

CHAPTER II :LITERATURE REVIEW

This chapter discusses a preview, theoretical and model framework, and previous study. Previous studies describe the components, pharmacokinetics, and pharmacodynamics of marijuana and the potential economic, social, and health consequences of legalizing or decriminalizing marijuana in other nations. While the theoretical and models framework will describe theories and models pertinent to the study, the last section will discuss past research on the acceptance level of marijuana.

2.0 PREVIEW

2.0.1 PHARMACODYNAMICS OF MARIJUANA

The science of medicine has undergone significant changes due to technological advancements, resulting in numerous discoveries and answer to medical issues previously posed. Through this development, marijuana medicinal researchers have been able to extract the plant's constituents and determine their effects on the human body. The study's findings have resulted in manufacturing widely legally sold marijuana-based medical products in 33 United States (U.S.) and most European Union (EU) countries(Caputi, 2020).

Pharmaceutical companies in the United States have been permitted to begin developing THC as a medicine, and they already produce Dronabinol and Nabiximols for appetite stimulation in AIDS and cancer patients, as well as anti-emetics to treat chemotherapy-induced nausea and vomiting. The Food and Drug Administration (FDA) approved these two drugs for sale in the United States. In addition, the United Kingdom

and Canada licensed and approved Nabiximols (an Oromucosal Spray) to treat pain and spasticity associated with multiple sclerosis on the European market. These drugs contain THC and CBD extracted from the cannabis plant (National Academies of Sciences, Engineering, and Medicine, 2017).

According to Atakan (2012), marijuana has more than 400 chemical entities identified in the marijuana plant. The most well-known are delta-9-tetrahydrocannabinol (THC), cannabidiol (CBD), and cannabinol (CBN). Cannabis Indica and Cannabis Sativa are the two most prevalent subspecies of the marijuana plant and share numerous traits. Cannabis Indica is a short plant with broad, dark green leaves and a high CBD content, whereas Cannabis Sativa is often taller, slenderer, and has thinner, lighter green leaves. Since Sativa contains more THC than Indica, it is the preferred kind. In contrast, Indica is less prevalent.

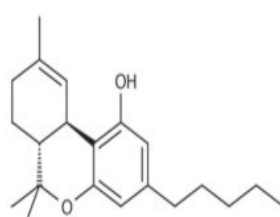
The discovery of its constituents led to the discovery of the endocannabinoid system, a key neurotransmitter system. This system is broadly spread throughout the brain and body and is crucial for a wide range of functions, including the regulation of movement and motor coordination, emotions and learning motivation and memory, addictive behaviour, and of pain modulation. The distribution of the endocannabinoid system in the brain is intriguing because the same brain regions are implicated in psychoses, specifically schizophrenia.

Figure 2.1

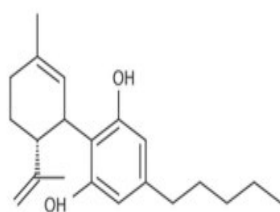
Cannabinoid receptor type 1 (CB1) binding to Endocannabinoids and Delta-9-Tetrahydrocannabinol (d-9-THC).

Chemical structures of delta-9-tetrahydrocannabinol

& Cannabidiol



Delta-9-tetrahydrocannabinol (THC)



Cannabidiol



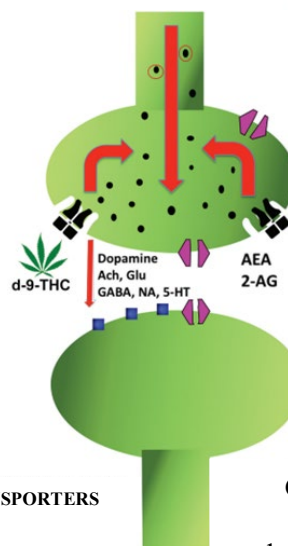
CB1 RECEPTOR



CANNABINOID TRANSPORTERS



POST SYNAPTIC RECEPTORS



Note: Adapted from Cannabis, a complex plant: different compounds and different effects on individuals by Zerrin Atakan, 2012, p.242 &243.

Moreover, this system's intricate and complex interaction with other neurotransmitter systems, including the dopamine, GABA, and glutamatergic systems, may have consequences for the development of a psychotic disorder. There has been a recent, persistent global increase in the potency of marijuana, which is accompanied by a rise in associated health issues, particularly among young people. Several epidemiological studies have found associations between dose-dependent marijuana usage and an increased chance of acquiring a persistent psychotic disease. However, it is also recognized that not all marijuana users have the same adverse effects. Several developing vulnerability factors, from genes to personality traits, make a person more

sensitive to the disease's detrimental impacts. Marijuana affects individuals differently. Psychosis tendency, schizotypal personality, and specific susceptibility genes are risk factors that may increase an individual's vulnerability. Identifying vulnerable groups is crucial so that early preventative, and therapeutic actions can be directed at them.

According to Testai et al. (2022), marijuana is viewed as a harmless drug, and its recreational usage among young people has increased. Over time, the concentration of active chemicals in recreational formulations has gradually grown, and illicit cannabinoid mimics with significant potency have been available. Consequently, marijuana consumption among the general population is increasing. Data from preclinical models indicate that cannabinoid receptors are highly expressed in cognitive and behavioural regions, particularly during active neurodevelopment and maturation periods. In addition, there is mounting evidence that endogenous cannabinoid pathways regulate neurotransmitter release, synaptic plasticity, and neurodevelopment.

Phyto cannabinoids are exogenous cannabinoids extracted from *Cannabis sativa*, *Cannabis indica*, and *Cannabis ruderalis* flowering plants. THC and cannabidiol (CBD) are the most abundant phytocannabinoids isolated from these plants. In general, cannabis cultivars can be classed according to the cannabinoid content as chemotype I (THC-rich), chemotype II (THC/CBD-balanced), chemotype III (CBD-rich), chemotype IV (cannabigerol-rich), or chemotype V (cannabigerol-rich) (cannabinoid free).

Anandamide and 2-arachidonoyl-glycerol are endogenous bioactive lipids that activate cannabinoid receptor type 1 (CB1) and type 2 (CB2) G-protein-coupled receptors (CB2). Endocannabinoids are not kept in vesicles, but rather are produced on demand. While the endocannabinoid system consists of the cannabinoid receptors CB1

and CB2, endogenous ligands, and enzymes involved in their production and degradation (ECS). THC is a psychoactive alkaloid that transmits signals via CB1 and CB2 receptors. The cannabinoid receptor type 1 is extensively expressed in peripheral and central brain cells. CB1 localises to sympathetic nerve terminals and sensory neurons in the periphery. They primarily expressed in the presynaptic membranes of excitatory and inhibitory neurons, where it controls the vesicular release of dopamine, GABA, and glutamate. CB2 is predominantly expressed in immune cells, including microglia. 9 CBD is a nonpsychoactive cannabinoid with anti-inflammatory and antioxidant effects. CBD exerts some of the Phyto cannabinoids' therapeutic effects in Dravet syndrome and Lennox- Gastaut syndrome.

In addition, preclinical research indicates that CBD is effective for Alzheimer's disease, cerebral ischemia, multiple sclerosis, and other neurologic illnesses. In numerous clinical trials, the medicinal potential of CBD is being studied. Unlike THC, CBD signals via distinct pathways and does not activate CB1 and CB2. CBD inhibits the orphan G-protein–coupled receptor-55, equilibrative nucleoside transporter 1, and transient receptor potential of the melastatin type 8 channel at low dosages. Additionally, it stimulates the serotonin (5-hydroxytryptamine) 1A receptor, the transient receptor potential of the type 1 ankyrin channel, and the 3 and 1 glycine receptors. CBD stimulates the nuclear peroxisome proliferator-activated receptor and the transient receptor potential of vanilloid types 1 and 2 at high dosages. 12,14 Several cannabinoids have been approved in several nations to treat particular medical ailments.

According to Ilan et al. (2004), the pharmacodynamic response of marijuana by smoking can disrupt the processes of working memory (WM) and episodic memory (EM), resulting in poorer memory task performance. It occurs because the principal

psychoactive component of marijuana, THC can activate and bind with stimulated cannabinoid receptors, which are highly concentrated in the frontal cortex and hippocampus (which is crucial for learning and memory) and the prefrontal cortex (which is essential for generating appropriate behavioural responses to both environmental and internal stimuli). THC and CBD have a relaxing effect when combined and can impair working memory capacity to sustain focus in the face of external distractions. Marijuana also increases heart rate and lowers theta band EEG power, which is associated with greater autonomic arousal. After smoking marijuana, WM responses were slower and less accurate, and alpha band EEG reactivity decreased in response to increased task difficulty. In the EM task, marijuana was associated with a greater propensity to identify distractor words as having been studied previously incorrectly. Marijuana diminished stimulus-locked event-related potentials (ERPs) in both tasks. When under the influence of marijuana, it may be difficult for a person to concentrate on various routine chores. Individuals who consume marijuana may develop cognitive and memory impairments subsequently. Regular marijuana consumers are more prone to physiological alterations and drug tolerance.

From these three studies can be stated that the reaction of marijuana to the human body can bring adverse effects if taken consistently and in excessive doses. It is because the response of cannabis to the endocannabinoid system in the brain and body can alter movement control, motor coordination, emotions, motivation and learning memory, addictive behaviour, pain modulation, and psychotic disorders. In addition, studies demonstrate that inhaling cannabis through the nose can impair working memory (WM) and episodic memory (EM) processes, resulting in inferior performance in memory-related activities. However, it is acknowledged that not all cannabis users

experience the same adverse effects; this varies from person to person. There is a need for continued laboratory research on the reactions and effects of marijuana on human health to obtain more information about the pros and cons of marijuana use.

2.0.2 ECONOMIC, SOCIAL, AND HEALTH IMPACTS

In addition to the fact that marijuana can help alleviate the effects of cancer symptoms, proponents of marijuana legalization have brought several other factors to favor the implementation of this policy. The factors are the economy (the same tax deductions as tobacco and alcohol), the reduction of a crime involving drug dealers on the black market, the reduction of the cost of prevention and government enforcement in the fight against drugs, and the controlled control of drugs against underage users, particularly children and adolescents. According to Think Market Intelligence (2020) in Cannabis Market Intelligence Report - Global Forecast to 2027, the global marijuana market is expected to reach USD 88.44 billion by 2027, up from USD 20.40 billion in 2021, at a Compound Annual Growth Rate (CAGR) of 27.68% during the forecast period. The size of the Americas marijuana market was predicted to be USD 7,334.10 million in 2021 and is projected to reach USD 9,077.90 million in 2022, growing at a CAGR of 26.82% to reach USD 30,525.4 million by 2027. The Asia-Pacific marijuana market was valued at USD 5,606.68 million in 2021 and is anticipated to reach USD 7,213.34 million in 2022, expanding at a CAGR of 28.47% to reach USD 25,210.70 million in 2027. Europe, Middle East, and Africa marijuana market was valued at USD 7,465.69 million in 2021 and is anticipated to reach USD 9,483.24 million by 2022, growing at a CAGR of 27.91% to reach USD 32,709.92 million by 2027.

According to Ouanhlee (2022), numerous researches indicates that the marijuana market in the United States has the potential for sustained economic growth. The marijuana market appears to be poised for a significant growth surge in the future, even though the industry may take some time to mature, given that certain states oppose legalization. The analysis of projections made by various institutions linked with the legalization of marijuana indicates that the market remains poised to promote the industry's practical economic benefits. For example, the Tax Foundation continues to make compelling arguments for the expanding medical and recreational marijuana markets.:

- i. In the next few years, the legalization of marijuana is projected to generate at least \$28 billion in tax revenues for federal, state, and local governments, with \$7 billion coming from the federal government in the form of \$5.5 billion in corporate taxes and \$1.5 billion in income and payroll taxes.
- ii. The foundation anticipates that revenue from legalized marijuana will increase in proportion to the Gross Domestic Product (GDP). For example, the annual value of the marijuana industry in the United States is \$45 billion, or nearly 0.28 per cent of the country's gross domestic product, and it accounts for approximately 26 million pounds of marijuana usage.
- iii. Similar state taxes on marijuana, like those in California, Washington, and Colorado, may increase state tax revenues by \$13 billion globally, in addition to \$5 billion from conventional sales taxes, while excluding the illicit market.

In addition, the Marijuana Policy Group (MPG) conducted research indicating that after two years of legalization, the marijuana industry generated \$2.39 billion in revenue and over 18,000 jobs in Colorado alone. In 2015, total marijuana sales in

Colorado increased to \$996 million. MPG also projects that by 2025, the market for marijuana products will increase by at least 18%, becoming the second-largest source of expanding excise tax revenue in states such as Colorado, generating \$121 million in excise tax revenues and combined sales. In addition, MPG reports that the cannabis industry in Colorado is currently larger than theatres, sports arenas, bakeries, grain farming, gas and oil wells, and coal mining combined. This estimate indicates that by 2025, the marijuana industry will exceed several established industries.

However, there is concern among those who oppose this strategy regarding the consequences of its implementation. The concerns are related to the well-being of children and adolescents with access to legally available drugs, the increase in deaths due to accidents or drug overdoses, and the side effects of marijuana, whether taken in a controlled manner or continuously, which may lead to the development of drug dependence and other harmful effects that will result from the implementation of this policy.

2.0.2.1 COLORADO, UNITED STATES

According to Monte et al. (2015), in November 2000, the Colorado state constitution was amended to allow patients with "chronic debilitating medical conditions" to use medicinal marijuana. 55% of voters approved Amendment 64 in November 2012, which legalized the retail sale, purchase, and possession of marijuana by state residents and tourists over the age of 21, and retail marijuana establishments began selling to customers on January 1, 2014. Although rules differ between the two markets, medical and retail marijuana products are identical. In Colorado, for instance, there is no minimum age requirement, but only state residents may legally purchase

medical marijuana. The legalization of marijuana in Colorado has had various repercussions on the inhabitants' health.

Increased healthcare utilization due to marijuana exposure is one of the implications of marijuana legalization on the Health System. The association of tetrahydrocannabinol (THC) with psychosis, anxiety and depression symptoms renders the aggravation of underlying mental diseases unavoidable. Because marijuana use frequently co-occurs with other habits that contribute to healthcare visits, it is difficult to evaluate the extent of this increased healthcare consumption. The combination of marijuana and ethanol, for instance, raises the risk of motor vehicle collisions more than either substance alone. However, the number of visits for pure marijuana intoxication has increased. The emergency department at the University of Colorado sees approximately 2,000 patients per week; an estimated one to two patients per week present solely due to anxiety, panic attacks, vomiting, and marijuana intoxication, and ten to fifteen for other nonspecific symptoms precipitated by marijuana use. Experimentation with new ways to utilize and make THC products has resulted in unanticipated health impacts, such as a rise in the prevalence of burns, cyclic vomiting syndrome, and healthcare visits owing to edible products. The burn center at the University of Colorado has seen a significant increase in marijuana-related burns. A case in point is flash burns that happened during butane-based THC extraction from marijuana plants. The implications on children's health have been the most alarming. The number of children evaluated in the emergency department at Children's Hospital Colorado for unintended marijuana intake jumped from 0 in the five years prior to liberalization to 14 in the two years following medical liberalization. Seven of the fourteen children hospitalized in September 2014 were admitted to the intensive care

unit. Most intensive care hospitalizations were attributable to the consumption of THC-containing edibles. While some seizure disorders may benefit from the cannabidiol component of marijuana, other patients will soon be included in several research trials to evaluate the effect of medical marijuana on seizure disorders. Marijuana undoubtedly possesses anti-inflammatory properties and may benefit certain patients with inflammatory bowel disease. Marijuana may have a safer therapeutic window than opioids for pain management, and an observational study indicated that states with liberal marijuana legislation had fewer opioid-related deaths. Due to increasing availability, the legalization of marijuana has increased the chances for clinical scientists to examine the tremendous health impacts of marijuana. Inconsistent with the science supporting its efficacy, the use of medical marijuana for a wide range of diseases highlights the need for a high-quality study.

2.0.2.2 CANADA

According to Haines-Saah & Fischer (2021), marijuana is Canada's most commonly used illicit substance. Due to the increasingly widespread acceptance of marijuana usage for recreational purposes and the ineffectiveness of the existing control system, legalizing this illegal narcotic has garnered significant public and political interest. In October 2018, the newly elected Liberal Government announced Canada's legalization and regulation of marijuana for non-medical purposes. The legalization of marijuana could generate tax income through the taxation of marijuana goods and save the government money that is presently spent on prohibition enforcement. In addition, legalizing might remove the criminal element from the marijuana industry, diminish the scale of the illicit market in Canada, and keep marijuana out of the hands of children

and adolescents. Nonetheless, it may also contribute to public health issues, such as increased drug use, accidents, and injuries. As Canada progressed through enacting Bill C-45 (the Cannabis Act), a critical issue was whether the "public health approach to legalization with strong regulation driving Federal policy" would safeguard young people from getting marijuana and the potential hazards associated with its use.

After four years of implementation, there has been no rise in marijuana use among Canadian teenagers compared to middle-aged and elder-aged adults (i.e., age 45-64 and age 65 and over) who have reported increases in daily usage after legalization. This pattern holds for Uruguay, the first nation to legalize marijuana for recreational use, in 2013. In 2018-19, the Canadian Student Tobacco Alcohol and Drug Use Survey revealed that 18% of students in grades seven through twelve (about 374,000) reported smoking marijuana in the year before the survey, a figure that remained unchanged from 2016-17. In addition, past-year use remained similar in the post-legalization year for all grade levels but significantly increased for younger students in grades seven to nine, from 6% in 2016-17 to 7% in 2018-2019. While younger people are still more likely to use marijuana, the most current results from Canada's National Cannabis Survey indicate that older persons are now more likely to do so. The illegal market is still prevalent (42%); hence illegal marijuana supply and sources are still prevalent and resilient. Critics of legalization are concerned that legalization will increase the prevalence of youth use. They frequently cite neuroscientific studies indicating that usage before age 25 can be detrimental to the developing brain. As translated for the general public, this message may exaggerate the evidence of danger by implying that there is 'no safe use' for adolescents and that casual or sporadic marijuana use will cause brain damage. Therefore, usage must be avoided,

and all neurocognitive risks are permanent. Persons concerned about legal access for those under the age of 25 tend to use only research involving "high-intensity" and "high-risk" marijuana users to make their case, ignoring the fact that alcohol exposure has similar, if not worse, effects on brain health. The Canadian Psychiatric Association, the Canadian Medical Association, and the Canadian Pediatric Society's fears that legalization would increase the risk of harm to youth have been demonstrated to be primarily incorrect; this should serve as the foundation for moving forward. Targeted intervention approaches are required and should be implemented for those most at risk from marijuana use-related harm while recognizing that on balance, marijuana legalization – especially when considering the severe adverse social impacts of criminalization, and particularly for youth – continues to offer the potential to protect better, and achieve significant net benefits to public health and the welfare of marijuana users.

2.0.2.3 THAILAND

According to Nantthasorn Zinboonyahgoon et al. (2021), Since the early 1930s, marijuana has been classified as a controlled substance in Thailand. Despite this, the swift promulgation of new regulations in February 2019 made Thailand the first and only country in South East Asia to allow medical marijuana. Regardless of the controversies surrounding the medical indications, the push for the "liberalization" of cannabis's therapeutic uses has resulted in a complex situation affecting the public and the healthcare system.

The passage of the Narcotic Act (No. 7, 2019) in February 2019 allows the medical use of cannabis, and section 22 of the act provides a 90-day amnesty for

anybody possessing marijuana for medical purposes between February 27 and May 21, 2019. The fact that tens of thousands of individuals requested amnesty through the Food and Drug Administration of Thailand (Thai FDA) is evidence of the widespread illicit usage of marijuana in Thailand.

The Thailand government devised a multilayered system of protections, including implementing manufacturing and prescription standards and a monitoring and assessment system. To assure product safety, the Thai Food and Drug Administration (FDA) and the Ministry of Public Health (MOPH) collaborated with other partners to build a secure "supply chain" for CBM. In Thailand, three categories of cannabis-based medicines are permitted for therapeutic use. The first, introduced in June 2019, consists of CBMs of medicinal quality manufactured by two official producers (the Government Pharmaceutical Organization and Chaophraya Abhaibhubbhr Hospital). The second category comprises TTM products containing cannabis as an active component. The Department of Thai Traditional and Alternative Medicine (DTAM) selected 16 formulas based on the TTM manuals for various diseases, including insomnia, stroke, muscle spasms, low appetite, and chronic pain⁸. The third type consists of traditional medicines made by registered traditional healers. Despite this, after one year of implementation, people continued to obtain cannabis-based goods through traditional healers and underground markets because of the limited availability of legal items and prescribers.

Surveys were conducted at the Pain Clinic at Siriraj Hospital in Bangkok, including 118 patients in January 2020. The survey results show that almost 20% of patients report using marijuana products for therapeutic purposes (5% are still using, 7.5% have used once and stopped, and 7.5% have applied for a period but have already

stopped). The reported reasons for continued use include cancer pain relief, hunger stimulation, sleep help, and cancer treatment. In addition, 30% of patients acquire legalized CBMs, of which two-thirds are pharmaceutical-grade goods prescribed by western medicine professionals, and one-third are TTM formulas supplied by TTM practitioners. 70% of the patients possessed unauthorized cannabis-based products bought online or through neighbors. It is estimated that the price of unapproved products is ten times that of medicinal-grade drugs. Despite the widespread use of medicinal marijuana, there is still a dearth of awareness among patients. 20% of the patients surveyed believe marijuana can cure cancer. In contrast, 47% and 22% of the sample believe marijuana can relieve cancer pain and chemotherapy-induced nausea and vomiting, respectively. Furthermore, 28% of patients believe they have sufficient knowledge to utilize cannabis-based products. This finding is reinforced by the second poll of 106 physicians who received marijuana training for medical purposes. Only 11% of the doctors surveyed believed that their patients had a sufficient understanding of the safe medical use of cannabis-based medications. The National Institute of Development Administration performed a poll regarding public awareness of medicinal marijuana in Thailand. Out of 1257 individuals, 17.5% were interested in cannabis-related material, 35% were not, and the remaining showed some interest. Even after one year of implementation, the poll results indicate a lack of knowledge about medical marijuana in Thailand.

Between January 2018 and May 2019, the Ramathibodi Poison Center, a 24-hour national toxicology consultation service, recorded a total of 302 cases of adverse effects from cannabis-based product exposures. The incidence of reported ill effects of cannabis oil increased in the two to three months preceding the legislation change and

has continued to rise since then. From the Center's data, the most often utilized cannabis-based products are oil (79.5%) and smoking (12.6%), but no deaths have been documented. In contrast, following statistics of supervised prescriptions monitored by the Thai FDA from June 2019 to December 2019 indicate that reports of side effects of cannabis-based medicines are generally modest (5%) and milder (dry mouth and dry throat (4.2%) and abnormal renal function (0.8%). Even though these data sets were gathered from various sources and periods, they demonstrated the potential benefits of regulated and monitored marijuana use for medical purposes.

2.0.2.4 URUGUAY

According to Laqueur et al. (2020), Uruguay became the first country to legalize the sale, cultivation, and distribution of marijuana for recreational use in December 2013. In this legislation, the government retains control over all large-scale production, registration is required, weekly purchases are limited, and all types of advertising are prohibited. Citizens over 18 are permitted by Uruguayan law to buy marijuana through one of three channels; home growing, marijuana social clubs, or pharmacies. Individuals may only access one of these three supply systems, and there are restrictions on the amount that may be cultivated (six plants) or purchased (one ounce) (no more than 10 g per week).

Although more than 60% of Uruguayans opposed legalization at the time of implementation, the government still enacted a new act of legalization in Uruguay. The legalization of marijuana for recreational use in Uruguay was intended to abolish the illegal drug trade and its associated violence and harms to public health. The main objective of this study was to explore the effects of legalization and assess marijuana

use among adolescents in Uruguay. Although those under 18 cannot purchase or consume marijuana in Uruguay, legalization still may affect adolescents marijuana use through a variety of processes.

According to the findings of this study, there is no evidence to substantiate the increased usage of marijuana among adolescents in Uruguay, though as of November 2018, 31,565 persons had registered to purchase marijuana at pharmacies, 6,980 individuals had registered as home producers, and 2,831 were members of marijuana clubs. This condition may be the result of the gradual application of policies. Registration for home grows started in August 2014, then marijuana clubs began in October 2014, and pharmacy access became available in July 2017. The Uruguayan government's approach to regulating the marijuana supply may mitigate the impact of legalization on youth marijuana use. Following legalization, there was only an increase in the perception of marijuana availability (58% against 51% for synthetic control), particularly in rural areas.

2.1.2.5 CONCLUSION OF ECONOMIC, SOCIAL, AND HEALTH IMPACTS

Studies undertaken in the United States, Canada, Thailand, and Uruguay indicate that marijuana decriminalization has both positive and negative consequences. Hospitals in Colorado and Thailand have documented increased reports of marijuana-related adverse effects and accidents involving unintentional marijuana consumption by minors. In addition, the combination of marijuana and alcohol increases the risk of automobile accidents in the United States. This implementation failed to restrict the illicit market sale of marijuana in Canada. In contrast to opioids, cannabis effectively treats cancer symptoms and relieves pain. This study also proves no evidence of

increased marijuana use among adolescents in Canada and Uruguay. Because this study was conducted during the initial implementation of this policy in that country, it is too early to conclude the policy's unintended consequences; further research is necessary to determine its actual impact.

2.1 THEORETICAL

2.1.1 SOCIAL LEARNING THEORY

The study will use social learning theory to see how the environment and personal factors significantly affect the level of acceptance of the decriminalization of medical marijuana in Malaysia and the perceived risk of medical marijuana. Numerous kinds of research on this topic have shown that a person's acceptance of the legalization or decriminalization of marijuana depends on their demography, lifestyle, environment, life experiences, and other things. These elements all influence and contribute to how they make decisions.

Albert Bandura and Richard Walters think the social learning or socio-cognitive approach is interactional, interdisciplinary, and multimodal (Bandura, 1977, 1982). Environment, personal factors (beliefs, desires, expectations, self-perceptions, and interpretations), and individual behaviour interact triadically in social-cognitive theory. According to LaMorte (2019), the social cognitive theory incorporates the notion that learning occurs in a social context "with a dynamic and reciprocal interaction between the person, environment, and behaviour" and a cognitive context that considers past experiences that shape engagement in behaviour. Learning involves interacting with the environment and creating permanent changes in knowledge or behaviour that enhance

human performance (Driscoll, 1994). In the social-cognitive paradigm, the effects of environmental events on behaviour are primarily determined by cognitive processes that govern how an individual perceives and interprets environmental influences. A fundamental assumption is that individuals are capable of self-directed behaviour change and are the agents of change. According to Bandura (1982, 1997), self-efficacy is the individual's belief or anticipation that he or she can master a situation and bring about the desired change. After interacting with others who effectively model interpersonal skills, one form of social learning is how individuals gain practical social abilities (Corey, 2013).

According to Nabavi (2012), learning theories see the environment as the primary factor in human development. We gain knowledge from our social interactions with others. By observing the behaviours of others, individuals independently develop similar behaviours. People assimilate and imitate the behaviour of others after observing it, mainly if their observational experiences are positive or include rewards related to the observed behaviour. Bandura states that imitation involves the actual reproduction of observed motor behaviours. Because it encompasses attention, memory, and motivation, this theory is often referred to as a bridge between behaviourist learning theories and cognitive learning theories (Muro & Jeffrey, 2008). In this regard, Bandura believes that direct reinforcement cannot account for all types of learning. Therefore, he added a social component to his theory, arguing that people can learn new information and behaviours by observing others when witnessing positive or rewarding experiences (Nabavi, 2012). Observation, imitation, and modelling are the three general principles of this theory for learning from one another. It is assumed that the principles of social learning operate similarly throughout life. Initially, people can acquire

knowledge through observation, also known as observational learning. The second essential factor for learning is mental states, also known as intrinsic reinforcement. Lastly, it refers to the fact that learning does not necessarily result in a behaviour change and follows the modelling process.

2.2 PREVIOUS STUDY

Based on the previous study, Ramat Dapari et al. (2022) have studied how adults in Selangor perceived about the decriminalization of medical marijuana in 2022. The study involved 462 responses from 18 years and above residing in Selangor to determine the prevalence and factors associated with acceptance towards the decriminalization of medical marijuana among adults in Selangor. The result from the study show acceptance level towards decriminalization in Selangor is considerably high (64.7%) and only nine of the independent variables made a statistically significant contribution to the study. At the same time, those with a high education level and a history of smoking and substance use are more likely to support this policy's implementation than those not including that criterion. It is also the same for individuals with a favourable view of marijuana, like they have a low perception of the risk of medical marijuana use and a high perception of approval of medical marijuana use.

The study by Alexis et al., (2021) suggest that those who have already begun abusing substances may have unique opinions regarding the legalization or decriminalization of marijuana. This study was conducted in the United States, involving 506 substance users. The finding from the study shows those who are currently partaking in drug use or are at a severe level are more likely to advocate for the legalization or decriminalization of the type of drug they use than those who have

been clean or refrained from drug use. At the same time, the type of material used by a person may also be a factor that affects their acceptance; for example, people who use marijuana are likely to be more inclined to favour legalization or decriminalization than those who use opiates, cocaine, or heroin. Meanwhile, this study also shows that although they have a history with drugs, not all support implementing this policy. This rejection may be due to the experiences they have been.

Lindsey et al. (2019) conducted a study in 2018 at the Mayo Clinic in Southeastern Minnesota, United States. The study's objective was to evaluate the attitudes, beliefs, and knowledge about medical marijuana among primary care practitioners because healthcare providers are crucial to facilitating patient access to medical marijuana. However, recent surveys indicate that just a minority of physicians believe that medical marijuana provides patients with benefits. Recently, significant new information regarding the possible benefits and risks of medical marijuana has surfaced. Understanding providers' current views and beliefs may shed light on their continued problems as states extend medicinal marijuana access.

Therefore, the 16-item survey was designed to address the following three sections; Provider characteristics and knowledge, Provider attitudes and beliefs regarding medical marijuana as a therapy in general, and provider beliefs about specific disease and symptom control and perceived benefits to patient quality of life. In this study, 76 percent of respondents were physicians out of a total of 199 respondents. However, only 62 providers from all respondents completed the study.

A majority of physicians agreed that medicinal marijuana was a genuine medical therapy ("strongly agree" or "somewhat agree"), and more than one-third believed that clinicians should offer it to patients to manage medical illnesses. A majority believed it

could effectively treat symptoms connected with medical illnesses. However, 38.7% said it has substantial interactions with medical therapies. Nearly all clinicians knew that some patients unlawfully used marijuana to treat symptoms or medical issues. They believe that marijuana acquired lawfully is safer than that obtained illegally. Cancer, terminal disease, and intractable pain are the qualifying medical conditions that most providers believe medical marijuana assisted in treating. Half of the providers thought it was beneficial for muscle spasms. Over one-third of respondents said medical marijuana was beneficial for glaucoma, while 42% believed it was adequate for treating seizures. Most doctors did not know if it was sufficient for treating Tourette syndrome, amyotrophic lateral sclerosis (ALS), inflammatory bowel disease, post-traumatic stress disorder, or autism. Most providers agreed that medical marijuana efficiently treated pain, nausea, vomiting, and anxiety. Over a third believed it was adequate for insomnia management. A minority of clinicians stated that medicinal marijuana enhanced a patient's physical functioning, vitality, mood, the pleasure of life, social involvement, work abilities, and sense of hope.

The study's conclusion has shown that primary care healthcare providers agree that medical marijuana is an excellent medical therapy and safer than illegal marijuana. However, significant knowledge gaps exist about state-mandated medical eligibility requirements, and half of the respondents are unprepared. Few physicians believe that medical marijuana enhances a patient's quality of life, despite most providers stating that some patients unlawfully use marijuana for medical treatment. In addition, there is a gap in the scientific literature concerning the efficacy of medical marijuana for various medical ailments.

Beck et al. (1982) studied the attitudes and perspectives of metropolitan police forces in the United States, focusing on their ideas about the effects of marijuana, law enforcement for possession, and the causes of marijuana usage. Most urban police officers believe marijuana is physically and mentally hazardous, although not necessarily more so than alcohol. While 31% feel that possessing tiny amounts (less than or equal to 1 oz) should be decriminalized, 85% believe that the current laws regarding possessing small amounts are not being enforced. Most believe that peer pressure is the primary reason why people and adolescents begin using marijuana. Another problem is that most parents lack an extensive understanding of the effects of marijuana use on children.

This survey also identifies various elements that influence their perspectives on marijuana decriminalization. Among these criteria include the officer's rank, degree of education, and the presence or absence of children, all of which have a substantial bearing on their marijuana attitudes. Additionally, demographic considerations play a significant role in determining the acceptability of modifications to the current drug regulations.

These studies have shown that each individual has a unique view regarding implementing the decriminalization of medical marijuana. Various individual internal and external factors may influence this variety of views. It can be seen individuals from similar occupation might share similar perspectives on the marijuana. Other than that, the perceptions might be influenced by the individuals' environment, personal factors (beliefs, desires, expectations, self-perception, and interpretation), and behaviour.

2.3 CONCLUSION

This chapter examines the pharmacodynamics of marijuana and its possible economic, social, and health effects and studies pertinent to the current investigation. Other than that, this study viewed Albert Bandura's Social Learning Theory as the primary theoretical model to explain how experiences, environment, and social factors (such as parents, school, friends, and community groups) likely influence a person's thinking style tendencies. This way of thinking can influence their acceptance or rejection of something.