**Introduction**

This report examines the nature, history and use of the opiates – the psychoactive prescription drugs. The discussion remains focused on Australia. The report provides a brief description of the chosen drug including its psychoactive effects, a brief history of the drug including its initial use, a critical examination of why the drug has been criminalised, an examination of which groups in Australian society are considered most ‘at risk’ in relation to the chosen drug.

**Brief Description of Opiates**

Psychoactive prescription drugs such as analgesics, stimulants, tranquilizers, and sedatives are substances that contain the ability to change the thinking processes, moods, and consciousness of the people taking them (WHO, 2004). The harms associated with psychoactive substances, particularly opiates such as fentanyl, hydromorphone, and oxycodone are a significant patient safety and public health issue in Australia today. According to Australian Institute of Health and Welfare (2018), 3.6-percent of people aged 14 or above consumed pharmaceutical opiates for non-medical reasons in 2016. It is prescribed for two reasons: the treatment of heroin and other substance dependence and pain management.

Opiate medication such as oxycodone and hydrocodone are central nervous system depressants. Their primary mechanism of action revolves around different neurotransmitters such as dopamine (Olpe *et al.,* 1983). These depressants are responsible for producing lethargy in higher doses and sedation in mild doses, generating a rather relaxed form of euphoria, and thus, slowing the function of neurons down in the central nervous system (Finnegan & Fehr, 1980). Overall, central nervous system depressants produce similar psychoactive effects as people experience on consuming alcohol in moderate quantity. For this reason, opiates are addictive. However, the individuals taking them continuously will experience problems with motor coordination to a high degree, interference with their ability of rational decision-making and judgement to a high degree, and the overall pain-relieving effects of opiates to a high degree (Morgan & London, 2017). The patients are also highly prone to self-harm.

People using opiates chronically become physically dependent on the drug in the long run. Moreover, it can cause potential organ damage. The central nervous system depressants slow down the functioning of neuron in the brain area known as the brain stem. It maintains automatic actions such as heart rate and breathing. Therefore, continuous dosage of opiate causes significant suppression of heart rate and breathing. It results in decreased amount of oxygen to organs and tissues. Reduced oxygen supply to the brain causes neurons to die. It can lead to irreversible brain damage (Kapitány‐Fövény *et al.,* 2017). Also under the effect of the drug, individuals are more likely to operate machinery such as driving a car, engage in unprotected sex, and share needles.

However, the misuse or overuse of the medicine can result in physical harm, overdoes, dependence and in worse case, death. It was responsible for approximately 0.9-percent burden of injuries and disease in Australia in 2011 (AIHW, 2018). A further 7.8-percent of the burden came from self-inflicted injuries and suicide (AIHW, 2018). Primarily, most of the burden of the medicine was due to opioid dependence (29-percent) and accidental poisoning (63-percent) (AIHW, 2018). Moreover, the opiate-related hospitalization and deaths have increased in the recent years. The rate of hospitalization was 37 per 100,000 people in 2015-16 (AIHW, 2018). It was 33 per 100,000 people in 2011-12, i.e., a 12-percent has been observed (AIHW, 2018).

Medical treatment for overdose and acute poisoning of opiate is provided to the admitted patients in the Australian hospitals by emergency departments whereas the general practitioners cater non-admitted patients. Additionally, Alcohol and Other Drug Treatment Services (AODTS) are also available for people using, misusing or are being dependent on the drug (AIHW, 2018). These treatments include pharmacotherapy, withdrawal management, support and case management, rehabilitation, information and education, and/or counselling. In 2016-17, as opiate pharmaceutical such as methadone, fentanyl, oxycodone or codeine was a drug of concern in 6.8-percent of closed treatment episodes and the principle drug of concern in 3.3-percent of closed treatment episodes (AIHW, 2018).

**Brief History of Opiates**

Finding the exact time of the first cultivation of the opium poppy is difficult. Also, the ambiguous details of drugs by the earlier authors have made it hard to use the written records for deciphering the history of use and abuse of opium. However, Homer has provided the first preparation of opium poppy plants (Brownstein, 1993). He gave the details to the daughter of Zeus named Helen, who transferred the recipe to Telemachus and his friends to help them forget their grief over the absence of Odysseus (Brownstein, 1993). All of this Homer’s preparation is attributed to Theophrastus’s imagination. He was highly aware of the method of making opium. However, some of the other ancient authors such as Diskourides explained that the Homer’s drug contained henbane, i.e., scopolamine’s active ingredient (Brownstein, 1993). Most modern pharmacologists such as Lewin (1931) and Schmiedeberg (1918) believe that Helen administered the drug to the individuals whereas Kritikos and Papadaki (1967) elaborated the fact that the men did not experience any of the consequences of the drug because they were the habitual users of it.

Although the ancient picture of the early use of the opium plant as a medicine is difficult to draw, it helps in emerging a picture of use and abuse of opium in the old times. The fact that the Sumerians, by the ending of the third millennium B.C., cultivated poppy plants and isolated opium from them in the area covered by the current Iraq enjoys a general agreement (Brownstein, 1993). Therefore, it appears that opium spread from Sumeria to the old world (Brownstein, 1993). The use of opium must have been confined in religious rituals by the priests who also healed the gods of deaths and sick people (Brownstein, 1993). Most authors such as Dwarakanath (1965) and Fort (1965) believed that, between the tenth and thirteenth century, the early Arab traders transported opium in China and India. During this period, opium also made its way to all of Europe from Asia (Brownstein, 1993).

Manuscripts from the sixteenth century largely indicate misuse and addiction of the drug primarily in the countries of England, Germany, Egypt and Turkey (Brownstein, 1993). However, the problem was nowhere greater than it happened to be in China (Brownstein, 1993). Efforts to limit sale of opium were made unsuccessful because British (later joined by French) forced China to permit trade and consumption of the drug (Brownstein, 1993). In the nineteenth century, Serturner (1806; 1817) isolated the active ingredient of opium and traded it as morphine. It began to be used as an adjunct to anesthetics, for post-operative and chronic pain, and for minor surgical procedures after the invention of syringes and hollow needles in the late nineteenth century (Brownstein, 1993).

Unfortunately, opium is as addictive as opium itself. Thus, it has the same potential to be abused by the users. Also, it was not safe to use. Eventually, a significant scientific effort was being made for making developing a more efficacious, safer, non-addicting opiate (Brownstein, 1993). Later, heroin was synthesized. The search for synthetic opiate resulted in discovery of meperidine (Eisleb & Schaumann, 1939). It has a structure completely different from the traditional morphine. The synthesis of methadone in early twentieth century followed it (Scott & Chen, 1946). It is another structurally different component.

Later in the twentieth century, Weijlard and Erikson (1942) produced nalorphine as an antagonist for precipitating the abstinence syndrome in addicts and reversing the morphine caused respiratory depression. Despite these abilities, the drug is an analgesic agent. For this reason, its usage as a painkiller is limited (Brownstein, 1993). It produces dysphoria and anxiety in the users (Brownstein, 1993).

By the mid-1960, it became clear the opiate agonists, antagonist, and mixture of agonists and antagonists had adverse effects on the users (Brownstein, 1993). The early scholars such as Goldstein *et al.* (1971) suggested that the consequences of the drug could best be understood by observing the actions of the receptors. They further elaborated the fact that radiolabeled drugs must be tested for determining these receptors and characterizing them in this regard. However, the efforts went in vain (Goldstein *et al.,* 1971). Later, Terenius (1973), Simon *et al.* (1973)*,* Pert and Synder (1973) simultaneously showed stereospecific opiate binding sites in central nervous system. They also successfully found non-uniform distribution of receptors in there (Hiller *et al.* 1973; Kuhar *et al.* 1973). At the same time, it was argued that the targets of neurotransmitters might be the opiate receptors (Brownstein, 1993). Akil *et al.* (1976) found that analgesia was induced by foot-shock stress and strengthened the argument. They stressed that release of opiate like compound was a result of stress (Akil *et al.,* 1976).

In the late twentieth century, scientists observed presence of a factor in the brain extracts of the guinea pig ileum (Kosterlitz & Waterfield, 1975). The factor inhibited acetylcholine release from the nerves of the brain extracts (Kosterlitz & Waterfield, 1975). Naloxine blocked this inhibition. The factors were later identified as Leu-enkephalin, Met-en-kephalin, and pentapeptides (Hughes *et al.,* 1975). Soon Met-enkephalin sequence was discovered (Bradbury *et al.* 1976). In 1981, another group of peptides similar in structure to enkephalins was identified (Goldstein *et al.,* 1981). Lastly, phyllomedusa bicolor, a fourth family of opiate peptides, was found in 1989 (Erspamer *et al.,* 1989).

**Why Opiates Have Been Criminalised?**

Opiates have been criminalized in Australia on racial basis. Throughout the nineteenth century, Chinese immigrants imported smoking opium in Australia for recreational use while the therapeutic use of the drug remained largely unregulated. The practice was accepted by 1880s due to its large revenues derived from the taxation duties (Victorian Parliamentary Papers, 1871). However, Rev. W. Young (1868) raised the concerns about the smoking opium in his 1868 report, which argued that if the use is continued, the population will be destroyed, happiness ruined, wealth dissipated, pauperism produced, crime perpetuated, character and influence degenerated, trade and commerce lessened, and public morals corrupted (Young, 1868).

Such sentiments also flamed due to the presence of the European women in the Chinese community. John Wood declared that the adverse effects of opium use would become inconsolable if the Chinese suffered the same fate, which fell on the first-born of Egypt (Victorian Parliamentary Debates, 1874). He was further concerned about the young white girls being systematically decoyed in the filthy Chinese dens (Victorian Parliamentary Debates, 1874). However, no colony was ready to do it alone despite growing hysteria on the topic.

The beginning of the twentieth century in Australia witnessed the light of serious drug control in the country. The States responsibly made drug policies whereas the Commonwealth exercised them over duties and customs under the Customs Act 1901, which prohibited import of certain drugs. Later, The Opium Proclamation 1905 was passed with fear of a colonial monopoly. However, the racial basis of the prohibition became clear due to the General Order 956 of the Department of Trade and Customs (Manderson, 1987). When asked, the department replied that they wanted to protect white people (Victorian Parliamentary Debates, 1905).

**Australian Groups Considered Most at Risk of Opiates**

**1. Cancer Patients:** Psychoactive prescription drugs such as analgesics, stimulants, tranquilizers, and sedatives are commonly provided to the cancer patients for pain treatments of chemotherapy and other related methods. The pain comes from the cancer itself, the procedures of diagnosis of the type of cancer, and then from the treatments or their consequences. For this reason, in Australia, the opiate-related hospitalization and deaths have increased in the recent years. The rate of hospitalization was 37 per 100,000 people in 2015-16 (AIHW, 2018). It was 33 per 100,000 people in 2011-12, i.e., a 12-percent has been observed (AIHW, 2018). For all of these reasons, cancer patients are more likely to adversely affect from the drug.

**2. Pregnant Women:** many pregnant women experience pains during pregnancy such as migraines, pelvic pains or low back pains. Generally, opiates are prescribed to pregnant women for acute pains. However, the potential risks must be analysed before prescribing the drug. According to Mayo Clinic (2019), pregnant women are prone to opiate dependency. It can result in several complications such as inflammation of the fetal membranes, postpartum heavy bleeding, miscarriage or fetal death, preeclampsia, fetal growth restriction, preterm labour and premature birth, premature ruptures of membranes, and placental problems including placental insufficiency and placental abruption (Mayo Clinic, 2019). Moreover, if the pregnant woman becomes opiate dependent during her pregnancy, the child may experience withdrawal syndrome. The symptoms of which include poor sleep, high-pitched cry, irritability, uncoordinated sucking reflexes resulting in poor feeding, diarrhoea, jitteriness, and tremors. For all of these reasons, pregnant women are more likely to adversely affect from the drug (Mayo Clinic, 2019).

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