokers, then the smoking habit will continue to remain. [Muhammad Faizal et al. \(2016\)](#) found that

smoking partners will always discourage and provoking smokers who want to quit smoking. This condition can not only cause smokers who are trying to quit smoking back to old habits but can also cause smokers who are quitting smoking to experience emotional stress and lose the spirit to quit smoking. This situation occurs because according to [Subramaniam et al. \(2015\)](#) smokers consider the smoking activity as one of the social activities and even for them it has a high value in developing a larger network of social relationships.

According to [Mohammadnezhad et al. \(2015\)](#) also, smokers potentially helping other smokers to quit smoking. This is because according to [Honjo et al. \(2006\)](#) smokers' families or co-workers encourage smokers to continue smoking and vice versa. Therefore, tobacco use control policy strategies, and QSCS should involve elements of social support and social networking. [Chean et al. \(2019\)](#) for example have proven that cultural values, mental control, and self-control are the most important factors in the process of quitting smoking. It is therefore important for this study to examine the influence of social support on the level of change in smoking cessation behaviour as previous studies have shown that it has a diverse impact.

4.4. Smoking Issues and Spiritual Aspects

In contrast to the spiritual aspect, according to [Tabei et al. \(2016\)](#) spirituality naturally has a positive effect on the human self. [Hill \(2018\)](#) for example states that spirituality or religion affects health and life expectancy among adults and the elderly. According to him, the results of past studies over the past three decades prove that the spiritual or religious aspects have had a consistent effect on health behaviours such as smoking, drinking, mental health, physical health, and death risk. Even United Nations Office on Drugs and Crime ([UNODC, 2011](#)) through the results of observations that have been conducted found that spirituality is an important factor in combating the problem of addiction, especially in Islamic countries. According to [Nunziata and Toffolutti \(2019\)](#) the spiritual aspect has a strong relationship with reducing smoking and drinking.

[Garrusi and Nakhaee \(2012\)](#) say spirituality and religion have a significant relationship with more than 90% of the world's population, so according to them this issue is critical and should be given attention to smokers. Here is a view of some religions on smoking behaviour:

- i. Islam
The 37th Muzakarah of the Fatwa Committee of the National Council for Islamic Religious Affairs Malaysia, which convened on 23 March 1995, discussed the Law of Smoking from an Islamic Perspective. Muzakarah has decided that smoking is illegal from an Islamic point of view because there is harm to it ([Department of Islamic Development Malaysia, 2015](#))
- ii. Buddha
Buddhists believe that anything that can harm health and mind must be avoided ([Marcus, 2008](#)). [World Health Organization \(2008\)](#) through the International Workshop on Buddhism and Tobacco Control, tobacco is harmful and an addictive substance, so "all marketing regarding tobacco should be banned" and all Buddhist monks are advised to abstain from using tobacco.
- iii. Christian
Through a report on a meeting on tobacco and religion held at the WHO headquarters in May 1999, Christianity, especially Orthodox Christians, welcomed anti-smoking efforts which were believed to be "part of the whole

problem as a necessity to cure humanity." [World Health Organization \(1999\)](#). In fact, according to [Marcus \(2008\)](#) some Christian religious states that smoking is part of the evil that the devil commits, it is an enemy to God because it can weaken the relationship between Christians and God.

iv. Hindu

The use of tobacco, capable of harming the health of consumers and others has violated the principles of Hinduism ([Shafey et al., 2009](#)). Hinduism believes that the human heart is of great importance in life and smoking causes heart disease problems. "Smoking is likened to the encroachment of a holy place for God" [World Health Organization \(1999\)](#).

[Sharma et al. \(2011\)](#) in India found that individuals with high nicotine dependence were less involved in matters related to religion. Similarly, [Yong et al. \(2009\)](#) found that religious norms play an important role in driving towards behaviour change especially in tobacco use control interventions. [Elkalmi et al. \(2015\)](#) also found that students in Malaysia who do not smoke have a positive influence on religious beliefs compared to those who smoke. However, according to [Bailey et al. \(2015\)](#) in the USA, religious involvement is ineffective in smoking cessation programs. This report provides an initial overview of the role of spiritual aspects in smoking cessation motivation and these aspects are involved in this study for the spiritual effects on smoking cessation behaviour thus encouraging smokers to change. This is because [Elkalmi et al. \(2015\)](#) found that more research is needed to support the findings of the study they have conducted. Even [Hussain et al. \(2017\)](#) advocates that placing the link between smoking behaviour and spirituality is crucial for the development of tobacco control programs.

To this day, the spiritual element on the issue of smoking behaviour still needs attention in the research world as evidenced by [Hussain et al. \(2017\)](#) reported quantitative studies are needed to identify the spiritual role and other factors of smoking behaviour. Over two decades ago, [Hoking et al. \(2009\)](#) through their study of smokers in Malaysia and Thailand found that the religious aspect is important in driving a person to quit smoking, but it has not yet been fully proven. They also found that religion was still relevant in driving local culture towards efforts to control the use of tobacco products. Hence [Ghaferi et al. \(2017\)](#) suggest that focusing on spiritual factors should be an important component in the treatment and rehabilitation related to the issue of addiction. [Page et al. \(2018\)](#) also suggested that health teams wishing to protect and assist patients with smoking addiction need to use a holistic approach including conducting a comprehensive assessment of spiritual needs in the primary, secondary and tertiary health sectors.

Finally, since the issue of smoking behaviour is important in the field of public health and it has a great influence on the spiritual aspect, research on this issue requires further research ([Nunziata & Toffolutti, 2019](#)). The spiritual element is also emphasised in this study is because according to [Vaughn and Perron \(2013\)](#) this element is the most important element but this element is often overlooked in individuals with addiction. Thus, [Chean et al. \(2019\)](#) stated that understanding spirituality and building interventions on religious and cultural competencies can help smokers to continue to quit smoking.

5. Recommendations and Conclusions

According to [Sulmasy \(2002\)](#), only biopsychosocial and spiritual models are capable of providing basic guidelines for treating patients holistically. [The National Association of Social Workers \(2016\)](#) states that the evaluation of biopsychosocial and spiritual aspects is a basic process in the practice of health social work. Therefore, besides counselors, pharmacists and other helping profession, social workers need to be one of the main professions in providing support services to smokers who want to quit smoking. This is because according to [Dorn \(2017\)](#), social workers are in a unique position to promote smoking cessation efforts through their work with individuals, families, and communities. This statement coincides with the [National Association of Social Workers \(2016\)](#) report which affirms that by using biopsychosocial and spiritual perspectives, the field of social work can play its role in leading disease prevention initiatives.

Therefore, research on the influence of biopsychosocial and spiritual factors on the readiness to quit smoking among various smokers is needed such for example among public smokers, chronic patients, adolescents, and women. This situation is to meet the urgent needs that have been proven through the U.S. report, [The U.S. Department of Health and Human Services \(2020\)](#) and [World Health Organization \(2019\)](#) which asserted an understanding of nicotine addiction with physical and psychological factors, environment, culture, and social functioning is important to understand each client and form a comprehensive intervention. Therefore, in addition to determine the predictors of smoking cessation, this study is also able to help an important profession especially social work to jointly become stakeholders in helping a country overcome the problem of smoking behaviour. This is because according to [Kleinfelder et al. \(2013\)](#) social workers have ignored the issue of smoking behaviour and the issue of tobacco use after so long. This statement is supported by [Eversman \(2015\)](#) who stated that the field of social work has been criticized for neglecting the issue of smoking and even previous studies regarding the topic of smoking in the field of work are also limited. [Masiero et al. \(2019\)](#) stated that more research is needed on the issue of smoking cessation because the results of research to be conducted can help improve the quality of Quit Smoking Clinic Services (QSCS) and help to train social workers and health teams directly involved with this issue.

In conclusion, the results of this study have the potential to prove that biopsychosocial and spiritual factors play an important role in smoking cessation. Thus study on the influence of biopsychosocial and spiritual factors with the readiness of quit smoking using an advanced analysis should be conducted to identify the motivating factors and factors that prevent smokers from quitting smoking, at once helping to plan good smoking cessation intervention strategy.

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Conflict of Interests

The authors declare no conflict of interest in this study.

References

- Abdullah, A. (2010). Themes and issues in research social problems in the first decade of the 21th century in Malaysia. *Akademika*, 78(3-14)
- Adult Psychiatric Morbidity Survey. (2014). Adult psychiatric morbidity survey: Survey of mental health, and wellbeing. <https://digital.nhs.uk/data-and-information/publications/statistical/adult-psychiatric-morbidity-survey/adult-psychiatric-morbidity-survey-survey-of-mental-health-and-wellbeing-england-2014>
- Alvarez, A. S., Pagani, M., Meucci, P. (2012). The clinical application of the biopsychosocial model in mental health: A research critique. *Am J phus med rehabilitation*, 91: S173-180. <http://doi.org/10.1097/PHM.0b013e31823d54be>.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders (4th Edition, text revision)*. American Psychiatric Association
- Andersen, Z. J., Jørgensen, J. T., Grøn, R., Brauner, E. V., & Lynge, E. (2017). Active smoking and risk of breast cancer in a Danish nurse cohort study. *BMC Cancer*, 17, 556-567. <http://doi.org/10.1186/s12885-017-3546-4>
- Babalola, E., Noel, P., & White, R. (2017). The biopsychosocial approach and global mental health: Synergies and opportunities. *Indian journal of social psychiatry*. 33: 291-296. http://doi.org/10.4103/ijsp.ijsp_13_17
- Bailey, Z.D., Slopen, N., Albert, M., & Williams, D.R. (2015). Multidimensional religious involvement and tobacco smoking patterns over 9-10 years: A prospective study of middle-aged adults in the United States. *Social science & medicine*, 138, 128-135. <http://dx.doi.org/10.1016/j.socscimed.2015.06.006>
- Barrueco, M., Otero, M. J., Palomo L, Jiménez-Ruiz, C., Torrecilla, M., Romero, P., & Riesco, J. A. (2005). Adverse effects of pharmacological therapy for nicotine addiction in smokers following a smoking cessation program. *Nicotine and Tobacco Research*. , 7, 335-42. <http://doi.org/10.1080/14622200500124768>
- Boksa, P. (2017). Smoking, psychiatric illness and the brain. *Journal Psychiatry Neuro Science*, 42(3), 147-149. <https://doi.org/10.1503/jpn.170060>
- Britton, J., Arnott, D., Coleman, T., Cuthbertson, L., Edwards, R., Gilmore, A., Godfrey, C. (2007). Harm reduction in nicotine addiction: Helping people who can't quit. Royal college of physicians. https://www.heartland.org/_template-assets/documents/Vaping%20Studies/1-26-2017/Harm-Reduction-in-Nicotine-Addiction.pdf
- Calfee, C. S., Matthay, M. A., Kangelaris, K. N., Siew, E. D., Janz, D. R., Bernard, G. R., May, A. K., Jacob, P., Havel, C., Benowitz, N. L., & Ware, L. B. (2016). Cigarette smoke exposure and the acute respiratory distress syndrome. *Critical care medicine*, 43(9), 1790-1797. <https://doi.org/10.1097/CCM.0000000000001089>
- Cambron, C., Kosterman, R., & Hawkins, J. D. (2019). Neighborhood poverty increases risk for cigarette smoking from age 30 to 39. *Ann. Behav. Med.*, 53(9), 858-864. <https://doi.org/10.1093/abm/kay089>
- Carlson, L. E., Goodey, E., Bennett, M. H., Tanezer, P., & Koopmans, J. (2002). The addition of social support to a community-based large-group behavioral smoking cessation intervention: Improved cessation rates and gender difference. *Addict Behav*, 27, 547-559. [https://doi.org/10.1016/s0306-4603\(01\)00192-7](https://doi.org/10.1016/s0306-4603(01)00192-7)

- Carpenter, M. J., Jardin. B. F., & Burris, J. L. (2013). Clinical strategies to enhance the efficacy of nicotine replacement therapy for smoking cessation: a review of the literature. *Drugs. Pub Med*, 73, 407–426. <https://doi.org/10.1007/s40265-013-0038-y>
- Chean, K. Y., Goh, L. G., Liew, K. W., Tan, C. C., Choi, X. L., Tan, K. C., & Ooi, S. T. (2019). Barriers to smoking cessation: a qualitative study from the perspective of primary care in Malaysia. *BMJ*, 9, e025491. <https://doi.org/10.1136/bmjopen-2018-025491>
- Chesney, E., Goodwin, G., & Fazel, S. (2014). Risks of all-cause and suicide mortality in mental disorders: a meta-review. *World Psychiatry*, 13(2), 153–60. <https://doi.org/10.1002/wps.20128>
- Coff, C. (1990). *Incorporation, Digestion and Incarnation*. History.
- D'Antonio. P., & Fairman, J. (2004). Organizing practice: nursing, the medical model, and two case studies in historical times. *Criminal Behavior Mental Health*, 21(2), 411–429. <https://doi.org/10.3138/CBMH.21.2.411>
- Daoud, N., Hayek, S., Muhammad, A. S., Abu-Saad, K., Osman, A., Thrasher, J. F., & Leibovici, K. O. (2015). Stage of change of the readiness to quit smoking among random sample of minority Arab-male smokers in Israel. *BMC public health*, 15, 672–685. <https://doi.org/10.1186/s12889-015-1950-8>
- Department of Islamic Development Malaysia. (2015). Kompilasi pandangan hukum: Muzakarah jawatankuasa fatwa majlis kebangsaan bagi hal ehwal ugama Islam Malaysia. JAKIM. Selangor, Malaysia. https://www.islam.gov.my/images/ePenerbitan/KOMPILASI_MUZAKARAH_MKI_2016.pdf
- Doe, J., & DeSanto, C. (2009). Smoking's immediate effects on the body. <https://www.tobaccofreekids.org/assets/factsheets/0264.pdf>
- Dorn, C. (2017). Implementing Smoking Cessation Into Your Social Work Practice. National Association Social Worker. <https://www.napsw.org/assets/docs/Advocacy/PRA-NL-36217.SmokingCessation-PP.pdf>
- Drope, J., & Schluger, N. W. (2018). The Tobacco Atlas. 6 th Edition. China. https://tobaccoatlas.org/wpcontent/uploads/2018/03/TobaccoAtlas_6thEdition_LoRes_Rev0318.pdf
- Elkalmi, R. M., Alkoudmani, R. M., Elsayed, T. M., Ahmad, A., & Khan, M. U. (2015). Effect of Religious Beliefs on the Smoking Behaviour of University Students: Quantitative Findings From Malaysia. *Journal of religion and health*, 55(6), <https://doi.org/10.1007/s10943-015-0136-0>
- Engel, G. L. (1977). The need for a new medical model: a challenge for biomedicine. *Science*. 196(4286): 129-136. <https://doi.org/10.1126/science.847460>.
- Engel, G. L. (1978). The biopsychosocial model and the education of health professionals. *Annals of the new york academy of science*. 310: 169-181. <https://doi.org/10.1111/j.1749-6632.1978.tb22070.x>
- England, L.J., Bunell, R.E., Pechecek, T.F., Tong, V.T., & McAfee, T.A. (2015). Nicotine and the Developing Human: A Neglected Element in the Electronic Cigarette Debate. *American Journal of Preventive Medicine*, 49(2), 286-293. <https://doi.org/10.1016/j.amepre.2015.01.015>.
- Eriksen, M., Mackay, J., Schluger, N., Gomeshtapeh, F. I. & Drope, J. (2015). The Tobacco Atlas (5th edition). Atlanta: American Cancer Society. https://ncdalliance.org/sites/default/files/resource_files/TA5_2015_WEB.pdf
- Eslami, A. A., Norozi, E., Hajihosseini, M., Ramazani, A. A., & Miri, M. R. (2017). Social cognitive theory as a theoretical framework to predict sustained abstinence 6

- months after substance use treatment. *Journal of substance use*, 1465-9891. <https://doi.org/10.1080/14659891.2017.1394382>
- Eversman, M. H. (2015). Tobacco harm reduction: An emerging health issue for social work. *Journal of Social Work Practice in the Addiction*, 15, 341-351. <https://doi.org/10.1080/1533256X.2015.1091001>
- Farre, A., & Rapley, T. (2017). The new old (new and old) medical model: Four decades navigating the biomedical and psychosocial understandings of health and illness. *Healthcare*, 5(88), 1-9. <https://doi.org/10.3390/healthcare5040088>.
- Figueiró, L. R., Bortolon, C. B., Benchaya, M. C., Bisch, N. K., Ferigolo, M., Barros, H. M. T., & Dantas, D. C. M. (2013). Assessment of changes in nicotine dependence, motivation, and symptoms of anxiety and depression among smokers in the initial process of smoking reduction or cessation: a short-term follow-up study. *Trends psychiatric psychother*, 35(3), 212-22. <https://doi.org/10.1590/s2237-60892013000300008>.
- Fluharty, M., Taylor, A. E., Grabski, M., & Munafo, M. R. (2017). The Association of Cigarette Smoking With Depression and Anxiety: A Systematic Review. *Nicotine Tobacco Respiratory Journal*, 19(1), 3-13. <https://doi.org/10.1093/ntr/ntw140>.
- Gamberino, W.C., & Gold, M.S. (1999). Neurobiology of Tobacco Smoking & Other Addictive Disorders. *The Psychiatric Clinics of North America*, 22(2), 301-312. [https://doi.org/10.1016/s0193-953x\(05\)70078-2](https://doi.org/10.1016/s0193-953x(05)70078-2)
- Garrusi, B. & Nakhaee, N. (2012). Religion and smoking: A review of recent literature. *International of Journal Psychatric in Medicine*, 43(3), 279-292. <https://doi.org/10.2190/PM.43.3.g>
- Ghaferi, H., Bond, C., & Matheson, C. (2017). Does the biopsychosocial-spiritual model of addiction apply in an Islamic context? A qualitative study of Jordanian Addicts in treatment. *Drug alcohol depend*, 7(172), 14-20. <https://doi.org/10.1016/j.drugalcdep.2016.11.019>.
- Greaves, L., & Hemsing, N. (2009). Women and tobacco control policies: Social-structural and psychosocial contributions to vulnerability to tobacco use and exposure. *Drug Alcohol Depend*, 104(1), S121-3. <https://doi.org/10.1016/j.drugalcdep.2009.05.001>
- Groh, E. R., Jason, L. A., Keys C. B. (2008). Social network variables in alcoholics anonymous: A literature review. *Clin Psychol Rev.*, 28(3), 430-450. [10.1016/j.cpr.2007.07.014](https://doi.org/10.1016/j.cpr.2007.07.014)
- Gurillo, P., Jauhar, S., Murray, R., & MacCabe, J. (2015). Does tobacco use cause psychosis? Systematic review and meta-analysis. *Lancet Psychiatry*, 2(8), 718- 72. [https://doi.org/10.1016/S2215-0366\(15\)00152-2](https://doi.org/10.1016/S2215-0366(15)00152-2)
- Haldorsen, T., Martinsen, J. I., Kjærheim, K., & Grimsrud, T. K. (2017). Adjustment for tobacco smoking and alcohol consumption by simultaneous analysis of several types of cancer. *Cancer cause and control*, 28(2), 155-165. <https://doi.org/10.1007/s10552-016-0847-x>
- Harker, K., & Cheeseman, H. (2016). The Stolen Years: The mental health and smoking action report. United Kingdom: ISBN. <https://ash.org.uk/information-and-resources/reports-submissions/reports/the-stolen-years/>
- Hill, T. D. (2018). Religion, Spirituality, and Health: Addressing the So-What Question. *The Gerontologist*, 59(5), 1004-100. <https://doi.org/10.1093/geront/gnz108>
- Hilts, P.J. (1994). Is Nicotine Addictive? It Depends on Whose Criteria You Use. Experts say the definition of addiction is evolving. The New York Times, Retrieved from <http://www.drugsense.org/tfy/addictvn.htm>
- Hoking, W., Borland, R., Yong, H. H., & Fong, G. (2009). The effects of smoking norms and attitudes on quitting intentions in Malaysia, Thailand and four Western nations: A

- cross-cultural comparison. *Psychology & health*, 24(1), 95-107. <https://doi.org/10.1080/08870440802385854>
- Honjo, K., Tsutsumi, A., Kawachi, I., & Kawakami, N. (2006). What accounts for the relationship between social class and smoking cessation? Results of a pathanalysis. *Soc. Sci. Med*, 62, 317–328. <https://doi.org/10.1016/j.socscimed.2005.06.011>
- Hussain, M., Walker, C., & Moon, G. (2017). Smoking and religion: Untangling associations using english survey data. *Journal of religion and health*, 58, 2263-2276. <https://doi.org/10.1007/s10943-017-0434-9>.
- Ihsan, K. (2019). Smoking as an environment health problem. *International journal of human and health science*, 3(3): 123-126. <http://dx.doi.org/10.31344/ijhhs.v3i3.89>
- Jasinska, A. J., Zorick, T., Brody, A. L., & Stein, E. (2014). Dual role of nicotine in addiction and cognition: A review of neuroimaging studies in humans. *Neuropharmacology*, 84, 111-122. <https://doi.org/10.1016/j.neuropharm.2013.02.015>
- Jenkins, D. A., Bowden, J., Robinson, H. A., Sattar, N., Loss, R. J. F., Rutter, M. K. & Sperrin, M. (2018). Adiposity-mortality relationships in type 2 diabetes, coronary heart disease and cancer subgroups in the UK Biobank, and their modification by smoking. *Diabetes care*. 41: 1878-1886. <https://doi.org/10.2337/dc17-2508>
- Jiloha, R. C. (2010). Biological basis of tobacco addiction: Implication for smoking-cessation treatment . *Indian journal psychiatry*, 52(4):, 301-307. <https://doi.org/10.4103/0019-5545.74303>
- Jochelson, K. & Majrowski W. (2006). *Clearing the Air: Debating Smokefree Policies in Psychiatric Units*. London, King's Fund
- Khairi, A. F. M., Rahman, H. A., & Muthiah, S. G. (2017). Risk factors of drug abuse among Malay males Felda settlers in Jerantut, Malaysia. *Journal of substance abuse & alcoholism*, 5(4), 1066-1075. <https://www.jscimedcentral.com/SubstanceAbuse/substanceabuse-5-1066.pdf>
- Kim, S. J., Chae, W., Park, W. H., Park, E. C., & Jang, S. I. (2019). The impact of smoking cessation attempts on stress levels. *BMC Public Health*, 19,267. <https://doi.org/10.1186/s12889-019-6592-9>
- King, D. E. (2000). *Faith, spirituality and medicine: Toward the making of a healing practitioner*. Binghamton, NY: Haworth Pastoral Press
- Kleinfelder, J., Price, J. H., Dake, J. A., Jordan, T. R., & Price, J. A. (2013). Tobacco training in clinical social work graduate programs. *Health and Social Work*, 38, 173-182. <https://doi.org/10.1093/hsw/hlt008>.
- Koenig, H. G. (2018). *Spiritual Care for Allied Health Practice: A Person-centered Approach*. New York. Elsevier
- Kusnato, H., Agustian, D., & Hilmanto, D. (2018). Biopsychosocial model of illnesses in primary care: A hermeneutic literature review. *Journal of family medicine and primary care*, 7(3), 497-500. https://doi.org/10.4103/jfmpe.jfmpe_145_17.
- Lawler, T. S., Stanfill, S. B., deCastro, B. R., Lisko, J. G., Duncan, B. W., Richter, P., & Watson, C. H. (2017). Surveillance of Nicotine and pH in Cigarette and Cigar Filler. *Tobacco regulatory science* . 3(1): 101-116. [https://doi.org/10.18001/TRS.3.2\(Suppl1\).11](https://doi.org/10.18001/TRS.3.2(Suppl1).11)
- Lee, M.Y. & Tam, C.L. (2014). Smoking and Burden of Ill Health : A Review of the Malaysian Context. *International Journal of Collaborative Research on Internal Medicine & Public Health*, 7(7), 190–198.
- Lee, Y., Lee, K.S., & Kim, H. (2019). Predictors of abstinence form smoking : A retrospective study of male college students enrolled in a smoking cessation service. *International journal of environmental research and public health*, 116(3363), 1-12. <https://doi.org/10.3390/ijerph16183363>

- Leventhal, A. M., Ameringer, K. J., Osborn, E., Zvolensky, M. J. (2013). Anxiety and depressive symptoms and active patterns of tobacco withdrawal. *Drug and Alcohol Dependence*, 133(2), 324-9. <https://doi.org/10.1016/j.drugalcdep.2013.06.015>.
- Leventhal, A. M., Piper, M. E., Japuntich, S. J., Baker, T. B., & Cook, J. W. (2014) Anhedonia, depressed mood, and smoking cessation outcome. *Journal of Consulting and Clinical Psychology*, 82(1), 122. <https://doi.org/10.1037/a0035046>
- Liem, A. (2010). Pengaruh nikotin terhadap aktivitas dan fungsi otak serta hubungannya dengan gangguan psikologis pada pecandu rokok. *Buletin psikologi*, 18(2), 37-50. <https://doi.org/10.22146/bpsi.11536>
- Lim, H. K., Ghazali, S. M., Kee, C. C., L, K. K., Chan, Y. Y., Teh, H. C., Yusoff, A. F. M., Kaur, G., Zain, Z. M., Mohamad, M. H. N., & Salleh, S. (2013). Epidemiology of smoking among Malaysian adult males: prevalence and associated factors. *BMC Public Health*, 13(8), 1-10. <https://doi.org/10.1186/1471-2458-13-8>.
- Marcus, W.G. (2008). The Christian view on smoking;. Retrieved from <http://www.emro.who.int/tfi/EMROleads-christianview.htm>.
- Markle, G. E., & Troyer, R. J. (1979). Smoke gets in your eyes: Cigarette smoking as deviant behavior. *Social Problems*, 26(5), 611-625. <https://doi.org/10.2307/800045>
- Masiero, M., Renzi, C., Mazzocco, K., & Pravettoni, G. (2019). Not just a pill. *Journal of Addictions Nursing*, 30(2), E1-E4. <https://doi.org/10.1097/jan.0000000000000276>.
- Mathew, A.R., Yount, S. E., Kalhan, R., & Hitsman, B. (2019). Psychological Functioning in Patients With Chronic Obstructive Pulmonary Disease: Preliminary Study of Relations With Smoking Status and Disease Impact. *Nicotine & Tobacco Research*, 21(5), 686-690. <https://doi.org/10.1093/ntr/nty102>.
- Mazzotta, C. P. (2016). Biomedical approaches to care and their influence on point of care nurses: A scoping review . *Journal of Nursing Education & Practice*, 6(8), 93-101. <https://doi.org/10.5430/jnep.v6n8p93>
- McManus, S., Meltzer, H., & Campion, J. (2010). Cigarette smoking and mental health in England. Data from the Adult Psychiatric Morbidity Survey 2007. National Centre for Social Research. <https://natcen.ac.uk/media/21994/smoking-mental-health.pdf>
- Ministry of Health, British Columbia. (2017). Provincial Guidelines for Biopsychosocial Spiritual Withdrawal Management Services. <https://www.health.gov.bc.ca/library/publications/year/2017/adult-withdrawal-management-services-guidelines-final.pdf>
- Ministry of Health Malaysia. (2019). *Sisa asap basi (SAB): Apakah risikonya?* <https://www.facebook.com/pkbsmhn/posts/sisa-asap-basi-sabbagi-perokok-jangan-ingat-membasuh-tangan-berkumur-atau-mencuc/2480513425357416/>
- Mohammadnezhad, M., Tsourtos, G., Wilson, C., Ratcliffe, J. & Ward, P. (2015). Understanding socio-cultural influences on smoking among Older Greek-Australian smokers aged 50 and over: Facilitators or Barriers? A Qualitative Study. *International Journal of Environmental Research and Public Health*, 12(3), 2718-2734. <https://doi.org/10.3390/ijerph120302718>
- Morrell, H.E.R., & Cohen, L. (2006). Cigarette smoking, anxiety and depression. *Journal of Psychopathology and Behavioral Assessment*, 28(4), 281-295. <https://doi.org/10.1007/s10862-005-9011-8>
- Muhammad Faizal, M., Ali, A.M., Amit, N., Bakry, M. M., & Taha, N. A. (2016). Suitability of a group behavioural therapy module for workplace smoking cessation programs in

- Malaysia: A pilot study. *Asian Pacific Journal of Cancer Prevention*, 17(1), 207–214. <https://doi.org/10.7314/APJCP.2016.17.1.207>
- Mykletun, A., Stordal, E., & Dahl, A. A. (2001). Hospital anxiety and depression (HAD) scale : Factor structure, item analyses and internal consistency in a large population. *British journal of psychiatry*, 179 : 540-544. <https://doi.org/10.1192/bjp.179.6.540>
- National Association of Social Workers. (2016). NASW Standard for Social Work Practice in Healthcare Settings. <https://www.socialworkers.org/LinkClick.aspx?fileticket=fFnsRHX-4HE%3D&portalid=0>
- New Scientist. (2019). Eight wonders of the human brain: The more we learn about our command centre, the more mysteries. *New Scientist*, 242(3235), 34-41. [https://doi.org/10.1016/S0262-4079\(19\)31133-9](https://doi.org/10.1016/S0262-4079(19)31133-9)
- Niederdeppe, J., Fiore, M. C., & Baker, T. B. (2008). Smoking-cessation media campaigns and their effectiveness among socioeconomically advantaged and disadvantaged populations. *Am J Public Health*, 98, 916e24. <https://doi.org/10.2105/AJPH.2007.117499>.
- Novak, G., Seeman, P., & Le, F. B. (2010). Exposure to nicotine produces an increase in dopamine D2(High) receptors: a possible mechanism for dopamine hypersensitivity. *International Journal of Neuroscience*, 120(11), 691-7. <https://doi.org/10.3109/00207454.2010.513462>.
- Nunziata, L. & Toffolutti, V. (2019). “Thou shalt not smoke”: Religion and smoking in a natural experiment of history. *SSM - Population Health*, 8, 100412. <https://doi.org/10.1016/j.ssmph.2019.100412>
- Page, R. L., Peltzer, J. N., Burdette, A. M., & Hill, T. D. (2018). Religiosity and health: A holistic biopsychosocial perspective. *Journal of holistic nursing*, 38(1), 89-101. <https://doi.org/10.1177/0898010118783502>
- Pawlina, M. M. C., Rondina, R. D. C., Espinosa, M. M. & Botelho, C. (2014). Nicotine dependence and levels of depression and anxiety in smokers in the process of smoking cessation. *Revista de Psiquiatria Clínica*, 41(4), 101–105
- Pfeffer, D., Wigginton, B., Gartner, C., & Morphet, K. (2018). Smokers’ understanding of addiction to nicotine and tobacco: A systematic review and interpretive synthesis of quantitative and qualitative research. *Nicotine and tobacco research*, 20(9), 1038-1049. <https://doi.org/10.1093/ntr/ntx186>.
- Pierce, R. C., & Kumaresan, V. (2006). The mesolimbic dopamine system: The final common pathway for the reinforcing effect of drugs of abuse. Boston: Boston University School of Medicine. *Neuroscience & Biobehavioral Reviews*, 30(2), 215–238. <https://doi.org/10.1016/j.neubiorev.2005.04.016>
- Prochaska, J. J. & Benowitz, N. L. (2016). The Past, Present, and Future of Nicotine Addiction Therapy. *Annu Rev Med*. 467–486. <https://doi.org/10.1146/annurev-med-111314-033712>
- Prugger, C., Wellmann, J., Heidrich, J., Bacquer, D. D., Backer, G. D., Périer, M. C., Empana, J. P., Reiner, Z., Fras, Z., Jennings, C., Kotseva, K., Wood, D., & Keil, U. (2014). Passive smoking and smoking cessation among patients with coronary heart disease across Europe: results from the EUROASPIRE III survey. *Eur Heart J.*, 35(9), 590-598. <https://doi.org/10.1093/eurheartj/ehf538>
- Rashid, A. R., Kanagasundram, S., Danaee, M., Majid, H. A., Sulaiman, A. H., Zahari, M. M. A., Ng, C. G., Francis, B., Husin, W. A. I. W., & Su, T. T. (2019). The prevalence of smoking, determinants and chance of psychological problems among smokers in an urban community housing project in Malaysia. *International journal of*

- environmental research and public health*, 16(1762), 1-9. <https://doi.org/10.3390/ijerph16101762>.
- Rose, J. E., Behm, F. M., & Westman. (2001). Acute effects of nicotine and mecamylamine on tobacco withdrawal symptoms, cigarette reward and ad lib smoking. *Pharmacology, Biochemistry & Behavior*, 68(2), 187-197. [https://doi.org/10.1016/s0091-3057\(00\)00465-2](https://doi.org/10.1016/s0091-3057(00)00465-2).
- Royal College of Physicians. (2013). Royal College of Psychiatrists. Smoking and mental health. London. <https://www.rcplondon.ac.uk/projects/outputs/smoking-and-mental-health>
- Russell, M.A.H., Jarvis, M.J., West, R.J., & Feyerabend, C. (1985). Buccal absorption of nicotine from smokeless tobacco. *Lancet*, 2, 1370, 1985. [https://doi.org/10.1016/s0140-6736\(85\)92668-6](https://doi.org/10.1016/s0140-6736(85)92668-6).
- Saad, M., Medeiros, R. D., & Mosini, A. S. (2017). Are we ready for a true biopsychosocial-spiritual model? The many meanings of "Spiritual". *Medicines*, 4(79), 1-6. <https://doi.org/10.3390/medicines4040079>
- Seo, Y. G., Paek, Y. J., Jo, M. W., & Choi, J. (2019). Predictors of long-term abstinence rate by income level in the Korean Smoking Cessation Programme. *Addiction*, 114(11), 2056-2064. <https://doi.org/10.1111/add.14726>.
- Setiawati, A. (2013). Suatu kajian molekuler ketergantungan nikotin. *Jurnal farmasi sains dan komunitas*, 10(2), 121-127. <https://doi.org/10.24071/jpsc.0098>
- Shadel, W.G., Shiffman, S., Niaura, R., Nichter, M & Abrams, D.B. (2000). Current models of nicotine dependence: what is known and what is needed to advance understanding of tobacco etiology among youth. *Drug & Alcohol Dependence*, 59(1), S9-S21. [https://doi.org/10.1016/s0376-8716\(99\)00162-3](https://doi.org/10.1016/s0376-8716(99)00162-3).
- Shafey, O, Eriksen, M, & Ross, H. (2009). The tobacco atlas (3rd ed.), Atlanta, GA: American Cancer Society; 2009. <https://www.afro.who.int/publications/tobacco-atlas-3rd-edition>
- Sharma, M. K., Suman, L. N., Manjula, M., Marimuthu, P., & Ahmad, M. (2011). Exploring the role of religion in smoking cessation. *Delhi psychiatry journal*, 14(1), 129-132.
- Shweder, R., & Much, K. (1994). Are moral intuitions and self-evident truths? *Criminal justice ethics*. 13: 24-31. <https://doi.org/10.1080/0731129X.1994.9991971>.
- Siru, R, Hulse, G. K. K., & Tait, R. J. J. (2009). Assessing motivation to quit smoking in people with mental illness: a review. *Addiction*, 104(5), 719-33. <https://doi.org/10.1111/j.1360-0443.2009.02545.x>.
- Song, C., Fu, R., Dou, K., Yang, J., Xu, H., Gao, X., Wang, H., Liu, S., Fan, X., & Yang, Y. (2019). Association between smoking and in-hospital mortality in patients with acute myocardial infarction: result from a prospective, multicenter, observational study in China. *British journal medical*, 9, e030252. <https://doi.org/10.1136/bmjopen-2019-030252>
- Stanaway, J. D., Afshin, A., Gakidou, E., Lim, S. S., Abate, D., Abate, K. H., ... Abd-Allah, F. (2018). Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet*, 392(10159), 1923–1994. [https://doi.org/10.1016/s0140-6736\(18\)32225-6](https://doi.org/10.1016/s0140-6736(18)32225-6)
- Subramaniam, M., Shahwan, S., Fauziana, R., Satghare, P., Picco, L., Vaingankar, J. A., & Chong, S. A. (2015). Perspectives on smoking initiation and maintenance: A qualitative exploration among singapore youth. *International Journal of Environmental Research and Public Health*, 12(8), 8956–8970. <https://doi.org/10.3390/ijerph120808956>.

- Sulmasy, D. P. (2002). A biopsychosocial-spiritual model for the care of patients at the end of life. *The gerontologist*, 42(3), 24-33. https://doi.org/10.1093/geront/42.suppl_3.24.
- Tabei, S. Z., Zarei, N., & Joulaesi, H. (2016). The impact of spirituality on health. *Shiraz e-medical journal*, 17(6), e39053. <https://doi.org/10.17795/semj39053>
- Taukeni, S. G. (2019). *Psychology of health: Biopsychosocial approach*. IntechOpen. United Kingdom.
- Taylor, G., Davies, N., Thomas, K., Rai, D., Jones, T., Windmeijer, F., Martin, R. M., Munafo, M. R., Davies, N. M., & Taylor, A. E. (2019). Prescribing prevalence, long-term eAectiveness, and mental health safety of varenicline and nicotine replacement therapy in patients with mental disorders: A prospective cohort study of electronic medical records. *Nicotine & Tobacco Research*, 22(1), 48-57. <https://doi.org/10.1093/ntr/ntz072>.
- Trans, C. T., Medlin, L. F., Lama, N., Taranu, B., Ng, W., Haziza, C., Picavet, P., Baker, G., & Lüdicke, F. (2019). Biological and functional changes in healthy adult smokers who are continously abstinent from smoking for one year: Protocol for a prospectice, observational, multicenter cohort study. *JMIR research protocols*, 8(6), e12138. <https://doi.org/10.2196/12138>.
- Trout, S., Goldstein, A. O., Marks, L., & Moffitt, C.R. (2018). Treating tobacco patient in patients with incurable malignancies: should we even start the conversation? *Journal of palliative medicine*, 21(6), 746-750. <https://doi.org/10.1089/jpm.2017.0304>.
- Tyndall, L., Hodgson, J., Lamson, A., White, M., & Knight, S. (2014). Medical family therapy : 30 years of history, growth and research. *Medical family therapy : Advanced applications*. 13-32. <https://doi.org/10.1007/s10591-012-9183-9>
- U.S. Department of Health and Human Services. (2020). Smoking Cessation: A Report of the Surgeon General. United States. <https://www.hhs.gov/sites/default/files/2020-cessation-sgr-full-report.pdf>
- United Nations Office on Drugs and Crime (UNODC). (2011). World Drug Report 2011. Vienna. https://www.unodc.org/documents/data-and-analysis/WDR2011/World_Drug_Report_2011_ebook.pdf
- United States Department of Health and Human Services. (2012). How Tobacco Smoke Causes Disease: A Report of the Surgeon General. Atlanta, GA, USA. https://www.ncbi.nlm.nih.gov/books/NBK53017/pdf/Bookshelf_NBK53017.pdf
- Uniwin, N. (2013). Nicotinic acetylcholine receptor and the structural basis of neuromuscular transmission: insights from Torpedo postsynaptic membranes. *Quarterly Reviews of Biophysics*, 46(4), 283-322. <https://doi.org/10.1017/S0033583513000061>.
- Vaanamen, A., Kouvonen, A., Kivimaki, M., Pentti, J., & Vahtera, J. (2008). Social support, network heterogeneity, and smoking behavior in women: the 10-town study. *Am J Health Promot*, 22, 246-255. <https://doi.org/10.4278/0701094R1.1>.
- Vaughn, M. G., & Perron, B. E. (2013). *Social work practice in the Addiction*. Springer. New York
- Waring, J.J.C., Hébert, E.T., Alexander, A.C., Kendzor, D.E., & Businelle, M.S. (2019). Evaluating the influences of social support and smoking cues on daily smoking abstinence among socioeconomically disadvantaged adults. *Addictive Behaviors*, 106107. <https://doi.org/10.1016/j.addbeh.2019.106107>
- Wee, W. L., Hsien, C. C. M. & Nantha, Y.S. (2016). A review of smoking research in Malaysia. *Medical Journal of Malaysia*, 71, 29-41
- West, R., & Brown, J. (2013). *Theory of addiction (2nd ed.)*. Oxford: Wiley-Blackwell, Addiction Press

- West, R., Evins, A.E., Benowitz, N. L., Russ., C., McRae, T., Lawrence, D., Aubin, L. S., Krishen, A., Maravic, M. C., & Anthenelli, R. M. (2018). Factors Associated With the Efficacy of Smoking Cessation Treatments and Predictors of Smoking Abstinence in EAGLES. *Addiction*, 113(8), 1507-1516. <https://doi.org/10.1111/add.14208>
- White, E. G. & White, J. (1898). *Temperance*. Battle Creek Michican: GHPC. Thrul, J
- Wolff, K. C. Y., Fromont, S. C., Delucchi, K., Hall, S. T., Hall, S. T., & Prochaska, J. J. (2014). PTSD symptomatology and readiness to quit smoking among women with serious mental illness. *Addictive behaviors*, 39(8), 1231-1234. <https://doi.org/10.1016/j.addbeh.2014.03.024>
- World Health Organization. (1999). Tobacco Free Initiative Meeting on Tobacco and Religion, Geneva, Switzerland, May 3, 1999. Report. Geneva
- World Health Organization. (2008). International workshop on Buddhism and tobacco control, May 7-9, 2002
- World Health Organization. (2008). MPower: Fresh and alive. Geneva: World Health Organization;.
- World Health Organization. (2010). Second-hand smoker: Assessing the burden of disease at national and local levels. Environmental Burden of Disease Series .Geneva
- World Health Organization. (2013). Mental health action plan 2013-2020. Geneva
- World Health Organization. (2019). WHO report on the global tobacco epidemic, 2019: Offer help to quit tobacco use
- Yong, H. H., Hamann, S. L., Borland, R., Fong, G. T., & Omar, M. (2009). Adult smokers' perception of the role of religion and religious leadership on smoking and association with quitting: A comparison between Thai Buddhists and Malaysian Muslims. *Soc. Sci. Med*, 69(7), 1025-1031. <https://doi.org/10.1016/j.socscimed.2009.07.042>
- Yun, E. H., Kang, Y. H., Lim, M. K., Oh, J.-K., & Son, J. M. (2010). The role of social support and social networks in smoking behavior among middle and older aged people in rural areas of South Korea: a cross-sectional study. *BMC Public Health*, 10, 78. <https://doi.org/10.1186/1471-2458-10-78>